

Spectrophotometers

Variety&Reliability



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About us

Innova Bio-Meditech is one of the professional solution provider of laboratory and medical devices. Firmly committed to our mission of “sharing innovative bio-meditech solutions with the world”, we are dedicated to innovation in the fields of Biology Project, Life Science, Pharmacy Industry and Medical Treatment.

Innova Bio-Meditech possesses a sound distribution and service network with business partners in North and Latin America, Europe, Africa and Asia-Pacific etc. We have built up a well established R&D, manufacture network with 3 centers in Qingdao, Shanghai and Suzhou. Inspired by the needs of our customers, we adopt advanced technologies and transform them into accessible innovation. This means constant effort and research, in order to more fully understand the developments of the market, INNOVA produce constantly upgraded product ranges by adding new products year after year.

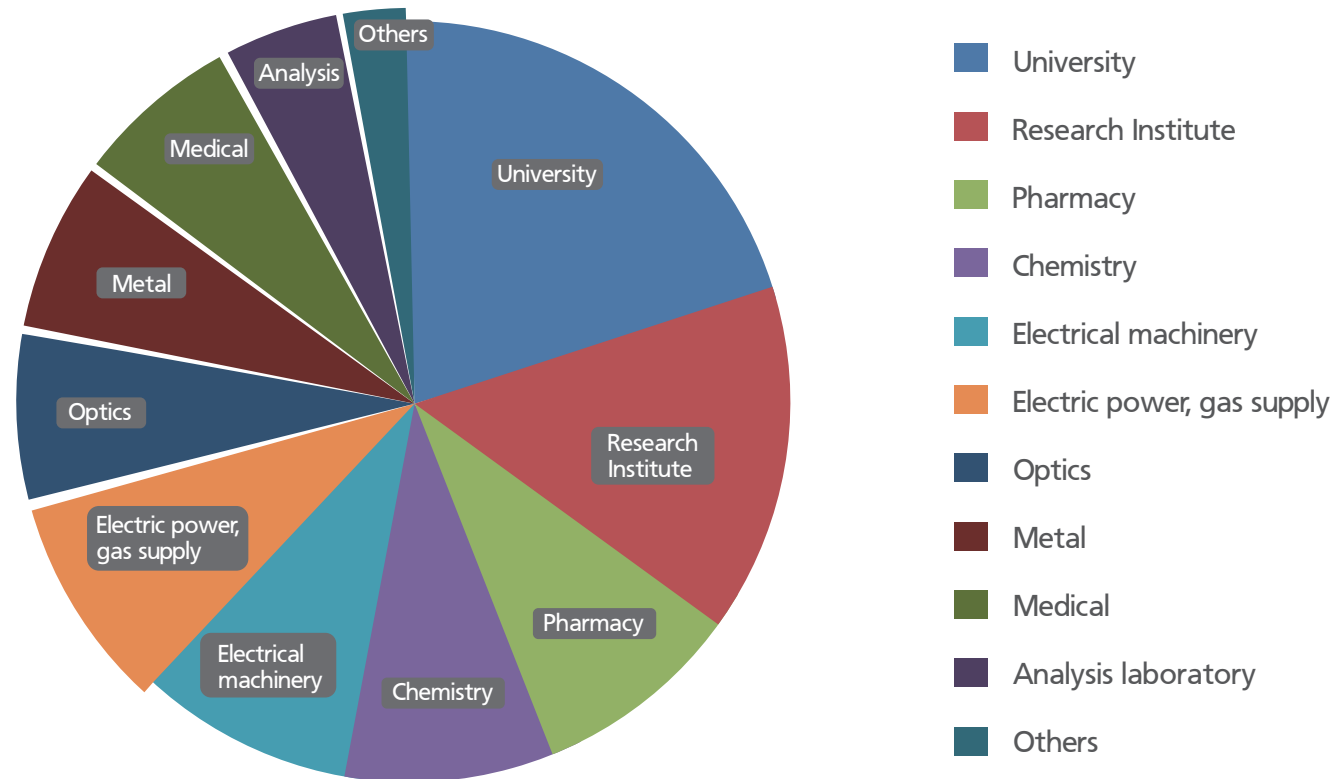
The passion for science



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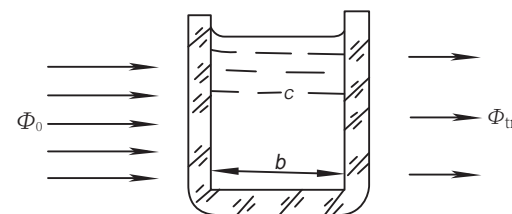
Applications



Basic principle

