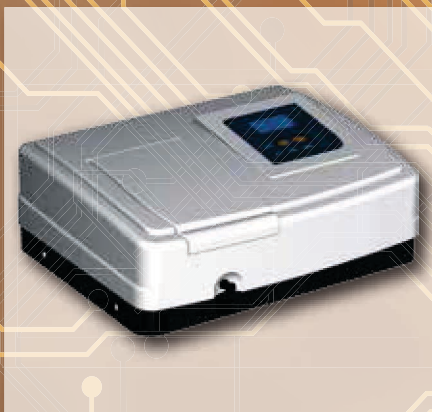


SpectroPhotometers



mrc



SPECTRO-V11D

Features:

- Large LCD Screen (128x64 Dots).
- Wavelength can be read out from the screen directly.
- Auto Zero and Blank.
- Parallel port, printed directly.
- Large sample compartment, it can accommodate 5-100mm path length cuvettes with optional holders.
- Pre-aligned design ensures the user can change lamp conveniently.
- Optional software PC software M.Wave Professional can expand the applications to Standard Curve Kinetics & wave length scan.
- High quality silicon photometric diode detector and 1200 lines/mm grating ensure high accuracy and precision.

SPECTRO V11D/UV11D

V11D is the only model of manually setting wavelength in MRC families, but precise design and high quality components ensures excellent performance. It is widely used in high schools & colleges for general analysis & experiments. Include basic software, 10mm 4 cell Holder 4x Glass 10mm cuvette.

Model	SPECTRO-V11D	SPECTRO-UV11D
Wavelength range	325-1000nm	200-1000nm
Spectral Bandwidth	4nm	
optical system	Single Beam , Grating 1200 lines/mm	
Wavelength Accuracy	±2nm	
Wavelength Repeatability	1nm	
Wavelength Setting	Manual	
Photometric Accuracy	≤ ±0.5%T or ±0.003A@1A	
Photometric Range	0-200%T , -0.3 -3A, 0-1999Conc.	
Stray Light	0.3%T	
Stability	±0.004A/h @500nm	
Display	128*64 Dots LCD	
Photometric Mode	T, A, C, F	
Detector	Silicon Photodiode	
Standard Cell Holder	4-position 10mm cell changer	
Sample Compartment	Standard 10mm pathlength cuvette	
Light Source	Tungsten Lamp	Tungsten & Deuterium lamp
Output	USB Port & Parallel Port (printer)	
Power Requirement	AC 85V~265V 50/60Hz	
Dimensions (WxDxH)	480x360x160mm	
Weight	10kg	12kg



SPECTRO-V12

SPECTRO-V/UV-12, UV-11 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. They are widely used in colleges and enterprises for general quantitative analysis and experiments. Include basic software, 10mm 4 cell Holder 4xGlass 10mm cuvette.

SPECTRO-V12/UV12/UV11

Features:

- Large LCD screen(128x64 Dots)
- Can display total 50 groups of data, 3 groups per screen. Can display standard curve and the curve equation.
- System can also save the test results. Total 200 groups of data and 100 standard curves can be saved; it is convenient for check and reload.
- Data can be restored after a sudden power cut.
- Auto setting wavelength.
- Tungsten lamp & Deuterium lamp can be tuned on/off individually to extend lifetime.
- Pre-aligned design makes it convenient to change lamps.
- Large sample compartment, it can accommodate 5-100mm path length cuvettes with optional holders. A variety of optional accessories are available.
- The optional application software M.Wave Professional provides complete control of the spectrophotometer through the Built-in USB port. You can achieve the following functions: **I.** Quantitative; **II.** Kinetics; **III.** Wavelength Scan; **IV.** Multi Wavelength; **V.** DNA/Protein.

Model	SPECTRO-V12	SPECTRO-UV12	SPECTRO-UV-11
Wavelength range	325-1000nm	200-1000nm	
Spectral Bandwidth	4nm		
optical system	Single Beam , Grating 1200 lines/mm		
Wavelength Accuracy	±2nm		
Wavelength Repeatability	0.8nm	1nm	
Photometric Accuracy	≤ ±0.5%T or ±0.003A@1A		
Photometric Range	0-200%T , -0.3 -3A, 0-9999Conc.		
Stray Light	0.3%T		
Stability	±0.002A/h @500nm		
Detector	Silicon Photodiode		
Standard Cell Holder	4-position 10mm cell changer		
Sample Compartment	Standard 10mm pathlength cuvette		
Light Source	Tungsten Lamp	Tungsten & Deuterium lamp	
Output	USB Port & Parallel Port (printer)		
Power Requirement	AC 110/220V 50/60Hz		
Dimensions (WxDxH)	470x370x180mm		
Weight	12kg	14kg	



SPECTRO V-16/UV-16/V-18/UV-18 Series

MRC 16/18 Series are simple-to-use instruments with advanced performance, its stray light is only 0.05% T. The local stand-alone software provides functions of Photometry, Quantitative Test, Kinetics and System Utilities functions.

Model	SPECTRO-V16 SPECTRO-V16PC	SPECTRO-V18 SPECTRO-V18PC	SPECTRO-UV16 SPECTRO-UV16PC	SPECTRO-UV18 SPECTRO-UV18PC
Wavelength range	320-1100nm		190-1100nm	
Spectral bandwidth	4nm	2nm	4nm	2nm
Optical system	Single beam, grating 1200 lines/mm			
Wavelength accuracy	±0.5nm			
Wavelength repeatability	0.3nm			
Photometric accuracy	≤±0.5%T or ±0.003A@1A			
Photometric range	-0.3 -3A, 0-200%T, 0-9999Conc.			
Stray light	≤0.05%T@360nm		≤0.05%T@220nm, 360nm	
Stability	±0.002A/h @500nm			
Display	Graphic LCD(128*64dots)			
Keyboard	22 membran keypad			
Standard cell holder	Standard 10mm pathlength cuvette			
Sample Compartment	4-position 10mm cell changer			
Light source	tungsten	tungsten & Deuterium lamp		
Output	USB Port & parallel port (printer)			
Power requirement	AC 110/220V 50/60Hz			
Dimensions (WxDxH)	470x370x180mm			
Weight	12kg		14kg	

Features:

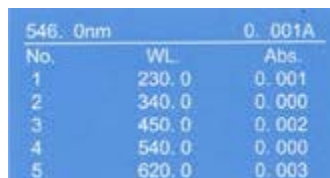
- Large LCD screen(128x64 Dots)
- System can also save the test results, total 200 groups of data 100 standard curves can be saved in the RAM. Convenient for check and reload.
- Data can be stored after a sudden power cut.
- Auto setting wavelength.
- Tungsten lamp & deuterium lamp can be tuned on/off individually to extend lifetime.
- The optional application software M.Wave Professional provides complete control of the spectrophotometer from a computer through the Built-in USB port. It can expand to the following functions: Quantitative, Kinetics, Wavelength Scan, Multi-wavelength& DNA/Protein Test.

- Pre-aligned design makes it convenient to change lamps.
 - Large sample compartment, it can accommodate 5-100mm path length cuvettes with optional holders. A variety of optional accessories are available.
- Include basic software, 10mm 4 cell Holder 4xGlass 10mm cuvette.

MRC 16/18 Series Local Control Software



Main Menu



Basic Mode



Quantitative



Kinetics



System Utilities

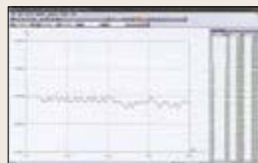
M.Wave Professional PC-Control Software

M.Wave Professional application software is based Microsoft Windows, the instrument can be controlled by PC software through the built-in USB communication port, which makes the UV11 Series with more functions and easy to control.



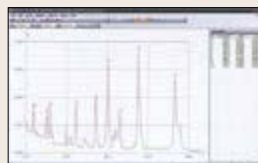
Quantitative:

Use up to 20 standards to establish standard curve. Three methods for fitting a curve:
1-Linear fit 2-Linear through zero 3-Square fit



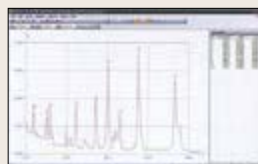
Kinetics:

The Kinetics mode may be used for time course scanning or reaction rate calculations. Abs. Vs. Time graphs is displayed.



Wavelength Scan:

Automatically records peaks and valleys. The quantity of the curves stored is unlimited. Post-run manipulation & processing includes. Re-scaling axes, curve. Smoothing, combination, zooming, overlap... 1st to 4th derivative.



Multi-wavelength Test

You can set up to 20 wavelengths to measure a sample.



DNA/Protein Test:

Optional two formulas: DNA Concentration = 62.9* A260-36.0*A280 Or 49.1*A260-75.8*A280
You can also enter other wavelengths and factors to calculate.

SPECTROPHOTOMETERS VIS – UV Scanning



SPECTRO-UV3, Scanning Spectrophotometer

SPECTRO-UV3 Series is an advanced single beam design consisting of 10 models. They differ in bandwidth and wavelength accuracy, but provide excellent performance for measurements in the range of 190nm to 1100nm. They are suitable for clinical lab applications, pharmaceutical, and bio-chemical, as well as routine applications such as Quantitative analysis, Kinetics, Wavelength Scan, Multi-Wavelength, and DNA/Protein analysis. UV-Vis Analyst application software based Microsoft Windows makes these instruments versatile.

Features: Fixed or variable slits (bandwidths) Sealed, solvent-resistant tactile keypad with alpha-numeric entry for file names and units. Pre-aligned deuterium lamp for easy lamp replacement. The status of the lamps may be monitored Powerful built-in program or PC Windows based software UVVis Analyst including sophisticated utility programs. Data Download-to-PC software for stand-alone models (optional) Real-time clock for date and time stamping of results.

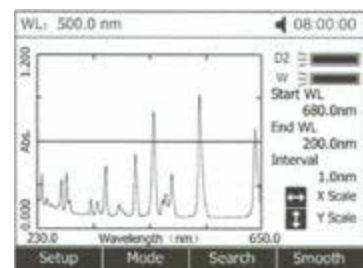
All instruments provide excellent performance for measurements. They are divided into in two types: PC models and stand-alone models.

- In Stand-alone models, all software methods are included as built-in standard; this eliminates the need of software.
- Online software update via internet.
- Data can be downloaded.
- The PC models come standard with Windows based application software UV-Vis Analyst.

Model	SPECTRO-UV30 SPECTRO-UV30PC	SPECTRO-UV31 SPECTRO-UV31PC	SPECTRO-UV32 SPECTRO-UV32PC	SPECTRO-UV32S SPECTRO-UV32PCS	SPECTRO-UV33 SPECTRO-UV33PC
Wavelength range	190-1100nm				
Spectral bandwidth	4nm	2nm	1.8nm	0.5/1/2/4nm	1nm
Optical system	Single beam, grating 1200 lines/mm				
Wavelength accuracy	±0.5nm		±0.3nm		
Wavelength repeatability	0.3nm		0.2nm		
Scan speed	Hi, Med, Low, Max.3000nm/min				
Photometric accuracy	≤±0.5%T or ±0.003A@1A				
Photometric range	-0.3 -3A, 0-200%T				
Stray light	≤0.05%T@220nm, 360nm				
Stability	±0.002A/h @500nm				
Display	5 inches LCD (320x240 dots)				
Baseline flatness	±0.002A(200-1000nm)				
Standard cell holder	Standard 10mm pathlength cuvette				
Light source	Halogen & Deuterium lamp (pre-aligned)				
Output	USB Port & parallel port (printer)				
Power requirement	AC 110/220V 50/60Hz				
Dimensions (WxDxH)	480x360x160mm		600x450x200mm		
Weight	14kg		20kg		

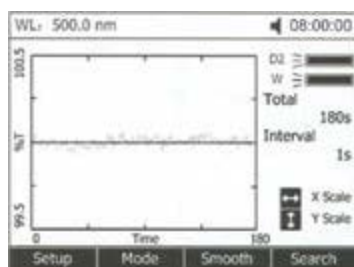
SPECTRO-UV3 Series Local Control Software

All methods are included as built-in standard; this eliminates the need of software. Online software update via Internet. The local control software includes functions such as: Photometry, Quantitative, Wavelength Scan, Kinetics, DNA/Protein, Multi-wavelength and System Utilities.