Beer-Lambert's Law

When a beam of parallel monochromatic light is going through a dilute, uniform and transparent solution (light-absorbing material) vertically, the light absorption is proportional to the concentration and thickness (length, optical path) of the solution.



$$A = -\log \frac{\Phi_{tr}}{\Phi_0}$$

Equation: $A = kcl$

A = Absorbance (optical density of solution)

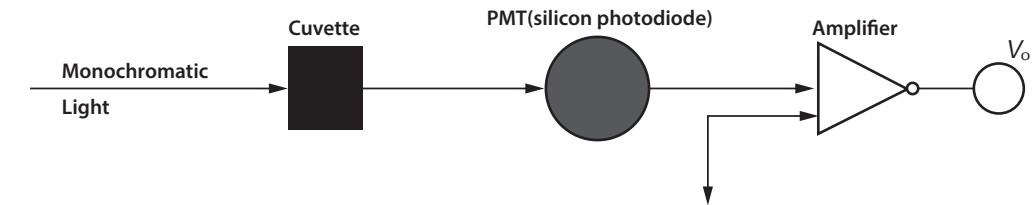
C = Concentration of solution

K = Constant (absorption coefficient)

L = Path length

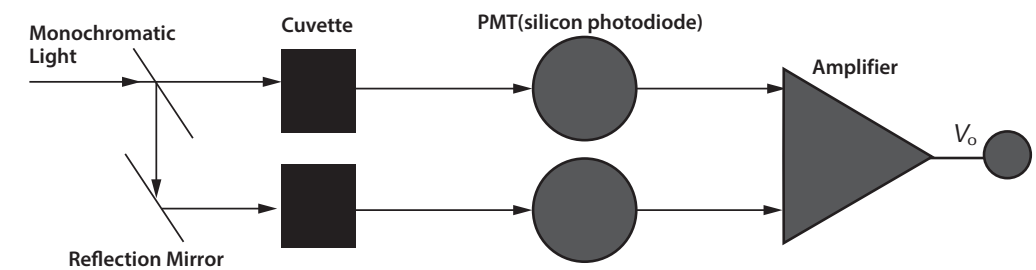
Optical system

• Single beam spectrophotometer



Equipped with one beam, one cuvette, one detector

• Double beam spectrophotometer



Equipped with two beams, two cuvettes, two detectors

Items	Single beam	Double beam
Mechanical structure	simple	complex
Error by light fluctuation	cannot be eliminated	can be eliminated
Error by solvent	cannot be eliminated	can be eliminated
Photometric accuracy	Normal	Higher
Stray light	Normal	less
Drift	Normal	less

Light source

• Sources of Ultraviolet radiation:

Most commonly used sources of UV radiation is deuterium lamp.

Xenon lamp may also be used for UV radiation. Range between 190-340nm (380nm).