Standard Curve

Wavelength Scan



Kinetics

Multi-Wavelength

DNA/Protein Test



SPECTRO-UV6 Series

SPECTRO-UV6 Series, Double Beam Spectrophotometer

SPECTRO-UV6 Series is an advanced double beam design consisting of six models.

Stand-alone model:

SPECTRO-UV61 with 1.8nm fixed bandwidth

SPECTRO-UV63 with 1.0 fixed bandwidth.

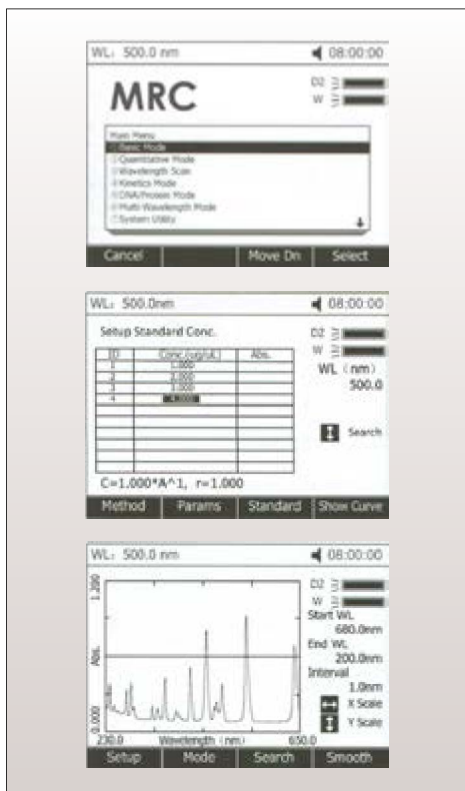
SPECTRO-UV61S with variable bandwidth: 0.5/1/2/5nm

- Fixed or variable slits (bandwidths)
- For Stand-alone models, all software methods are included as built-in standard; this eliminates the need of software.
- Online software upgrade via internet helps to keep it updated.
- Data Download-to-PC software expands the data storage to unlimited.
- The stand-alone models has 5 inch screen and the PC models has UVNiS Analyst software. Stand-alone models of SPECTRO-UV6 Series have the same functions as SPECTRO-UV3 Series, see next page for details.

Other specifications of the six models are almost the same except bandwidth. The two detectors measure sample and reference respectively and simultaneously for optimizing measurement accuracy, They provide excellent performance for measurements in the range of 190 to 1100nm, They are suitable for pharmaceutical, biochemical and clinical lab applications as well as routine applications such as quantitative analyses, kinetics, wavelength scan, multiple components and DNA/Protein, PC Windows application software make these instruments versatile. All instruments provide excellent performance for measurements.

Model	SPECTRO-UV61 SPECTRO-UV61PC	SPECTRO-UV63 SPECTRO-UV63PC	SPECTRO-UV61S SPECTRO-UV61PCS
Wavelength range	190-1100nm		
Spectral bandwidth	1.8NM	1nm	0.5/1/1/4nm
Optical system	Double beam, grating 1200 lines/mm		
Wavelength accuracy	±0.3nm		
Wavelength repeatability	0.2nm		
Scan Speed	Hi, MED., LOW., MAX.3000nm/min		
Photometric accuracy	≤±0.3%T or ±0.002A@1A		
Photometric range	0-200%T, -0.3 -3A		
Stray light	≤0.05%T@220nm, 360nm		
Stability	±0.001A/h @500nm		
Display	5 inches LCD(320*240 dots)		
Baseline Flatness	±0.001A		
Standard cell holder	Standard 10mm single cell holder(2 pcs)		
Sample Compartment	Standard 10mm pathlength cuvette		
Light source	tungsten & Deuterium lamp(pre-aligned)		
Output	USB Port & parallel port (printer)		
Power requirement	AC 110/220V 50/60Hz		
Dimensions (WxDxH)	600x450x200mm		
Weight	22kg		

SPECTRO-UV6 Series Local Control Software



All methods are included as built-in standard; this eliminates the need of software. Online software update via Internet.

The local control software includes functions such as: Photometry, Quantitative, Wavelength Scan, Kinetics, DNA/Protein, Multi-wavelength and System Utilities.

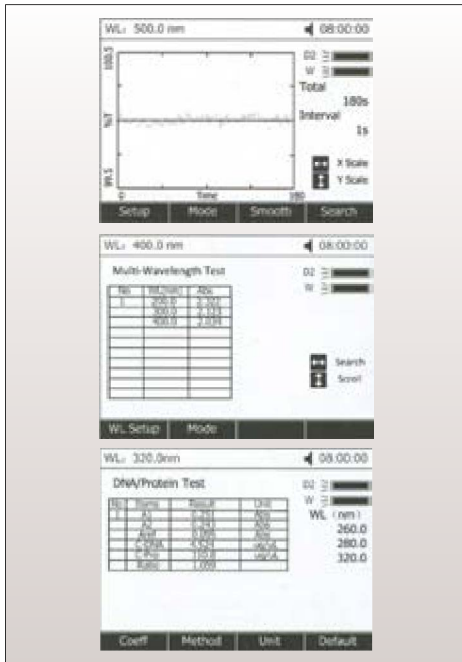
Standard Curve-

Up to 10 standard solutions may be used to establish calibration equation curve. There is a choice of four methods for fitting curve through the calibration points: Linear fit, Linear fit through zero, square fit and cubic fit.

Wavelength Scan

The Wavelength Scan intervals are 0.1, 0.2, 0.5, 1, 2, 5nm, and High, Medium and Low scan speeds are available. Scan speeds vary from 100 to 1000 nm/min. Wavelengths are scanned from high to low so that the instrument stand-by at high wavelength. This minimizes the degradation of UV sensitive samples. Precise control of filter and lamp changes means that their effects are not seen on the final scan. Post-run manipulation includes re-scaling axes, curve tracking and peak picking.

SPECTROPHOTOMETERS VIS – UV Scanning Double Beam



Kinetics

This mode may be used for time course scanning or reaction rate calculations. Abs. vs. time graphs is displayed on the screen in real time. Wait time and measurement time up to 12 hours may be entered with time intervals of 0.5, 1, 2, 5, 10, 30, seconds and 1 min. Post-run manipulation includes re-scaling, curve tracking and selection of the part of the curve required for the rate calculation. Rate is calculated using a linear regression algorithm before multiplying by the entered factor.

Multi-Wavelength

Up to 10 wavelengths may be entered, allowing the measurement of multiple wavelengths on a Series of Samples.

DNA/Protein Test

Concentration and DNA purity are calculated absorbance ratios 260nm/280nm or 260nm/230nm with optional subtracted absorbance at 320nm

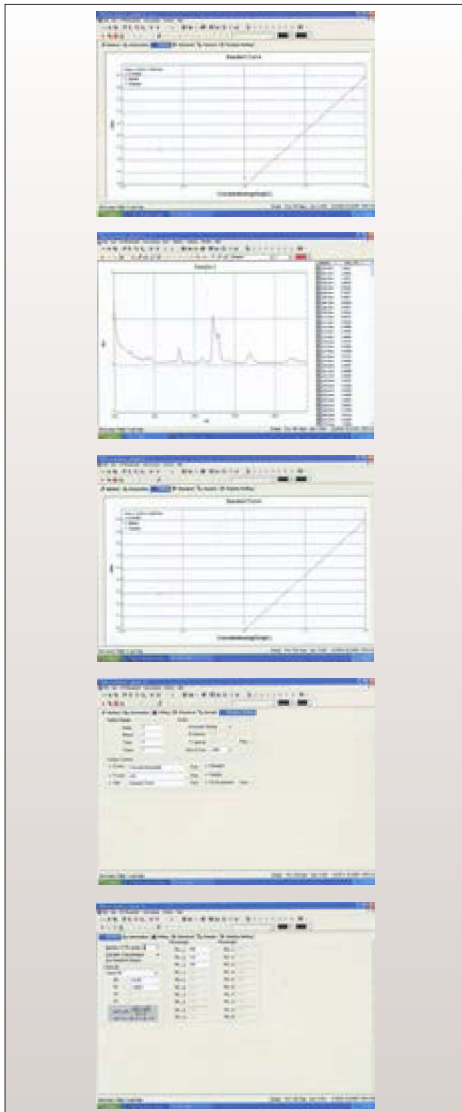
DNA Concentration= $62.9 \cdot A_{260} - 36.0 \cdot A_{280}$ Or $49.1 \cdot A_{260} - 3.48 \cdot A_{230}$

Protein Concentration= $1552 \cdot A_{260} - 757.3 \cdot A_{280}$ Or $183 \cdot A_{260} - 75.8 \cdot A_{230}$

Other wavelengths and factors may be entered.

UV/Vis Analyst for SPECTRO-UV3 & SPECTRO-UV6 Series

The MRC Windows based PC application software UV/Vis Analyst takes the best features of the stand-alone version plus more powerful data processing, expanded data collecting, and storage capability. It comes standard with PC models and is optional to stand-alone models.



The PC application software offers:

- Photometric Mode
- Quantitative test (standard curve)
- Wavelength Scan
- Kinetics
- DNA/Protein
- Multi-Wavelength
- System Utility.

Quantitative Test (Standard curve)

Use up to 20 standards to establish standard curve.

Four methods for fitting a curve:

- Linear fit
- Linear through zero
- Square fit
- Cubic fit

Wavelength Scan

Automatically record peaks and valleys. The quantity of channels is unlimited; you can simultaneously store as many as desired.

Post-run manipulation and processing includes:

- Re-scaling axes, curve
- 1 st to 4th derivative
- Smoothing, combination, zooming, overlap.

Kinetics (Abs vs. Time)

The Kinetics mode may be used for time course scanning or reaction rate calculations. Abs. Vs. Time graphs are displayed on the screen in real time. Waiting time, measurement time and time intervals may be entered.

Post-run manipulation includes re-scaling, curve tracking and selection of the part of the curve required for the rate calculation.

Rate is calculated using a linear regression algorithm before multiplying by the entered factor.

DNA/Protein

Concentration and DNA purity are quickly and easily calculated:

Absorbance ratios 260nm/280nm with optional subtracted absorbance at 320nm.

DNA Concentration= $62.9 \cdot A_{260} - 36.0 \cdot A_{280}$

Protein Concentration= $1552 \cdot A_{260} - 757.3 \cdot A_{280}$

Other wavelengths and factors may be entered.




Multi-wavelength

Up to 20 wavelengths can be selected and multiple samples can be measured. (Auto cell changer is required to run multiple samples automatically)


Accessories – Holder:

				
4-Cell Holder for 10mm Squ. Cuvette	4-Cell Holder for up to 50mm Squ. Cuvette	Reflectance Measurement Attachment (50 incident angle)	Cylindrical Cell Holder	Water-Jacketed Single Cell Holder
				
Micro Cell Holder	Test Tube Holder	8-Position Auto Cell Changer	Solid Sample Holder (Single Cell)	10mm Water-Jacket 4-Cell Holder


Accessories – Others:

		
Thermal Printer	Stylus Printer	1. Peltier Unit 2. Sipper Unit 3. Peltier/Sipper System


Accessories – Cells:

Square Cuvette 

Name&Specifications	P.N	Remark
Square Cuvettes. Glass 10mm	916101	/4pcs
Square Cuvettes. Glass 20mm	916102	/4pcs
Square Cuvettes. Glass 30mm	916103	/4pcs
Square Cuvettes. Glass 50mm	916104	/4pcs
Square Cuvettes. Glass 100mm	916105	/4pcs
Square Cuvettes. Quartz 10mm	916111	/2pcs
Square Cuvettes. Quartz 20mm	916112	/2pcs
Square Cuvettes. Quartz 30mm	916113	/2pcs
Square Cuvettes. Quartz 50mm	916114	/2pcs
Square Cuvettes. Quartz 100mm	916115	/2pcs

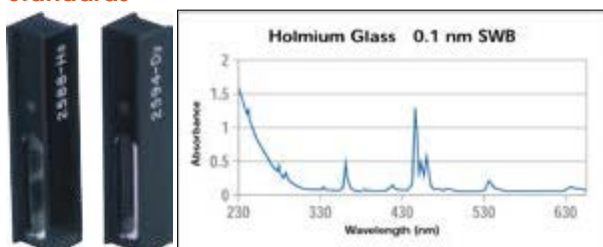
Micro Cell 

Name & Specifications	P.N	Remark
100UL Micro Cell	916121	/1pcs
Square Cuvettes. Glass 20mm	916122	/1pcs
Square Cuvettes. Glass 30mm	916123	/1pcs

Flow Cell 

Name & Specifications	P.N	Remark
5mm SEIF Masking Cont. Flowthrough G.Cell	916131	/1pcs
10mm SEIF Masking Cont. Flowthrough G.Cell	916132	/1pcs
20mm SEIF Masking Cont. Flowthrough G.Cell	916133	/1pcs
30mm SEIF Masking Cont. Flowthrough G.Cell	916134	/1pcs
5mm SEIF Masking Cont. Flowthrough Q.Cell	916141	/1pcs
10mm SEIF Masking Cont. Flowthrough Q.Cell	916142	/1pcs
20mm SEIF Masking Cont. Flowthrough Q.Cell	916143	/1pcs
30mm SEIF Masking Cont. Flowthrough Q.Cell	916144	/1pcs

Standards



SPECTROPHOTOMETERS Single Beam VIS



SPECTRO-V4

SPECTRO-V1/V2/V3V4, Single Beam VIS Spectrophotometers

SPECTRO-V Series Single Beam Vis Spectrophotometers are an easy to use instruments with advanced performance. With its stray light less than 0.05%T, it is highly accurate and reliable. It provides several basic functions, such as photometry test, quantitation test & spectrum scanning.

Features:

Fashion: • Simple • Elegant • Aluminum Base
Anticorrosive Holder: • Easy • Accurate • Anticorrosive



USB Interface: • USB A: Printer • USB B: Save data

Lamp Room: • Lamp easy to change

Color Screen: • Friendly interface Built-in Method.

- Using the 1200 l / mm holographic grating with low stray light, the optimized optical path design ensures the high accuracy of the instrument;
- The new wavelength driving mechanism has greatly improved the wavelength accuracy and repeatability, and effectively reduced the noisy;
- All aluminum die casting base and all moulded shell, make the instrument more sturdy and durable;
- High resolution TFT color LCD touch screen has excellent display effect and simple operation;
- Self-calibration system while switching on and preheating countdown;
- Support USB memory to upgrade firmware directly;
- It can connect computers through USB, control instrument by software and can enrich and expand applications by software;
- It also supports USB universal printer and serial micro printer based on PCL3 GUI protocol;
- Wide sample room, suitable for 5~100 mm sample holder and other accessories;
- Added Spectrum Scanning function, it's the first time in the same level instrument;
- Automatic move wavelength to set position, automatic zero correction;
- It can connect to the printer and output the measurement results directly.



Basic Function Instruction:

Photometry Test

- A / T one key conversion
- Results can be recorded, edited, deleted, saved and printed.

Quantitation Test

- Single and dual wavelength method (dual wavelength difference, dual wavelength ratio) to measure samples;
- 3 methods to establish standard curve (input equation coefficient, measure 2 ~ 10 standard samples or input standard sample absorbance and concentration)
- 3 kinds of fitting methods (linear zero, linear, two order)
- Standard curve can be saved and invoked
- Built-in 19 concentration units and custom input
- The measurement results can be recorded, edited, deleted, saved, and printed.



Spectrum Scanning

- The scanning speed is optional (low, medium, high);
- The scanning interval is optional (0.1, 0.2, 0.5, 1, 2, 5, 10nm);
- A / T display mode can be switched;
- Automatically find the peak;
- Point by point (peak) view;
- Coordinate adaptable and modifiable;
- Curves and data can be deleted, saved and printed.

File management		
	Name	Date
Photometry	PHV001	15/01/01 12:00
Quantitation - Result	PHV002	15/01/01 11:03
Quantitation - Method	PHV003	14/12/27 10:25
	PHV004	14/12/27 10:14
Spectrum	PHV005	14/12/20 15:27

File Management

- Files can be deleted, renamed, batch import / export, converted to .txt and .csv format.

System Utility

1. system calibration (dark current, wavelength, system baseline);
2. Light source management (light source switch, timing);
3. Clock management;
4. Memory management (storage status display, formatting);
5. Multi language (can be switched);
6. General settings (sound display sample rack and other settings).

System		
Calibration	Dark current	Language
Light source	Wavelength	General options
Clock	System baseline	Restore defaults
Memory		About

**Performance Verification**

- Wavelength Accuracy;
- Photometric Accuracy;
- Stray light;
- Noisy;
- Dark noise;
- Stability;
- Spectral bandwidth.

SPECTRO-V3PC/V4PC, Software Introduction (optional):

Easy UV 1.0 is an application software based on Windows operating system.

Characteristics

1. Photometric measurement: one key switch A / T / E;
2. Quantitative measurement: establish standard curve;
3. Spectrum scanning: coordinate adaptive;
4. File management: data preservation, editable file name;
5. Performance verification: verifiable performance specifications;
6. System application: Multilingual operating system.

Software Function

1. Photometric measurement;
2. Quantitative measurement;
3. Kinetics measurement;
4. Multi wavelength measurement;
5. Spectrum scanning;
6. DNA / protein measurement.

Through the USB interface, the user can connect with the UV / Vis spectrophotometer very convenient.

At the same time, the application range, data analysis & file management function of instruments are greatly expanded, so that your analysis and measurement work becomes more relaxed and efficient.

Models		SPECTRO-V1	SPECTRO-V2	SPECTRO-V3	SPECTRO-V4
Optical System		Single Beam			
Light Source		Tungsten Lamp			
Detector		Silicon Photodiode			
Bandwidth		4mm	2mm	4mm	2mm
Wavelength	Range	320 – 1050nm		320 – 1100nm	
	Accuracy	±0.8nm		±0.5nm	
	Repeatability	≤0.4nm		≤0.2nm	
	Display	0.1nm			
	Gyration speed	10000nm/min			
	Scan speed	-		4200nm/min	
Photometric	Range	-0.301 – 3A, 0 – 200%T, 0 – 9999.9C			
	Accuracy	±0.003A @ 0.5A, ±0.006A @1A, ±0.5%T @ 0 – 100%T			
	Repeatability	±0.0015A @ 0.5A, ±0.003A @1A, ±0.2%T @ 0 – 100%T			
	Noisy	≤0.0005A @ 0A, ≤0.001A @ 1A, ≤0.002A @ 2A (500nm)			
	Stability	≤0.002A/hr (500nm, 2 hours after preheating)			
Stray Light		≤0.2%T		≤0.05%T	
Baseline		-		±0.002A	
Memory		236KB (Built-in), Unlimited (USB memory stick)			
Display		5 inches color screen (480x272)			
Keypad		Resistive touch screen			
Printer		Serial printer, USB printer (in line with HP PCL3 GUI printing language)			
Port		Serial port (printing), USB-A (storage and printing), USB-B (online)			
Holder	Standard	10mm 4-cell holder			
	Optional	10 – 50mm 4-cell holder, 10 – 100mm 4-cell holder, 10mm 8-cell Automatic Holder, 10 – 100mm 5-cell Automatic Holder, Micro Cell Holder, Peltier/Sipper System, Reflectance Accessories, Solid Sample Holder, Water-Jacked 1 or 4-cell holder, Test Tube Holder			
Function	Photometric	•	•	•	•
	Quantitation	•	•	•	•
	Spectrum			•	•
	File Management	•	•	•	•
	System Management	•	•	•	•
	Performance Verification	•	•	•	•
Language		6 languages (English, German, French, Spanish, Portuguese, simplified Chinese)			
Power		100 – 240V AC, 50/60Hz, 75W			
Dimensions		456(W)×360(D)×185(H)mm			
Weight		10.5kg			

SPECTROPHOTOMETERS Single Beam UV/VIS



SPECTRO-UV4

SPECTRO-UV1/UV2/UV3/UV4, Single Beam UV/VIS Spectrophotometers

As a part of Precision Series, SPECTRO-UV SEERIES Single Beam UV/Vis Spectrophotometers are an easy to use instruments with advanced performance. With its stray light less than 0.05%, it is highly accurate and reliable. It provides several basic functions, such as photometry test, quantitation test and spectrum scanning.

Features:

- Fashion:** • Simple • Elegant • Aluminum Base
Anticorrosive Holder: • Easy • Accurate •



Anticorrosive

USB Interface: • USB A: Printer • USB B: Save data

Lamp Room: • Lamp easy to change

Color Screen: • Built-in Method.

- Using the 1200 l / mm holographic grating with low stray light, the optimized optical path design ensures the high accuracy of the instrument;
- The new wavelength driving mechanism has greatly improved the wavelength accuracy and repeatability, and effectively reduced the noisy;
- All aluminum die casting base and all moulded shell, make the instrument more sturdy and durable;
- High resolution TFT color LCD touch screen has excellent display effect and simple operation;
- Self-calibration system while switching on and preheating countdown;
- Support USB memory to upgrade firmware directly;
- It can connect computers through USB, control instrument by software and can enrich and expand applications by software;
- It also supports USB universal printer and serial micro printer based on PCL3 GUI protocol;
- Wide sample room, suitable for 5~100 mm sample holder and other accessories;
- Added Spectrum Scanning function, it's the first time in the same level instrument;
- Automatic move wavelength to set position, automatic zero correction;
- It can connect to the printer and output the measurement results directly.



Basic Function Instruction:

Photometry Test

- A / T one key conversion
- Results can be recorded, edited, deleted, saved and printed.

Quantitation Test

- Single and dual wavelength method (dual wavelength difference, dual wavelength ratio) to measure samples;
- 3 methods to establish standard curve (input equation coefficient, measure 2 ~ 10 standard samples or input standard sample absorbance and concentration)
- 3 kinds of fitting methods (linear zero, linear, two order)
- Standard curve can be saved and invoked
- Built-in 19 concentration units and custom input
- The measurement results can be recorded, edited, deleted, saved, and printed.



Spectrum Scanning

- The scanning speed is optional (low, medium, high);
- The scanning interval is optional (0.1, 0.2, 0.5, 1, 2, 5, 10 nm);
- A / T display mode can be switched;
- Automatically find the peak;
- Point by point (peak) view;
- Coordinate adaptable and modifiable;
- Curves and data can be deleted, saved and printed.

File management < 1 / 3 >

Photometry	Name	Date
Quantitation - Result	PHY001	15/01/01 12:00
Quantitation - Method	PHY002	15/01/01 11:03
Spectrum	PHY003	14/12/27 10:25
	PHY004	14/12/27 10:14
	PHY005	14/12/20 15:27

File Management

- Files can be deleted, renamed, batch import / export, converted to .txt and .csv format.

System Utility

1. system calibration (dark current, wavelength, system baseline) ;
2. Light source management (light source switch, timing) ;
3. Clock management;
4. Memory management (storage status display, formatting) ;
5. Multi language (can be switched) ;
6. General settings (sound display sample rack and other settings).

System

Calibration	Dark current	Language
Light source	Wavelength	General options
Clock	System baseline	Restore defaults
Memory		About



Performance Verification

- Wavelength Accuracy;
- Photometric Accuracy;
- Stray light;
- Noisy;
- Dark noise;
- Stability;
- Spectral bandwidth.

SPECTRO-UV3PC/UV4PC, Software Introduction (optional):

Easy UV 1.0 is an application software based on Windows operating system.

Characteristics

1. Photometric measurement: one key switch A / T / E;
2. Quantitative measurement: establish standard curve;
3. Spectrum scanning: coordinate adaptive;
4. File management: data preservation, editable file name;
5. Performance verification: verifiable performance specifications;
6. System application: Multilingual operating system.

Software Function

1. Photometric measurement;
2. Quantitative measurement;
3. Kinetics measurement;
4. Multi wavelength measurement;
5. Spectrum scanning;
6. DNA / protein measurement.

Through the USB interface, the user can connect with the UV / Vis spectrophotometer very convenient.

At the same time, the application range, data analysis & file management function of instruments are greatly expanded, so that your analysis and measurement work becomes more relaxed and efficient.