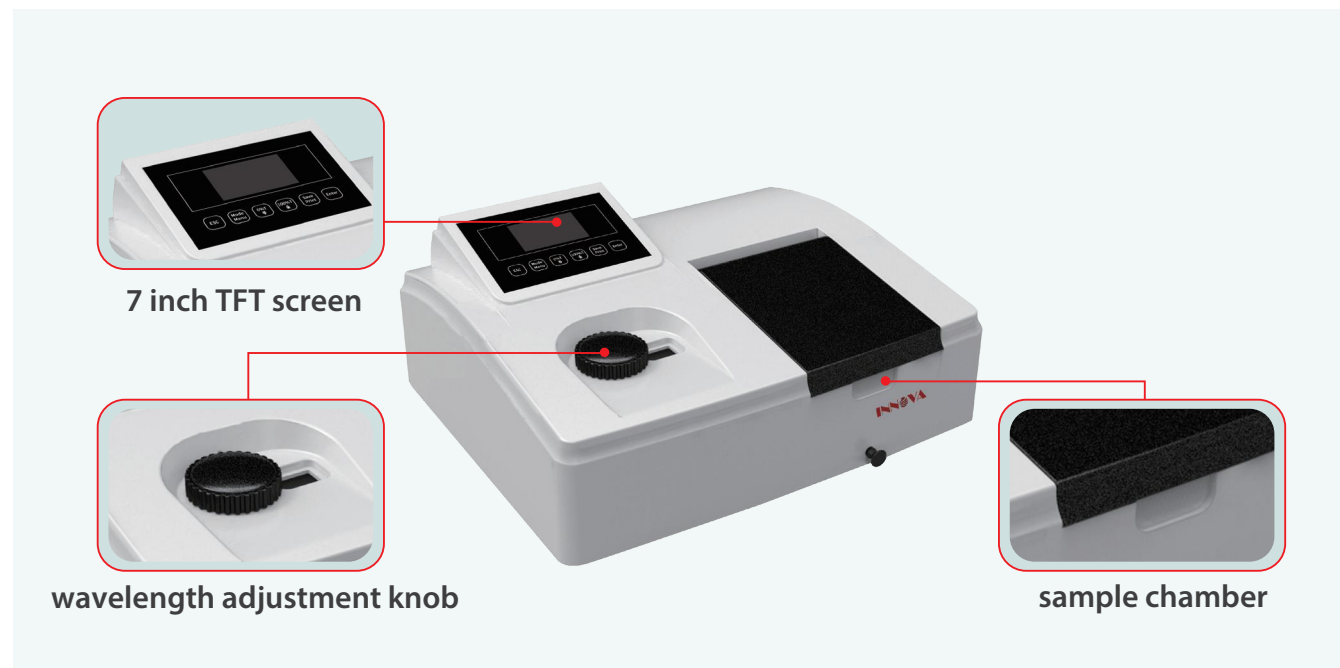
• Sources of Visible radiation:

"Tungsten filament" lamp is the most commonly used source for visible radiation.

It is inexpensive and emits continuous radiation in the range between 340 and 2500nm.

E-3000 Series

— With photometric test and basic quantitative measurement.



Introduction

- Smooth appearance design
- Ingenious color assortment
- White backlit LCD screen
- Oval buttons
- Easy parameter setting and microprocessor make the operation more convenient