Models		SPECTRO-UV1	SPECTRO-UV2	SPECTRO-UV3	SPECTRO-UV4
Optical System		Single Beam			
Light Source		Tungsten Lamp, Deuterium Lamp			
Detector		Silicon Photodiode			
Bandwidth		4mm	2mm	4mm	2mm
Wavelength	Range	195 – 1050nm		190 – 1100nm	
	Accuracy	±0.8nm		±0.5nm	
	Repeatability	≤0.4nm		≤0.2nm	
	Display	0.1nm			
	Gyration speed	10000nm/min			
	Scan speed	-		4200nm/min	
Photometric	Range	-0.301 – 3A, 0 – 200%T, 0 – 9999.9C			
	Accuracy	±0.003A @ 0.5A, ±0.006A @1A, ±0.5%T @ 0 – 100%T			
	Repeatability	±0.0015A @ 0.5A, ±0.003A @1A, ±0.2%T @ 0 – 100%T			
	Noisy	≤0.0005A @ 0A, ≤0.001A @ 1A, ≤0.002A @ 2A (500nm)			
	Stability	≤0.002A/hr (500nm, 2 hours after preheating)			
Stray Light		≤0.2%T		≤0.05%T	
Baseline		-		±0.002A	
Memory		236KB (Built-in), Unlimited (USB memory stick)			
Display		5 inches color screen (480x272)			
Keypad		Resistive touch screen			
Printer		Serial printer, USB printer (in line with HP PCL3 GUI printing language)			
Port		Serial port (printing), USB-A (storage and printing), USB-B (online)			
Holder	Standard	10mm 4-cell holder			
	Optional	10 – 50mm 4-cell holder, 10 – 100mm 4-cell holder, 10mm 8-cell Automatic Holder, 10 – 100mm 5-cell Automatic Holder, Micro Cell Holder, Peltier/Sipper System, Reflectance Accessories, Solid Sample Holder, Water-Jacked 1 or 4-cell holder, Test Tube Holder			
Function	Photometric	•	•	•	•
	Quantitation	•	•	•	•
	Spectrum			•	•
	File Management	•	•	•	•
	System Management	•	•	•	•
	Performance Verification	•	•	•	•
Language		6 languages (English, German, French, Spanish, Portuguese, simplified Chinese)			
Power		100 – 240V AC, 50/60Hz, 75W			
Dimensions		456(W)×360(D)×185(H)mm			
Weight		10.7kg			



SPECTRO-UV5



SPECTRO-UV5/UV6, Double Beam UV/VIS Spectrophotometers

SPECTRO-UV5/UV6 UV/VIS spectrophotometer is high-mid level products. Split double beam design. large color screen design, external connection tablet computer based on Windows operating system via Bluetooth. Powerful functions. rich interface, simple operation, suitable for scientific research, biotechnology, pharmaceutical, food, environmental protection & other field.

Split Double Beam Design:

Can monitor light source changes. compare the reference light path, then record the measurement results, and then can minimize the measurement error caused by the light source.

Wireless Connected Tablet PC:

Based on the Windows tablet computer operating system. connect instrument through the Bluetooth wireless connection, rich data interface (USB, WIFI, Bluetooth, HDMI etc.), convenient for users to connect the universal printer, memory card, mouse, keyboard, display & so forth.

Color Touch Screen:

8 inch high resolution capacitive color touch screen. Support multiple points touch. Combined with the friendly interface, a nice working experience for user!



GLP/GMP:

The instrument design was completely followed by GLP/GMP. Build-in perfect user management, data storage, traceability and other functions.

Extensive Accessories:

Instrument can be convenient to use 8-cell Automatic holder, Peltier/Sipper System, Reflection accessories & so forth. greatly expanding the application field of the instrument.

Quality Assurance:

The base is made of aviation material, one time die casting. The shell is made of high strength material. the precision injection molding process is more beautiful. Strong, to ensure the accuracy of the instrument, reliability and durability.

Application Function:

Photo metric Measurement

Testing Abs. or %T at one wavelength

Multi-wavelength Measurement

Testing Abs. or %T under several different wavelengths, and calculate the values with build-in or custom methods

Time Scanning

Test the variability of Abs or %T with time at any wavelength

Kinetics

Test Abs at any wavelength in some time. It can used to monitor the reaction of enzyme with time, then calculate the activity of enzyme. It can also calculate the reaction rate of sample by setting the differential interval time

Quantitative Measurement

Establish calibration equation curve with standard samples or input known formula directly, then testing the unknown sample concentration with the curve. Support the use of built-in or custom methods to establish standard curves.

DAN/Protein Measurement

Testing concentration of DNA.RNA.Protein with suitable methods.

Spectrum Scanning

Scanning the full wavelength with suitable interval to get the Abs or %T, and checking peak. valley and processing the spectrum using the built-in method.

Custom Method

Customize the calculation methods according the user's requirement. and applied to the corresponding measurement mode.

Models	SPECTRO-UV5	SPECTRO-UV6
Optical System	Split Double Beam	
Light Source	D2 Lamp, Deuterium Lamp	
Wavelength Range	190 – 1100nm	
Spectrum Bandwidth	1.8nm	1nm
Spectrum Scanning	Yes	
Display	8 Inch Color Touch Screen	
Operation System	Microsoft Windows	
Output	USB, Bluetooth WIFI, HDMI	
Language	10 Languages, Can Be Swiched (English, German, French, Spanish, Portuguese, Italian, Russian, Chinese, Japanese, Korean)	



SPECTRO-UV7/8/9, Double Beam UV/VIS Spectrophotometers

SPECTRO-UV7/P8/P9 UV/Vis spectrophotometer is the high level products. Double beam with large color touch screen based Windows operation system with rich interface, easy to operate, it's the right choice for scientific research. biology, pharmaceutical, food, environmental protection and other areas.

Double Beam Design:

Double beam can monitor the sample and blank variability at the same time, and the measurement results are recorded accurately, then reduced measurement error to minimum.

Built-in Computer:

Built-in computer with Windows operating system. based on the rich data interface (USB, Ethernet, HDMI, VGA etc.), convenient for users to connect the universal printer, memory card, mouse, keyboard, display and so forth, and can be extended to WIFI, Bluetooth and other wireless devices.

Color Touch Screen:

10.1 inch high resolution capacitive color touch screen. Support 10 point touch. Combined with the friendly interface, a nice working experience for users.



GLP/GMP:

The instrument design was completely followed by GLP/GMP. Build-in perfect user management, data storage, traceability and other functions.

Extensive Accessories:

Instrument can be convenient to use 8-cell Automatic holder, Peltier/Sipper System, Reflection accessories & so forth, greatly expanding the application field of the instrument.

Application Function:

Photo metric Measurement

Testing Abs. or %T at one wavelength

Multi-wavelength Measurement

Testing Abs. or %T under several different wavelengths, and calculate the values with build-in or custom methods

Time Scanning

Test the variability of Abs or %T with time at any wavelength

Kinetics

Test Abs at any wavelength in some time. It can used to monitor the reaction of enzyme with time, then calculate the activity of enzyme. It can also calculate the reaction rate of sample by setting the differential interval time

Quantitative Measurement

Establish calibration equation curve with standard samples or input known formula directly, then testing the unknown sample concentration with the curve. Support the use of built-in or custom methods to establish standard curves.

DAN/Protein Measurement

Testing concentration of DNA.RNA.Protein with suitable methods.

Spectrum Scanning

Scanning the full wavelength with suitable interval to get the Abs or %T, and checking peak, valley and processing the spectrum using the built-in method.

Custom Method

Customize the calculation methods according the user's requirement, and applied to the corresponding measurement mode.

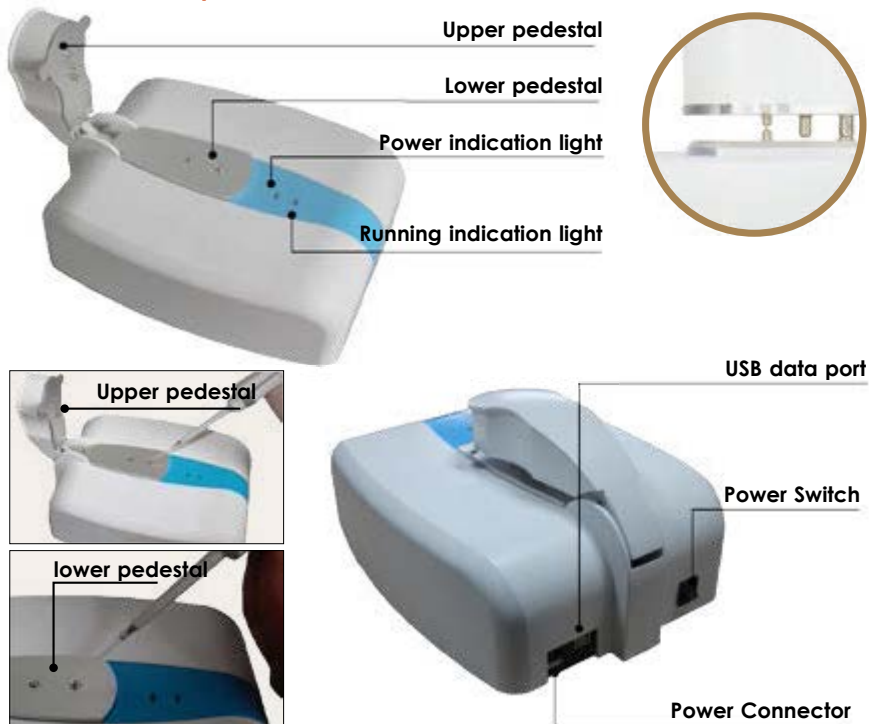
Models	SPECTRO-UV7	SPECTRO-UV8	SPECTRO-UV9
Optical System	Double Beam		
Light Source	D2 Lamp, Deuterium Lamp		
Wavelength Range	190 – 1100nm		
Spectrum Bandwidth	1.8nm	1nm	0.5/1/2/4/5 Auto Adjustable
Spectrum Scanning	Yes		
Display	10.1 Inch Color Touch Screen		
Operation System	Microsoft Windows		
Output	USB, Ethernet, HDMI, VGA, WIFI (Optional), Bluetooth (Optional)		
Language	10 Languages, Can Be Swiched (English, German, French, Spanish, Portuguese, Italian, Russian, Chinese, Japanese, Korean)		

SPECTRO-NANO, Micro-Spectrophotometer

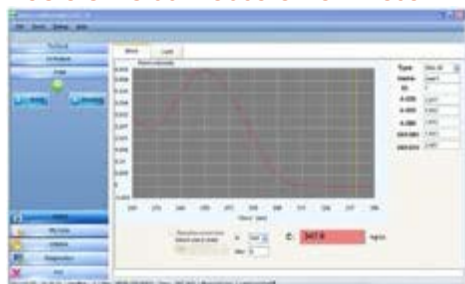


Spectro-Nano is a perfect instrument for most labs dealing with sample analysis or preparation. It can accurately measure DNA, RNA and oligonucleotide calculations, protein assays etc.. The system utilizes CCD detector, a Xenon light source for long lamp lifetimes together with simple software. Simple pipette 0.5-2ul sample onto the pedestal, laying down the sampling arm, it can automatically complete the measurement within 5 seconds.

Structure Description:



Nucleic Acids Measurement Result:



Features:

- Direct, easy measurements in less than 5 seconds: just pipette & wipe
- Full spectral output
- Measures DNA, RNA (A260) and Protein (A280), concentrations and sample purity (260/280 ratio)
- Large concentration range without dilutions
- User-friendly software that includes Custom Methods and data export capabilities
- Low-cost operation-no plates or other consumable
- Complete with user friendly software packed with features.

Model	SPECTRO-NANO
Wavelength Range	200~800nm
Minimum Sample Size	0.5~2.0ul
Path Length	0.2mm (For high concentration measurements) 1.0mm (For ordinary)
Light Source	Xenon flash lamp
Detector Type	3864-element linear silicon CCD array
Wavelength Accuracy	1nm
Spectral Resolution	≤ 3 nm (FWHM at Hg 546 nm)
Absorbance Precision	0.003 Abs
Absorbance Accuracy	1% (at 0.76 at 350 nm)
Absorbance Range	0.02 - 75 (10mm equivalent)
Measurement Time	< 5s
Dimensions (W x D x H)mm	200 x 262 x 154
Weight	2.5kg
Sample Pedestal Material	Aluminum alloy and Quartz fiber
Operating Voltage	12V DC
Operating Power Consumption	12 - 18 W
Standby Power Consumption	5W
Software Compatibility	Windows 7, Windows XP



SPECTRO-NANO3, Micro Spectrophotometer

The SPECTRO-Nano3 is an advanced model of Micro UV VIS Spectrophotometer based on SPECTRO-Nano, with full range of wavelength (200–800nm). It is with an added new function of bacterium cell concentration measurement (OD600) in a cuvette. The SPECTRO-Nano3 only requires 0.5–2ul sample to measure nucleic acids, protein as quickly like SPECTRO-Nano do. SPECTRO-Nano3 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.



Main Features:

- 7 inch touch screen with simple interface. No computer required
- Android operating system with free software update
- Only require 0.5–2ul sample to perform accurate measurements.
- Long life's Xenon flash lamp for up to 10 years
- Flexible data output. The data can be printed with built-in printer, and output via USB memory stick
- OD600 measurement, ideal for bacterial concentration measurement
- Direct micro-volume measurement with 0.5–2ul of sample. Eliminates the need for expensive accessories.
- Wide range of wavelength (200–800nm)
- Turn on and instantly measure without lamp warm up time; Full scan capability from 200–800nm with 6 sec.
- Switch off automatically when the machine is idle for more than 5mins, and awake by touching the screen.



Adding sample



Measuring sample



Quick & easy cleaning

Models	SPECTRO-NANO3	
Wavelength Range	200~800nm	
Sample Size	0.5~2.0ul	
Path Length	0.2mm (For high concentration measwrement)	1.0mm (For ordinary)
Light Source	Xenon flash lamp	
Detector Type	3864-element linear silicon CCD array	
Wavelength Accuracy	1nm	
Spectral Resolution	≤3nm (FWHM at Hg 546nm)	
Absorbance Precision	0.003Abs	
Absorbance Accuracy	1% (7.332Abs at 260nm)	
Absorbance Range	0.02 – 100A	
Detection Range	10~5000cg/ul (dsDNA)	
Measurement Time	<6s	
Dimensions (W x D x H)mm	210 x 268 x 181	
Data Output	USB, SD-RAM Card	
Weight	2.8kg	
Sample Pedestal Material	Aluminum alloy and Quartz fiber	
Operating Voltage	24V DC	
Standby Power Consumption	5W	
Operating Power Consumption	40W	
Software Compatibility	Android System	
OD600nm Measurement:		
Light Source	LED	
Wavelength Range	600±8nm	
Abosorbance Range	0~4A	



SPECTRO-NANO4, Micro Spectrophotometer

- **User-friendly software, easy to use:** It is easy to use, free software updates are available
- **Micro-volumes measuring:** Only require 0.5~2 μ l sample to accurately determine nucleic acids, proteins
- **Fast and easy measurements:** Turn on and instantly measure without lamp warm up time; Easy measurement within 8 sec
- **Long life's Xenon flash lamp:** Xenon flash lamp, 10 flashes, up to 10 years, no cells or cuvettes, no dilutions and expensive consumables
- **No consumables required:** Direct microvolume measurements from 1~2 μ l of sample. Eliminates the need for expensive accessories
- **No computer required and with touch screen**
- **It is a basic UV spectrophotometer specially designed (only three types of wavelength 230nm, 260nm and 280nm) for nucleic acids and proteins.**



Adding sample



Measuring sample



Quick & easy cleaning

Main Features:

- SPECTRO-NANO4 is a basic micro-volume UV spectrophotometer designed (only 3 types of wavelength: 230nm, 260nm and 280nm) for the measurement of nucleic acids and proteins. It is added a function of bacterium cell concentration detection (OD600)
- Android system operation, 7 inch touch screen no computer, APP soft, simple interface, easy to use
- The data can be printed with built-in printer, the data can output via SD-RAM Card and USB memory
- Measure nucleic acids concentration at 260nm, & purity using the 260/280 ratio. Measure purified protein at 280nm.

Models	SPECTRO-NANO4	
Wavelength Range	230nm, 260nm, 280nm	
Sample Size	0.5~2.0ul	
Path Length	0.2mm (For high concentration measurement)	1.0mm (For ordinary)
Light Source	Xenon flash lamp	
Detector Type	UV-sillion photocell	
Wavelength Accuracy	-	
Spectral Resolution	-	
Absorbance Precision	0.003Abs	
Absorbance Accuracy	1% (7.332Abs at 260nm)	
Absorbance Range	0.02 - 80A	
Detection Range	10~4000cg/ul (dsDNA)	
Measurement Time	<15s	
Dimensions (W x D x H)mm	210 x 280 x 181	
Data Output	USB	
Weight	3.6kg	
Sample Pedestal Material	Aluminum alloy and Quartz fiber	
Operating Voltage	24V DC	
Standby Power Consumption	5W	
Operating Power Consumption	25W	
Software Compatibility	Android System	
OD600nm Measurement:		
Light Source	LED	
Wavelength Range	600 \pm 8nm	
Abosorbance Range	0~4A	



SPECTRO-96

Display Mode	4 digits LED
Dimension	L550×W510×H365mm
Weight (Kg)	11(N) 13(G)kgs

Applications & Features:

Fluorescence analysis is a high sensitive and high selective sophisticated analytical method. This method can provide information including excitation and emission spectrum, emission light intensity and measurement of life of emission light & polarization fluorescence etc. This method can provide a wide lineal range of working curve. It has becoming an important analytical method in the region of trace analysis. This method has been used in:

- Medical science and clinical analysis
Clinical analysis of biological specimen
- Pharmaceutical science and pharmacology
Analysis of natural pharmaceutical products; Quality control of pharmaceuticals and research of pharmaceutical metabolites
- Biochemistry
Analysis of minute quantity of substances in biological body
- Food industry
Analysis of minute quantity of constituents in food
- Pollution analysis
Atmospheric pollution, environmental testing and food contamination analysis
- Organic and inorganic chemistry
Used in the trace analysis in case of those substances cannot be determined by absorption spectrophotometry.

Standard Package:

Main instrument	1 set
365nm filter (Pre assembled)	1 pc
software package	1 set
Power cable	1 pc
USB wire	1 pc
Instruction manual	1 copy
Product quality certificate	1 copy
Fuse (2A)	2 pcs
Fuse (5A)	2 pcs
Quartz fluorescence cell 10mm	1 pair
Packing list	1 copy

SPECTRO-96, Spectrofluorometer

Features:

- Two operation modes could be chosen: fluorescence intensity and luminous intensity. Fluorescence scanning, kinetic determination and quantity analysis could be done under fluorescence intensity mode
- 365nm exciting wavelength Raman peak of water in 1 cm quartz fluorescence cuvette S/N≥150 High performance sensitivity simplifies the measurement of low detective sample
- 10 stages gain adjustment could be chosen for emission spectrum scanning, including high speed low S/N scanning and precise scanning. Total spectrum scanning could be done in 1 second. With the intelligent pre scanning feature, unknown sample's spectrum information could be detected rapidly. Auto-omission of the influence of scattering peak and harmonic peaks, it ensure the best measurement parameters and locate the fluorescence emission peak
- Support off-line mode and on-line mode. Under off-line mode, instrument's computer system offer the fluorescence intensity measurement, concentration direct reading, auto 0 adjustment, auto background subtraction and etc. Under on-line mode, we could use quality and quantity software to control data acquisition and analysis through USB2.0 interface
- High stable and long life 150W xenon lamp and power source ensure high stable testing and wide range of spectrum
- The normalized feature for fluorescence value could make different fluorescence's result comparable
- Provide optional PC qualitative and quantitative software package with expansible time scanning, wavelength scanning, graphic calculation and storage-access abilities
- Optional accessories for different measurement, including single hole cell holder, fluorescence sample holder for different features, 200µl micro scale centrifuge tube, micro scale capillary sample holder, semi-auto sample introduction accessories, membrane sample accessories, powder sample accessories, jacket sample accessories and etc.

Optional Spare Parts and Accessories:

- Fuses (2A/5A)
- 200~700nm interference optical filter (φ25mm)
- Quartz fluorescence sample cell 10mm
- Personal computer
- Printer cable
- Dedicated serial interface printer.

Model	SPECTRO-96
Light source	Hamamatsu 150W Xenon lamp
Exciting optical filters	Interference optical filter
Standard set	equipped with an interference optical filter of central wavelength at 365nm and 10nm bandwidth
optional interference optical filer	25mm diameter of wavelength of 250-700nm
Emission monochromatic	C-T diffraction grating (Em 200~900nm, bandwidth 10nm) Wavelength accuracy±1nm Wavelength repeatability ≤0.5nm
Sensitivity	Raman peak of water in 1 cm quartz fluorescence cuvette with S/N≥150
Linear measurement(r)	≥0.995
Stability	better than 1.5%/10min
Variation of power source	220V±22V 50Hz±1Hz
Response time: (0.1-4)s	(0.1-4)s 6 stages adjustable
Fluorescence display value	0.00-600.00
Data transmission	USB2.0



SPECTRO-97/97PRO/97XP, Fluorescence Spectrophotometers

Brief Introduction:

SPECTRO-97 fluorescence 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.

Main Features:

- High sensitivity: based on high efficiency optical design and weak signal detection technology, the water Raman peak signal to noise ratio can be greater than 200 (P - P) to the leading domestic & international advanced level.
- High scanning speed: the high speed digital signal processing unit provides the world's fastest scanning speed at 48000nm/min. Only 1 second to get classic fluorescence spectra, 1 minute to get high quality of 3-dimensional fluorescence spectra.
- Wide Spectral measurement range: using a double monochromator design, excitation and emission wavelength range covering 200 nm to 900 nm, meet the needs of most fluorescence analysis.
- Excitation light path monitoring system: instrument is equipped with excitation light dual beam ratio monitoring system to ensure the fluorescence signal high and stable.
- High quality assurance: using Hamamatsu's high quality Xenon light source and photoelectric multiplier tube detectors and instruments to provide sufficient light intensity signal and the detection sensitivity.
- Built-in optical gate: Built-in optical gate, designed for unstable sample.

Models	SPECTRO-97	SPECTRO-97XP	SPECTRO-97PRO
Excitation Source	150W xenon lamp		
Excitation Wavelength	200nm~900nm		
Emission Wavelength	200nm~900nm		
Excitation Slit	10nm	2nm, 5nm, 10nm, 20nm	
Emission Slit	10nm	2nm, 5nm, 10nm, 20nm	
Wavelength Accuracy	±1.0nm	±0.4nm	±1.0nm
Wavelength Repeatability	≤0.5nm	≤0.2nm	≤0.5nm
Signal-to-Noise Ratio	Raman peak of water (P-P): S/N≥150 (10nm Slit)	Raman peak of water (P-P): S/N≥200 (10nm Slit)	Raman peak of water (P-P): S/N≥150 (10nm Slit)
Limit	≤1×10 ⁻¹⁰ g/ml (Quinine Sulfate Solution)	≤5×10 ⁻¹¹ g/ml (Quinine Sulfate Solution)	≤1×10 ⁻¹⁰ g/ml (Quinine Sulfate Solution)
Linearity	γ≥0.995		
Peak Repeatability	≤1.5%		
Stability (10min)	Zero Drift: ±0.3 Value Limit: ±1.5%		
Wavelength Scan Speed	Multi-speed Level, Maximum at 48000nm/min		
Photometric Quantity Range	0.00-10000.00		
Data Transportation	USB2.0		
Power	200W		
Power Source	AC 220V/50Hz, 110V/60Hz		
Instrument Dimension	380×445×310 (mm)		
Weight	Net Weight: 12kg Gross Weight: 14kg		



SPECTRO-98, Fluorescence Spectrophotometers

SPECTRO-98 fluorescence spectrophotometer is a new generation of high-performance molecular luminescence analysis equipment. This product is designed for high performance, with high signal to noise ratio, ultra-high scanning speed, ultra-high resolution, ultra-high wavelength accuracy and a variety of accessories. This instrument easily meets the requirements in material research, drug analysis, biochemical and clinical testing, water quality control, food safety testing & other areas of qualitative & quantitative analysis and scientific research. Quantum yield accessory is available for F98 fluorescence spectrophotometer.