Main Features

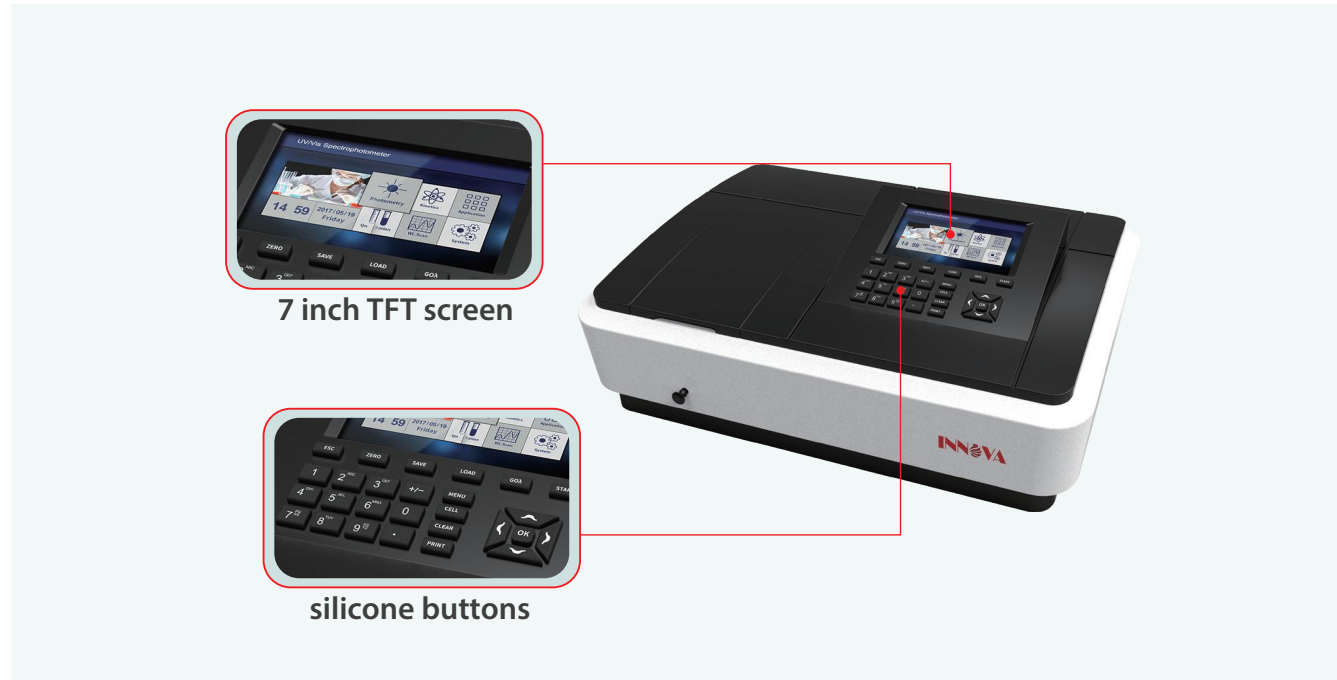
- 70*40 mm backlit LCD screen can show complete parameters like T,A,C,K.
- Calibrate 0%A and 100%T automatically.
- Large sample compartment can hold various cells from 5mm to 100mm and meet different test requirements.
- RS232 output port and professional analysis software UV-PRO1.0 with the functions of quantitative analysis.
- Automatic lamp switches and manual wavelength setting.
- Save and read out the test data and values of K and B.

Technical Parameter

Model	E-3000V	E-3000UV
UV/Vis	Vis	UV+Vis
Optical System	Single Beam	
Display	70*40mm backlit LCD	
Wavelength Range	320 - 1020nm	190 - 1020nm
Spectral Bandwidth	4nm	
Wavelength Accuracy	±2nm	
Wavelength Repeatability	≤1nm	
Photometric Accuracy	0.5%T	
Photometric Repeatability	0.2%T	
Stray Light	≤0.15%T@360nm	
Stability	0.002A@500nm	
Output Port	RS232	
Light Source	Tungsten Halogen Lamp	Tungsten Halogen/Deuterium Lamp
Power Requirements	110-220V, 50-60Hz	
Photometric Range	0-200%T, -0.3-3A,0-9999C(0-9999F)	
Dimension	437*363*180mm	
Weight	6.5kg	
Shipping Dimensions and Weight	530*460*320mm, 9 kg	

C-5000 Series

— With photometric, quantitation, kinetics, multi-wavelength test.



Introduction

- Steady, modern and elegant appearance design. Adopt the newest microcomputer technology and electronic control system. Optimized optical system and structure can both extend new functions and ensure the accuracy, stability and durability.

Main Features

- 7 inch TFT screen and long life, more comfortable and sensitive silicone buttons.
- Support USB storage and different data formats such as Excel, txt and image (PC software). Users can output test data to flash memory, open and edit them on computers directly without any auxiliary software.
- Standard RS232,USB(A) and USB(B) port.
- High-efficiency holographic grating of 1200 lines/mm and low stray light.
- The equipment has long-life socket type tungsten-halogen and deuterium lamps , can switch the lamps according to test needs and record its working time automatically. Socket type lamps make the replacement much easier.
- Excellent silicon photodiode can guarantee the equipment is highly sensitive and stable.
- Huge sample chamber and various accessories can meet all kinds of needs.
- Can be connected to printer directly and output test charts and data.
- Powerful PC software (optional) can realize scanning function.

Technical Parameter

Model	C-5000V	C-5000UV
UV/Vis	Vis	UV+Vis
Optical System	Single Beam	
Display	7-inch TFT screen	
Wavelength Range	320 - 1100nm	190 - 1100nm
Spectral Bandwidth	2nm	2nm
Wavelength Accuracy	±0.3nm	±0.3nm
Wavelength Repeatability	≤0.2nm	
Photometric Accuracy	0.3%T (0-100%T), ±0.002A(0-0.5A), ±0.004A(0.5-1A)	
Photometric Repeatability	≤0.15%T (0-100%T), 0.001A(0-0.5A), 0.002A(0.5-1A)	
Stray Light	≤0.05%T@220 nm, 360nm	
Stability	±0.002 A/h@500nm	
Baseline Flatness	±0.002A	±0.002A
Noise	±0.0005A	
Working Mode	T,A,C,E	
Wavelength Setting	Automatic	
Photometric Range	0-200%T, -0.3 - 3A, 0-9999C(0-9999F)	
Detector	Solid Silicon Photodiode	
Software	Optional with extended functions of scanning and DNA/protein tests	
Printer	Optional	
Keypad	Silicone Buttons	
Data Port	RS232, USB(A),USB(B)	
Light Source	Tungsten Halogen Lamp	Tungsten Halogen/Deuterium Lamp
Power Requirements	110-220V, 50-60Hz	
Humidity Range	Less than 85%	
Dimension	530*410*250mm	
Net weight	13kg	
Shipping Dimensions and Weight	750*630*410mm, 21kg	

C-5100/5200 Series

— With all functions.



Introduction

- Steady, modern and elegant appearance design. Adopt the newest microcomputer technology and electronic control system. Optimized optical system and structure can both extend new functions and ensure the accuracy, stability and durability.

Main Features

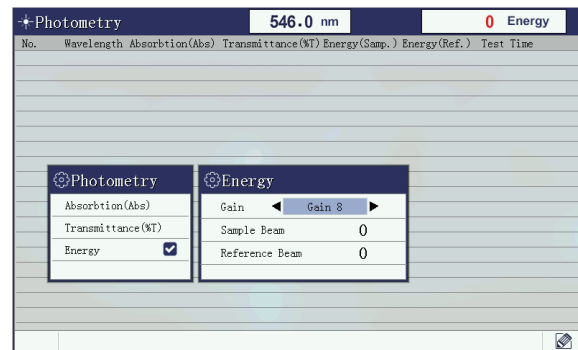
- 7 inch TFT screen and long life, more comfortable and sensitive silicone buttons. The instrument can show various scanning curves and charts for users to complete various tests without computers.
- Support USB storage and different data formats such as Excel, txt and image (PC software). Users can output test data to flash memory, open and edit them on computers directly without any auxiliary software.
- Advanced hardware and 32-bit Cortex_M3 processor with the clock speed 120MHz. The equipment can store 5000 pieces of data and 500 curves.
- High-efficiency holographic grating of 1200 lines/mm and low stray light.
- The equipment has long-life socket type tungsten-halogen and deuterium lamps which can work up to 2000 hours, can switch the lamps according to test needs and record its working time automatically. Socket type lamps make the replacement much easier.
- Excellent silicon photodiode can guarantee the equipment is highly sensitive and stable.
- Huge sample chamber and various accessories can meet all kinds of needs.
- Can be connected to printer directly and output test charts and data.
- Powerful PC software (optional).
- Standard RS232,USB(A) and USB(B) port.