Main Features:

- Horizontal slit optical design, with excellent luminous detection efficiency and high signal to noise ratio. Water Raman peak SNR better than 350: 1 (P-P) or 1000: 1 (RMS). The minimum sample volume is 0.5mL when using a standard 10mm square sample cell.
- Wavelength scanning speed up to 60000 nm / min.
- Bandwidth 1/2/5/10/20nm adjustable.
- Fluorescence Quantum Yield accessory available.
- The software offers fluorescence 3D scanning, equal-wavelength difference synchronous scanning, equal wave number difference (constant energy difference) synchronous scanning functions. (synchronous scanning function require pro version software)
- Multi accessories available.
- Using high quality Xenon light source and photoelectric multiplier tube detectors and instruments to provide sufficient light intensity signal and the detection sensitivity.
- Built-in frequency filter. Built-in optical gate, designed for unstable sample.



Optional Accessories:



Multi-function fluorescent sample rack holder; Base of other sample racks



Membrane sample rack



Powder sample rack



Sample cell jacket



200uL microcentrifuge tube accessory



Upconversion fluorescent accessory



Fluorescence Quantum Yield accessory

Model	SPECTRO-98
Excitation Source	150W xenon lamp
Excitation Wavelength	200nm~900nm
Emission Wavelength	200nm~900nm
Excitation Slit	1nm/2nm/5nm/10nm/20nm
Emission Slit	1nm/2nm/5nm/10nm/20nm
Wavelength Accuracy	±0.4nm
Wavelength Repeatability	≤0.2nm
Signal-to-Noise Ratio	S/N≥350(P-P) S/N≥1000(RMS)
Limit	≤5×10 ⁻¹¹ g/ml (Quinine Sulfate Solution)
Linearity	γ≥0.995
Peak Repeatability	≤1.5%
Wavelength Scan Speed	Multi-speed Level, Maximum at 60000nm/min
Minimum Sample Size	0.5mL (Using a standard 10mm square sample cell)
Octave Filter	Build in Octave filter
Photometric Quantity Range	-9999 ~ 9999
Response Time	0.02/0.1/0.5/1/2/4/8 s, Auto adjust
Data Transportation	USB2.0
Power	200W
Power Source	AC 220V/50Hz, 110V/60Hz
Instrument Dimension	610×460×365 (mm)
Weight	Net Weight: 21kg Gross Weight: 26kg

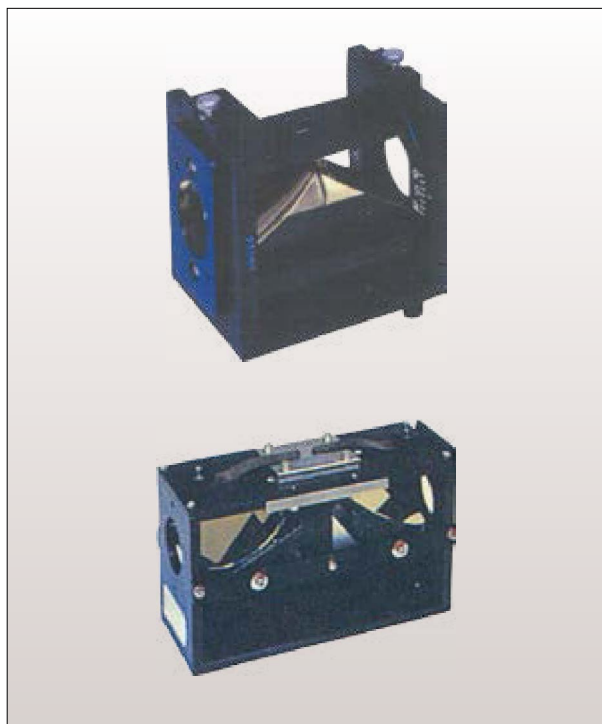
FTIR510, FTIR Spectrophotometer



Features:

- New type cube-corner Michelson interferometer features smaller size and more compact structure, providing higher stability and less sensitive to vibrations and thermal variations than conventional Michelson interferometer.
- Fully sealed damp and dust proof interferometer, adopting high performance, long lifetime sealing material and desiccator, ensures higher adaptability to the environment and increases accuracy and reliability in operation. Viewable window for silica gel enables easy observation and replacement.
- Isolated IR source and large space heat dissipation chamber design provides higher thermal stability. Stable interference is obtained without the need of dynamic adjustment.
- High intensity IR source adopts a reflex sphere to obtain even and stable IR radiation.
- Cooling fan stretch suspending design ensures good mechanical stability.
- Super wide sample compartment provides more flexibility to accommodate various accessories.
- The application of programmable gain amplifier, high accuracy A/D converter and embedded computer improves the accuracy and reliability of the whole system.

Accessories:



- The spectrometer connects to PC via a USB port for automatic control and data communication, fully realizing plug-and-play operation.
- Compatible PC control with user friendly, rich function software enables easy, convenient and flexible operation. Spectrum collection, spectrum conversion, spectrum processing, spectrum analyzing, and spectrum output function etc. can be performed.
- Various special IR libraries are available for routine search. Users can also add and maintain the libraries or set up new libraries by themselves.
- Accessories such as Defused/Specular Reflection, ATR, Liquid cell, Gas cell, and IR microscope etc can be mounted in the sample compartment.

Model	FTIR510
Spectral range	7800 to 350 cm^{-1}
Resolution	Better than 0.85 cm^{-1} (WQF-510A) Better than 0.85 cm^{-1} (WQF-520A)
Wavenumber precision	$\pm 0.01 \text{ cm}^{-1}$
Scanning speed	5 step adjustable for different applications
Signal to noise ratio	Better than 15,000:1 (RMS value, at 2100 cm^{-1} , resolution: 4 cm^{-1} , detector: DTGS, 1min. data collection)
Beam splitter	Ge coated KBr
Infrared source	Air-cooled, high efficiency, reflex sphere module
Detector	DTGS
Data system	Compatible computer
Software	FT-IR software contains all routines needed for basic spectrometer operations, including library search, quantitation and spectrum export
IR library	11 IR libraries included
Dimensions	54x52x26cm
Weight	28kg

Diffuse/Specular Reflectance Accessory

It is a versatile diffuse reflectance and specular reflectance accessory. Diffuse reflection mode is used for transparent and powder sample analysis. Specular reflection mode is for measuring smooth reflective surface and coating surface.

- High light throughput
- Easy operation, no internal adjustment needed
- Optical aberration compensation
- Small light spot, able to measure micro samples
- Variable angle of incidence
- Fast change of powder cup.

Horizontal ATR /Variable Angle ATR (30° ~ 60°)

Horizontal ATR is suitable for the analysis of rubber, viscous liquid, large surface sample and pliable solids etc. Variable angle ATR is used for measurement of films, painting (coating) layers and gels etc.

- Easy installation and operation
- High light throughput
- Variable depth of IR penetration.



IR Microscope

- Micro samples analysis, minimum sample size: 100µm (DTGS detector) and 20µm (MeT detector)
- Nondestructive sample analysis
- Translucent sample analysis
- Two measurement methods: transmission and reflection
- Easy sample preparation.

Single Reflection ATR

It provides high throughput when measuring materials with high absorption, such as polymer, rubber, lacquer, fiber etc.

- High throughput
- Easy operation and high analytical efficiency
- ZnSe, Diamond, AMTIR, Ge and Si crystal plate can be selected according to application.



Accessory for Determination of Hydroxyl in IR Quartz

- Fast, convenient and accurate measurement of Hydroxyl content in IR quartz
- Direct measurement to IR quartz tube, no need to cut samples
- Accuracy: $\leq 1 \times 10^{-6}$ (≤ 1 ppm).

Accessory for Oxygen and Carbon in Silicon Crystal Determination

- Special silicon plate holder
- Automatic, fast and accurate measurement of oxygen and carbon in silicon crystal
- Lower detection limit: $1.0 \times 10^{16} \text{ cm}^{-3}$ (at room temperature)
- Silicon plate thickness: 4.0~0.4 mm.

SiO₂ Powder Dust Monitoring Accessory

- Special SiO₂ powder dust monitoring software
- Fast and accurate measurement of SiO₂ powder dust.

Component Testing Accessory

- Fast and accurate measurement of the response of such components as MCT, InSb and PbS etc.
- Curve, peak wavelength, stop wavelength and D* etc can be presented.

Optic Fiber testing Accessory

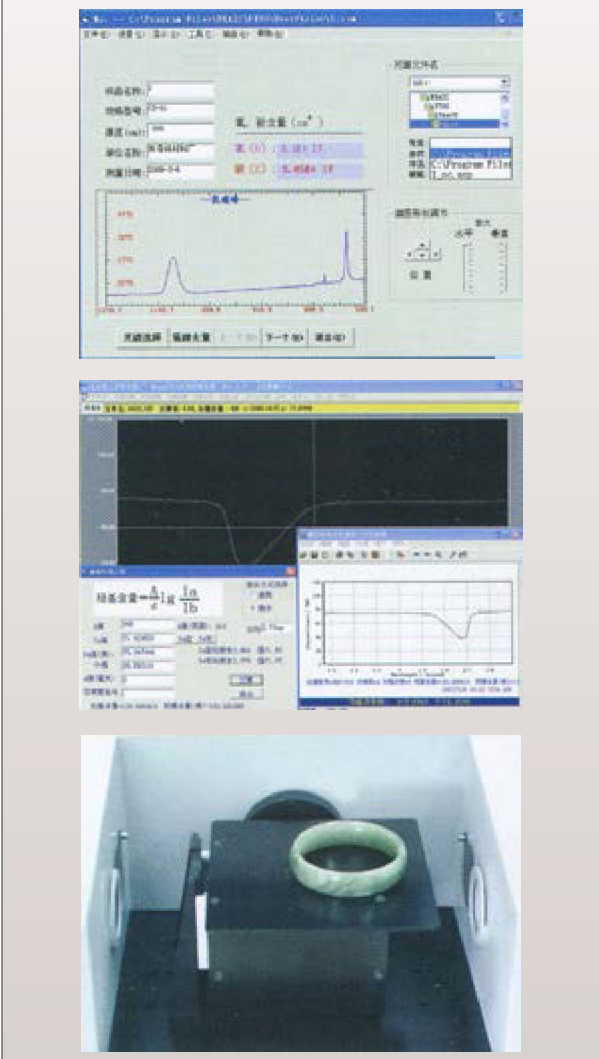
- Easy and accurate measurement of the loss rate of IR optic fiber, overcoming the difficulties for fiber testing, since they are very thin, with very small light-passing holes and uneasy to fix.

Jewelry Inspection Accessory

- Accurate identification of jewelries.

Universal Accessories

- Fixed liquid cells and demountable liquid cells
- Gas cells with different path length



AAS-210, Atomic Absorption Spectrophotometer



Features:

Innovated rich oxygen air-acetylene flame analysis technique:

The patented flame analysis technique adopting rich oxygen air-acetylene flame as the substitution for nitrous oxide-acetylene flame for high temperature element analyses, such as Ca, Al, Ba, W, Mo, Ti, V, etc. Flame temperature is continuously adjustable between 2300–2950°C, which makes it possible to choose the best atomization temperature for different elements. It features easy operation, low analysis cost and wide flame AAS analytical range. Rich oxygen flame will not pollute the environment and is not harmful to human bodies. It's a breakthrough in flame AAS analysis.

Integrated flame/graphite furnace atomization system, changeable with flame emission burner:

- Automatically controlled changeover of the integrated flame and graphite furnace atomizer featuring easy operation and time saving eliminates human labor.
- A flame emission burner head can be installed to perform flame emission analysis to alkali metals as K, Na etc.

Accurate fully automated control system:

- Automatic 6-lamp turret, automatic adjustment of lamp current and optimization of light beam position.
- Automatic wavelength scanning and peak picking.
- Automatic spectral bandwidth changing.
- Automatic changeover between flame and graphite furnace operation, automatic optimization of position parameters, automatic ignition and automatic gas flow setting.