Technical Parameter

Model	C-5100	C-5100S	C-5100A	C-5200	C-5200S	C-5200A
UV/Vis	UV+Vis					
Display	7 inch TFT					
Keyboard Control	Silicone Buttons					
Optical System	Single Beam			Double Beam		
	Holographic grating, 1200 lines/mm					
Slit Width	2nm	1nm	0.5,1,2,4nm	2nm	1nm	0.5,1,2,4nm
Wavelength Range	190 - 1100nm					
Wavelength Accuracy	±0.3nm					
Wavelength Repeatability	≤0.2nm					
Photometric Accuracy	0.2%T (0-100%T), ±0.002A(0-0.5A), ±0.004A(0.5-1A)					
Photometric Repeatability	≤0.15%T (0-100%T), 0.001A(0-0.5A), 0.002A (0.5-1A)					
Stray Light	≤0.03%T@220nm, 360nm					
Stability	±0.002A/h@500nm					
Photometric Range	0-200%T, -0.3-3.0A, 0-99999C(0-99999F)					
Baseline Flatness	±0.002A (200-1000nm)					
Noise	0.0003A@500nm					
Working Mode	T,A,C,E					
Wavelength Setting	Automatic					
Scanning Speed	Low, Medium, High(up to 3000nm/min)					
Detector	Solid Silicon Photodiode					
Light Source	Tungsten Halogen/Deuterium Lamp					
Data Output	RS232, USB(A),USB(B)					
Processor	Cortex_M3, 120Mhz					
Power Requirements	AC 110-220V 50-60Hz					
Dimension	610*465*240mm					830*630*320mm
Weight	23kg					34kg
Shipping Dimensions and Weight	790*660*370mm					940*740*510mm
	28kg					52kg

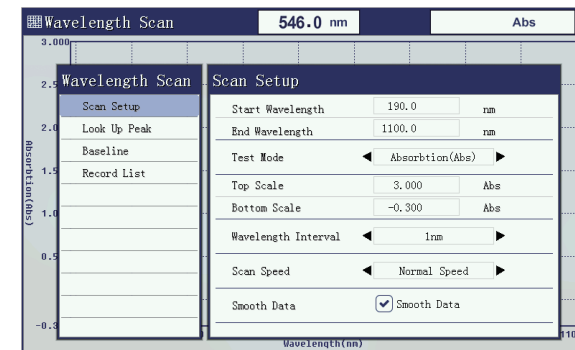
Function Design

(For TFT screen + silicone button)



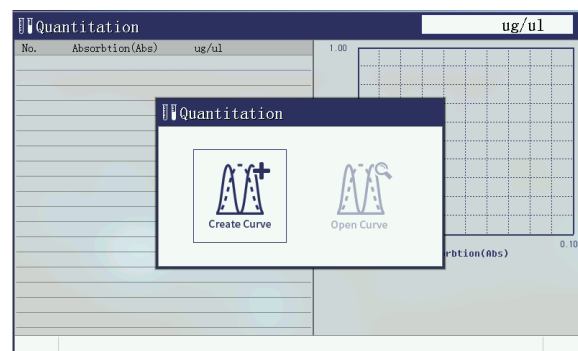
Photometry

There are three test modes.
Absorbance, transmittance and energy.



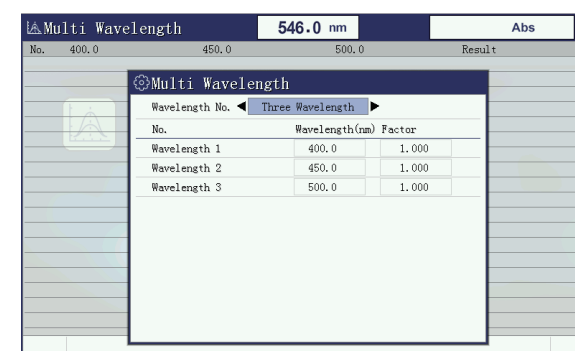
Wavelength Scanning(Qualitative Test)

To test sample solution absorbance peak, can scan the sample characteristic curve of any wavelength range between 190 and 1100nm. Users can look up the peak value on the standalone device.