Reliable fully automatic graphite furnace analysis:

- Adopting FUZZY-PID and dual curve mode light-controlled temperature control technique, temperature auto-correction technique, ensures fast heating, good temp. reproducibility & high analytical sensitivity. The temperature control accuracy is less than 1%.
- Graphite furnace with pneumatic control and pressure lock ensures constant pressure and reliable contact.

- Multi-function autosampler features automatic standard sample preparation, automatic correction of sampling probe depth, automatic tracing and correction of liquid surface height in the sample vessel, with the sampling accuracy of 1% and reproducibility of 0.3%, realizing fully automation of graphite furnace analysis.

Perfect safety protection measures:

- Alarm and automatic protection to fuel gas leakage, abnormal flow, insufficient air pressure and abnormal flame extinction in flame system.
- Alarm and protection function to insufficient carrier gas and protective gas pressure, insufficient cooling water supply and over-heating in graphite furnace system.

Advanced and reliable electronic design:

- Adopting large-scale programmable logic array and Inter I2C bus technology.
- European type sockets and AMP adapters with high reliability to ensure long term reliability of the whole electronic system.

Easy and practical analysis software:

- Easy-to-use MS analysis software is made under Windows operating system, realizing fast parameter setting and optimization.
- Automatic sample dilution, automatic curve fitting, automatic sensitivity correction.
- Automatic calculation of sample concentration (content), mean value, standard deviation and relative standard deviation calculation.
- Multi-elements determination in sequence to the same sample.
- Measured data and final results can be printed out and edited in Excel format.

Comparison:

Characteristic Mass of Some Elements using rich oxygen air-C₂H₂ flame and other flame methods

Element	Wavelength (nm)	Rich oxygen air-C ₂ H ₂ flame	N ₂ O-C ₂ H ₂ flame	Air-C ₂ H ₂ flame
Ca	422.7	0.009	0.05	0.07
Yb	378.8	0.037	0.08	7.6
Eu	459.4	0.137	0.3	3.0
Al	309.3	0.4	0.7	
Sr	460.7	0.016	0.1	0.15
Sa	553.5	0.1	0.4	10.0
Mo	313.3	0.15	0.4	0.8
W	255.1	3.2	5.0	
Ga	287.4	0.4	1.0	1.3
Sm	429.7	2.92	8.5	
La	550.1	37.2	35.0	
Sn	224.6	0.8	3.0	50

SPECIFICATIONS		
Main Specification	Wavelength range	190–900nm
	Wavelength accuracy	Better than $\pm 0.25\text{nm}$
	Resolution	Two spectral lines of Mn at 279.5nm and 279.8nm can be separated with the spectral bandwidth of 0.2nm and valley-peak energy ratio less than 30%.
	Baseline stability	0.004A/30min
	Background correction	The D2 lamp background correction capability at 1A is better than 30 times. The S-H background correction capability at 1.8A is better than 30 times.
Light Source System	Lamp turret	Motorized 6-lamp turret (Two high performance HCLs can be mounted on the turret to increase the sensitivity in flame analysis.)
	Lamp current adjustment	Wide pulse current: 0~25mA, Narrow pulse current: 0~10mA.
	Lamp power supply mode	400Hz square wave pulse; 100Hz narrow square wave pulse + 400Hz wide square wave pulse.
Optical System	Monochromator	Single beam, Czerny-Turner design grating monochromator
	Grating	1800 l/mm
	Focal length	277mm
	Blazed wavelength	250nm
	Spectral bandwidth	0.1 nm, 0.2nm, 0.4nm, 1.2nm, auto switch over
Flame Atomizer	Burner	10cm single slot all-titanium burner
	Spray chamber	Corrosion resistant all-plastic spray chamber.
	Nebulizer	High efficiency glass nebulizer with metal sleeve. sucking up rate: 6–7mL/min
	Emission burner provided	
Graphite Furnace	Temperature range	Room temperature–3000°C
	Heating rate	2000°C/s
	Graphite tube dimensions	28mm (L) x 8mm (OD)
	Characteristic mass	$\text{Cd} \leq 0.8 \times 10^{-12}\text{g}$, $\text{Cu} \leq 5 \times 10^{-12}\text{g}$, $\text{Mo} \leq 1 \times 10^{-11}\text{g}$
	Precision	$\text{Cd} \leq 3\%$, $\text{Cu} \leq 3\%$, $\text{Mo} \leq 4\%$
Detection and Data Processing System	Detector	R928 photomultiplier with high sensitivity and wide spectral range.
	Software	Under Windows operating system
	Analytical method	Working curve auto-fitting; standard addition method; automatic sensitivity correction; automatic calculation of concentration and content.
	Repeat times	1~99 times. automatic calculation of mean value, standard deviation and relative standard deviation
	Multi-task function	Sequential determination of multi-elements in the same sample.
	Condition reading	With model function
	Result printing	Measurement data and final analytical report printout, editing with Excel.
	Standard RS-232 serial port communication	
Graphite Furnace Autosampler	Sample tray capacity	55 sample vessels and 5 reagent vessels
	Vessel material	Polypropylene
	Vessel volume	3ml for sample vessel. 20ml for reagent vessel
	Minimum sampling volume	1 μl
	Repeatable sampling times	1~99 times
	Sampling system	Accurate dual pump system. with 100 μl and 1 ml injectors.
Characteristic Concentration and Detection Limit	Air-C ₂ H ₂ flame Rich oxygen Air-C ₂ H ₂ flame	Cu: Characteristic concentration $\leq 0.025 \text{ mg/L}$, Detection limit $\leq 0.006 \text{ mg/L}$; Ba: Characteristic concentration $\leq 0.22 \text{ mg/L}$ Al: Characteristic concentration $\leq 0.4 \text{ mg/L}$
Function Expansion	Hydridee vapor generator can be connected for Hydridee analysis.	
Dimensions and Weight	Main unit	107X49X58cm, 140kg
	Graphite furnace	42X42X46cm, 65kg
	Autosampler	40X29X29cm, 15kg

AAS-110A/120A/130A, Flame/Graphite Furnace Atomic Absorption Spectrophotometer



Features:

Innovated rich oxygen air-acetylene flame analysis technique (AAS-110A)

The patented flame analysis technique adopting rich oxygen air-acetylene flame as the substitution for nitrous oxide-acetylene flame for high temperature element analyses, such as Ca, Al, Ba, W, Mo, Ti, V, etc. Flame temperature is continuously adjustable between 2300-2950°C, which makes it possible to choose the best atomization temperature for different elements. It features easy operation, low analysis cost and wide flame AAS analytical range. Rich oxygen flame will not pollute the environment and is not harmful to human bodies. It's a break-through in flame AAS analysis.

Integrated flame/graphite furnace atomization system, changeable with flame emission burner

- Automatically controlled changeover of the integrated flame and graphite furnace atomizer featuring easy operation and time saving eliminates human labor.
- A flame emission burner head can be installed to perform flame emission analysis to Alkali metals as K, Na etc. (AAS-110N120A)

Accurate fully automated control system

- Automatic multi-lamp turret, automatic adjustment of lamp current and optimization of light beam position.
- Automatic wavelength scanning and peak picking
- Automatic spectral bandwidth changing

- Automatic changeover between flame and graphite furnace operation, automatic optimization of position parameters, and automatic ignition.

Reliable fully automatic graphite furnace analysis

- Adopting FUZZY-PID and dual curve mode light-controlled temperature control technique, temperature auto-correction technique, ensures fast heating, good temperature reproducibility and high analytical sensitivity. The temperature control accuracy is less than 1 %.
- Graphite furnace with pneumatic control and pressure lock ensures constant pressure and reliable contact.

Perfect safety protection measures

- Alarm and automatic protection to fuel gas leakage, abnormal flow, insufficient air pressure and abnormal flame extinction in flame system;
- Alarm and protection function to insufficient carrier gas and protective gas pressure, insufficient cooling water supply and over-heating in graphite furnace system.

Advanced and reliable electronic design

- Adopting large-scale programmable logic array and Inter 12C bus technology
- European type sockets and AMP adapters with high reliability to ensure long term reliability of the whole electronic system.

Easy and practical analysis software

- Easy-to-use AAS analysis software is made under Windows operating system, realizing fast parameter setting and optimization.
- Automatic display of measured data, automatic calculation and analytical result automatic print out.

SPECIFICATIONS		
Main Specification	Wavelength range	190–900nm
	Wavelength accuracy	±0.25nm
	Resolution	Two spectral lines of Mn at 279.5nm and 279.8nm can be separated with the spectral bandwidth of 0.2nm and valley-peak energy ratio less than 30%.
	Baseline stability	≤0.004A/30min
	Background correction	The D2 lamp background correction capability at 1A is better than 30 times. The S-H background correction capability at 1.8A is better than 30 times. (only for AAS-110A/120A)
Light Source System	Lamp turret	6-lamp turret (AAS-110A/120A), 4-lamp turret (AAS-130A) Auto-alignment, fully automated scan and peak-picking.
	Lamp current adjustment	Automatic adjustment and display. Wide pulse current: 0~25mA, Narrow pulse current: 0~10mA
	Lamp power supply mode	400Hz square wave pulse; 100Hz narrow square wave pulse + 400Hz wide square wave pulse (AAS-110A/120A)
Optical System	Monochromator	Single beam, Czerny-Turner design grating monochromator
	Grating	1800 l/mm
	Focal length	277mm
	Blazed wavelength	250nm
	Spectral bandwidth	0.1 nm, 0.2nm, 0.4nm, 1.2nm, automatic change.
Flame Atomizer	Burner	10cm single slot all-titanium burner
	Spray chamber	Corrosion resistant all-plastic spray chamber.
	Nebulizer	High efficiency glass nebulizer with metal sleeve. sucking up rate: 6–7mL/min
	Emission burner	Provided with AAS-110A/120A
Graphite Furnace	Temperature range	Room temperature–3000°C
	Heating rate	2000°C/s
	Graphite tube dimensions	28mm (L) x 8mm (OD)
	Characteristic mass	Cd≤0.8*10 ⁻¹² g, Cu≤5*10 ⁻¹² g, Mo≤1*10 ⁻¹¹ g
	Precision	Cd≤3%, Cu≤3%, Mo≤4%
Detection and Data Processing System	Detector	R928 photomultiplier with high sensitivity and wide spectral range.
	Software	Windows operating system
	Analytical method	Working curve auto-fitting; standard addition method; automatic sensitivity correction; automatic calculation of concentration and content.
	Repeat times	Maximum 20 times of repeat measurement, automatic calculation of mean value, standard deviation and relative standard deviation.
	Multi-task function	Sequential measurement of multi-elements in one sample.
	Condition reading	With model function
	Result printing	Measurement data and final analytical report printout, editing with Excel.
	Standard RS-232 serial port communication	
Characteristic Concentration and Detection Limit	Normal Air-C ₂ H ₂ flame	Cu: Characteristic concentration ≤ 0.025 mg/L, Detection limit≤0.006mg/L;
	Rich oxygen Air-C ₂ H ₂ flame	Ba: Characteristic concentration ≤ 0.22mg/L Al: Characteristic concentration ≤ 0.4mg/L (for AAS-110A)
Function Expansion	Hydridee vapor generator can be connected for Hydridee analysis.	
Dimensions and Weight	1020 (L) x 490 (W) x 540 (H) mm (main unit), unpacked 80kg 420 (L) x 420 (W) x 460 (H) mm (graphite furnace), unpacked 50kg	

AAS-110B/120B/130B, Flame Atomic Absorption Spectrophotometer



Features:

Innovated rich oxygen air-acetylene flame analysis technique (AAS-110B)

The patented flame analysis technique adopting rich oxygen air-acetylene flame as the substitution for nitrous oxide-acetylene flame for high temperature element analyses, such as Ca, Al, Ba, W, Mo, Ti, V, etc. Flame temperature is continuously adjustable between 2300-2950°C, which makes it possible to choose the best atomization temperature for different elements. It features easy operation, low analysis cost and wide flame AAS analytical range. Rich oxygen flame will not pollute the environment and is not harmful to human bodies. It's a break-through in flame AAS analysis.

Flame atomization system with flame emission burner

A flame emission burner head can be installed to perform flame emission analysis to Alkali metals as K, Na etc. (AAS-110B/120B)

Accurate fully automated control system

- Automatic multi-lamp turret, automatic adjustment of lamp current and optimization of light beam position.
- Automatic wavelength scanning and peak picking
- Automatic spectral bandwidth changing
- Automatic ignition

Perfect safety protection measures

Alarm and automatic protection to fuel gas leakage, abnormal flow, insufficient air pressure and abnormal flame extinction in flame system;

Advanced and reliable electronic design

- Adopting large-scale programmable logic array and Inter 12C bus technology
- European type sockets and AMP adapters with high reliability to ensure long term reliability of the whole electronic system.

Easy and practical analysis software

- Easy-to-use AAS analysis software is made under Windows operating system, realizing fast parameter setting and optimization.
- Automatic display of measured data, automatic calculation and analytical result automatic print out.

SPECIFICATIONS

Main Specification	Wavelength range	190-900nm
	Wavelength accuracy	±0.25nm
	Resolution	Two spectral lines of Mn at 279.5nm and 279.8nm can be separated with the spectral bandwidth of 0.2nm and valley-peak energy ratio less than 30%.
	Baseline stability	≤0.004A/30min
	Background correction	The D2 lamp background correction capability at 1A is better than 30 times. The S-H background correction capability at 1.8A is better than 30 times. (only for AAS-110B/120B)
Light Source System	Lamp turret	6-lamp turret (AAS-110B/120B), 4-lamp turret (AAS-130B) Auto-alignment, fully automated scan and peak-picking.
	Lamp current adjustment	Automatic adjustment and display. Wide pulse current: 0~25mA, Narrow pulse current: 0~10mA
	Lamp power supply mode	400Hz square wave pulse; 100Hz narrow square wave pulse + 400Hz wide square wave pulse (AAS-110B/120B)
Optical System	Monochromator	Single beam, Czerny-Turner design grating monochromator
	Grating	1800 l/mm
	Focal length	277mm
	Blazed wavelength	250nm
	Spectral bandwidth	0.1 nm, 0.2nm, 0.4nm, 1.2nm, automatic change.
Flame Atomizer	Burner	10cm single slot all-titanium burner
	Spray chamber	Corrosion resistant all-plastic spray chamber.
	Nebulizer	High efficiency glass nebulizer with metal sleeve. sucking up rate: 6-7mL/min
	Emission burner	Provided with AAS-110A/120A
Detection and Data Processing System	Detector	R928 photomultiplier with high sensitivity and wide spectral range.
	Software	Windows operating system
	Analytical method	Working curve auto-fitting; standard addition method; automatic sensitivity correction; automatic calculation of concentration and content.
	Repeat times	Maximum 20 times of repeat measurement, automatic calculation of mean value, standard deviation and relative standard deviation.
	Multi-task function	Sequential measurement of multi-elements in one sample.
	Condition reading	With model function
	Result printing	Measurement data and final analytical report printout, editing with Excel.
		Standard RS-232 serial port communication
Characteristic Concentration and Detection Limit	Normal Air-C ₂ H ₂ flame	Cu: Characteristic concentration ≤ 0.025 mg/L, Detection limit≤0.006mg/L;
	Rich oxygen Air-C ₂ H ₂ flame	Ba: Characteristic concentration ≤ 0.22mg/L Al: Characteristic concentration ≤ 0.4mg/L (for AAS-110A)
Function Expansion	Hydridee vapor generator can be connected for Hydridee analysis.	
Dimensions and Weight	1020 (L) x 490 (W) x 540 (H) mm (main unit), unpacked 80kg	

AAS-310/320, Flame Atomic Absorption Spectrophotometer



Features:

High cost-effective flame AAS

Reasonable design, adopting the same key parts as in high end instruments, ensures basic functions but less automation to provide an economic model for users

Reliable integration of main unit with microprocessor

Built-in microprocessor with necessary auto-control and data processing functions achieve high reliability of the instrument.

Simple and easy operation

Eye-catching digital display, multi-function data processing ability and fast function-key direct input realize easy and fast analysis.

SPECIFICATIONS

Main Specification	Wavelength range	190-900nm	
	Wavelength accuracy	±0.5nm	
	Resolution	Two spectral lines of Mn at 279.5nm and 279.8nm can be separated with the spectral bandwidth of 0.2nm and valley-peak energy ratio less than 30%.	
	Baseline stability	0.005A/30min	
	Background correction	The D2 lamp background correction capability at 1A is better than 30 times.	
Light Source System	2 lamps are powered simultaneously (one preheating)		
	Lamp current adjustment range: 0~20mA		
	Lamp power supply mode	Powered by 400Hz square pulse	
Optical System	Monochromator	Single beam, Czerny-Turner design grating monochromator	
	Grating	1800 l/mm	
	Focal length	277mm	
	Blazed wavelength	250nm	
	Spectral bandwidth	0.1 nm, 0.2nm, 0.4nm, 1.2nm, 4 steps	
	Adjustment	Manual adjustment for wavelength and slit	
Flame Atomizer	Burner	10cm single slot all-titanium burner	
	Spray chamber	Corrosion resistant all-plastic spray chamber.	
	Nebulizer	High efficiency glass nebulizer with metal sleeve. sucking up rate: 6-7mL/min	
	Position adjustment	Manual adjustment mechanism for vertical, horizontal positions and the rotation angle of the burner	
	Gas line protection	Fuel gas leakage alarm	
Detection and Data Processing System	Detector	R928 photomultiplier with high sensitivity and wide spectral range.	
	Electronic and micro-computer system	Automatic adjustment of light source power. Light energy and negative high-voltage auto-balance.	
	Display mode	LED display of energy and measurement value, concentration direct reading	
	Read mode	Transient, time average, peak height, peak area. Integral time is selectable in the range of 0.1-19.9s.	
	Scale expansion	0.1~99	
	Data processing mode	Automatic calculation of mean, standard deviation and relative standard deviation. Repeating number is in the range of 1-99	
	Measurement mode	Automatic curve fitting with 3~7 standards; Sensitivity auto-correction	
	Result printing	Measurement data, working curve, signal profile and analytical conditions can all be printed out.	
	Instrument self-check	Check current status of each function key	
Characteristic Concentration and Detection Limit	Air-C ₂ H ₂ flame	Cu: Characteristic concentration ≤ 0.025 mg/L, Detection limit ≤ 0.006mg/L;	
Function Expansion	Hydridee vapor generator can be connected for Hydridee analysis.		
Dimensions and Weight	1020 (L) x 490 (W) x 540 (H) mm, 80kg unpacked		

How to choose yours AAS configuration:

Model	O ₂ -enriched flame*1	Flame emission	The number of HCL*2	Auto Alignment	HP-HCL*3	Background correction	Auto sampler	PC control	Flow rate control	Atomizer
AAS-210	Yes	Yes	6	Yes	Yes	S-H, D2	Yes	Yes	Automatic	Air-C ₂ H ₂ Flame*4
										O ₂ -enriched Flame*1
										Graphite Furnace*4
										Hydride Generation*5
AAS-110A	Yes	Yes	6	Yes	Yes	S-H, D2	No	Yes	Manual	Air-C ₂ H ₂ Flame
										O ₂ -enriched Flame
										Graphite Furnace
										Hydride Generation
AAS-120A	No	Yes	6	Yes	Yes	S-H, D2	No	Yes	Manual	Air-C ₂ H ₂ Flame
										Graphite Furnace
										Hydride Generation
AAS-130A	No	No	4	Yes	No	D2	No	Yes	Manual	Air-C ₂ H ₂ Flame
										Graphite Furnace
										Hydride Generation
AAS-110B	Yes	Yes	6	Yes	Yes	S-H, D2	No	Yes	Manual	Air-C ₂ H ₂ Flame
										O ₂ -enriched Flame
										Hydride Generation
AAS-120B	No	Yes	6	Yes	Yes	S-H, D2	No	Yes	Manual	Air-C ₂ H ₂ Flame
										Hydride Generation
AAS-130B	No	No	4	Yes	No	D2	No	Yes	Manual	Air-C ₂ H ₂ Flame
										Hydride Generation
AAS-320	No	No	4	No	No	D2	No	No	Manual	Air-C ₂ H ₂ Flame
										Hydride Generation

Note:

O₂-enriched flame*1 Our patented air-C₂H₂O₂-2 flame (Substitution for N-20C₂H₂ flame)

The number of HCL*3 The number of HCLs could be loaded on the Turret

High performance HCL*3 Two high performance HCLs can be mounted on the turret to increase the sensitivity in flame analysis

Model	Atomizer	Elements
AAS-210	Air-C ₂ H ₂ Flame*4	Ag, Au, Ba, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Sb, Sn, Sr, Te, Tl, Zn
	O ₂ -enriched Flame*1	Be, Ca, Sr, Ba, Al, Ga, Si, Ge, Sn, Y, La, Sm, Eu, Yb, Ti, Zr, V, Cr, Mo, W
	Graphite Furnace*4	Ag, Al, Au, Be, Bi, Cd, Co, Cr, In, Mn, Mo, Ni, Pb, Pd, Sb, Se, Sn, Sr, Te, Tl, V
	Hydride Generation*5	As, Se, Sb, Bi, Pb, Sn, Te, Ge, Hg
AAS-110A	Air-C ₂ H ₂ Flame	Ag, Au, Ba, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Sb, Sn, Sr, Te, Tl, Zn
	O ₂ -enriched Flame	Be, Ca, Sr, Ba, Al, Ga, Si, Ge, Sn, Y, La, Sm, Eu, Yb, Ti, Zr, V, Cr, Mo, W
	Graphite Furnace	Ag, Al, Au, Be, Bi, Cd, Co, Cr, In, Mn, Mo, Ni, Pb, Pd, Sb, Se, Sn, Sr, Te, Tl, V
	Hydride Generation	As, Se, Sb, Bi, Pb, Sn, Te, Ge, Hg
AAS-120A	Air-C ₂ H ₂ Flame	Ag, Au, Ba, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Sb, Sn, Sr, Te, Tl, Zn
	Graphite Furnace	Ag, Al, Au, Be, Bi, Cd, Co, Cr, In, Mn, Mo, Ni, Pb, Pd, Sb, Se, Sn, Sr, Te, Tl, V
	Hydride Generation	As, Se, Sb, Bi, Pb, Sn, Te, Ge, Hg
AAS-130A	Air-C ₂ H ₂ Flame	Ag, Au, Ba, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Sb, Sn, Sr, Te, Tl, Zn
	Graphite Furnace	Ag, Al, Au, Be, Bi, Cd, Co, Cr, In, Mn, Mo, Ni, Pb, Pd, Sb, Se, Sn, Sr, Te, Tl, V
	Hydride Generation	As, Se, Sb, Bi, Pb, Sn, Te, Ge, Hg
AAS-110B	Air-C ₂ H ₂ Flame	Ag, Au, Ba, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Sb, Sn, Sr, Te, Tl, Zn
	O ₂ -enriched Flame	Be, Ca, Sr, Ba, Al, Ga, Si, Ge, Sn, Y, La, Sm, Eu, Yb, Ti, Zr, V, Cr, Mo, W
	Hydride Generation	As, Se, Sb, Bi, Pb, Sn, Te, Ge, Hg
AAS-120B	Air-C ₂ H ₂ Flame	Ag, Au, Ba, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Sb, Sn, Sr, Te, Tl, Zn
	Hydride Generation	As, Se, Sb, Bi, Pb, Sn, Te, Ge, Hg
AAS-130B	Air-C ₂ H ₂ Flame	Ag, Au, Ba, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Sb, Sn, Sr, Te, Tl, Zn
	Hydride Generation	As, Se, Sb, Bi, Pb, Sn, Te, Ge, Hg
AAS-320	Air-C ₂ H ₂ Flame	Ag, Au, Ba, Bi, Ca, Cd, Co, Cr, Cs, Cu, Fe, Ga, In, K, Li, Mg, Mn, Mo, Na, Ni, Pb, Pd, Pt, Rb, Rh, Sb, Sn, Sr, Te, Tl, Zn
	Hydride Generation	As, Se, Sb, Bi, Pb, Sn, Te, Ge, Hg

Note:

Air-C₂H₂ Flame & Graphite Furnace *4 This is integrative. automatically controlled changover of flame and graphite furnace atomizer.

Hydridee Generation*5 This is a optional accessory