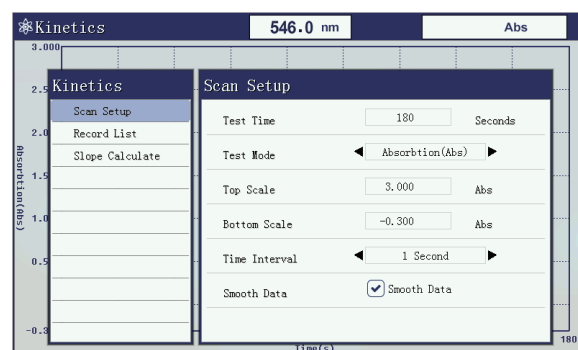
Quantitative Measurement

To test sample solution concentration, you can choose different methods like coefficient, standard curve, linearity, linearity through zero and quadratic. Up to 15 standard samples can be used to create a curve. Advanced arithmetic makes curvilinear regression more precise and test data more accurate.



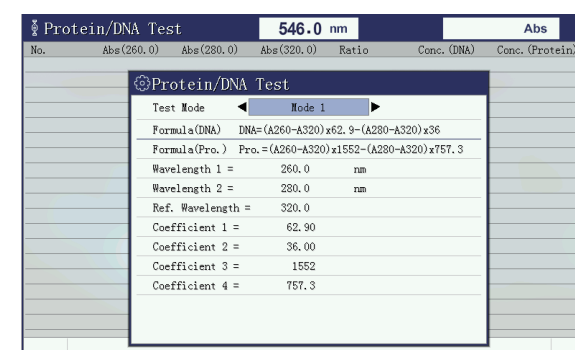
Multi Wavelength Measurement

It is much more convenient for users to test the absorbance of several wavelengths for the same sample solution, which is much simpler than single wavelength testing.



Kinetics Measurement(Time Scanning)

To test the sample chemical reaction process by fixed time scanning the sample solution with fixed wavelength. The equipment can calculate its changing rate after entering the corresponding parameters.



DNA/Protein Measurement

There are two test modes and formulas based on absorbance ratio 260nm/280nm or 230nm with subtracted absorbance at 320nm.

X-6200

— With all functions.



Introduction

International advanced xenon light (Hamamatsu) source makes the instrument more stable and reliable. Three years warranty. Adopt the newest microcomputer technology and electronic control system. Optimized optical system and structure can both extend new functions and ensure the accuracy, stability and durability.

Main Features

- 7 inch TFT screen and long life, more comfortable and sensitive silicone buttons or capacitive touch screen. The instrument can show various scanning curves and charts for users to complete various tests without computers.
- Support USB storage and different data formats such as Excel, txt and image(PC software). Users can output test data to flash memory, open and edit them on computers directly without any auxiliary software.
- Advanced hardware and 32-bit Cortex_M3 processor with the clock speed 120MHz. The equipment can store 5000 pieces of data and 500 curves.
- High-efficiency holographic grating of 1200 lines/mm and low stray light.
- The equipment has long-life socket type xenon lamp which can work up to 5 years. Socket type lamp makes the replacement much easier.
- Excellent silicon photodiode can guarantee the equipment is highly sensitive and stable.
- Huge sample chamber and various accessories can meet all kinds of needs.
- Can be connected to printer directly and output test charts and data.
- Powerful PC software (optional).
- Standard RS232,USB(A) and USB(B) port.

Technical Parameter

Model	X-6200	X-6200S	X-6200A	X-6200T	X-6200TS	X-6200TA
UV/Vis	UV+Vis					
Display	7 inch TFT					
Keyboard Control	Silicone Buttons			Touch Screen		
Optical System	Double Beam					
	Holographic grating, 1200 lines/mm					
Spectral Bandwidth	2nm	1nm	0.5,1,2,4nm	2nm	1nm	0.5,1,2,4nm
Wavelength Range	190 - 1100nm					
Wavelength Accuracy	±0.6nm					
Wavelength Repeatability	≤0.2nm					
Photometric Accuracy	0.3%T (0-100%T) , ±0.005A(0-0.5A) , ±0.01A(0.5-1A)					
Photometric Repeatability	≤0.2%T (0-100%T), 0.003A(0-0.5A), 0.005A (0.5-1A)					
Stray Light	≤0.1%T@220nm, 360nm					
Stability	±0.002A/h@500nm					
Photometric Range	0-200%T, -0.3-3.0A, 0-9999C(0-9999F)					
Baseline Flatness	±0.002A (200-1000nm)					
Noise	0.002A@500nm					
Working Mode	T,A,C,E					
Wavelength Setting	Automatic					
Scanning Speed	Low, Medium, High(up to 3000nm/min)					
Detector	Solid Silicon Photodiode					
Light Source	Xenon Lamp					
Data Output	RS232, USB(A),USB(B)					
Processor	Cortex_M3, 120Mhz					
Power Requirements	AC 110-220V 50-60Hz					
Dimension	610*465*240mm	830*630*320mm	610*465*240mm	830*630*320mm		
Weight	23kg	34kg	23kg	34kg		
Shipping Dimensions and Weight	790*660*370mm	940*740*510mm	790*660*370mm	940*740*510mm		
	28kg	52kg	28kg	52kg		

T-7100/7200

— With all functions.

Introduction

Excellent optical system, high level mechanical system, advanced circuit control system, rigorous production process, friendly and intuitive software interface, good technical specifications, stable and reliable performance can meet the analysis requirements from high level and professional customers.



Main Features

Appearance and internal structure

Modern and elegant appearance, extendable design, separate structure design for optical and circuit system can efficiently avoid the loss of photometric energy.

Convenient and intuitive operation interface

This series has 7-inch high resolution color capacitive touch screen and newly developed UV-SUPER2.0 software (optional) with strong functions, which make the operation simple and easy.

Excellent performance and stability

Totally enclosed monochromator and optical mirror coated with SiO₂ guarantee the optical components are not influenced by environment.

- Philips and Milas lamps.
- Newly improved screw pole drive structure makes good wavelength repeatability and high wavelength accuracy.
- Totally new design, superior materials and rigorous production process.

Advanced photoelectric test system

- 32 bit ARM11 microcontroller with clock speed up to 533MHz.
- 20 bit analog digital device specialized for photoelectric data collection and processing from BB company.
- Support internal data storage, there are standard RS232, USB(A) and USB(B) port.

Simple and convenient maintenance

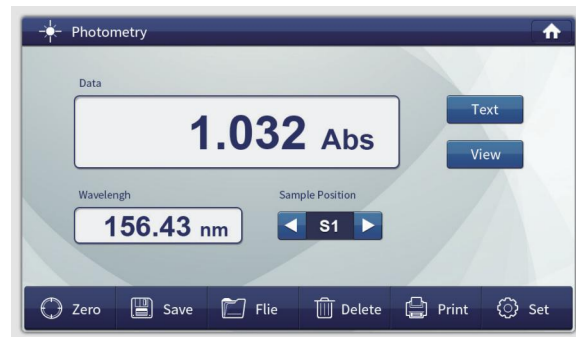
- Socket type lamps make the optical adjustment not necessary and maintenance much easier.
- Separated optical and circuit system has no cross influence and make the instrument more reliable.

Technical Parameter

Model	T-7100	T-7200	T-7200S	T-7200A
UV/Vis	UV+Vis			
Display	7 inch TFT color capacitive touch screen			
Wavelength Range	190 -1100nm			
Optical System	Single Beam	Double Beam		
Spectral Bandwidth	2nm	2nm	1nm	0.5,1,2,4nm
Wavelength Accuracy	±0.3nm	±0.3nm	±0.3nm	±0.3nm
Wavelength Repeatability	≤0.2nm	≤0.2nm	≤0.2nm	≤0.2nm
Photometric Range	0-200%T, -0.3-3.0A, 0-9999C(0-9999F)			
Photometric Accuracy	0.2%T (0-100%T), ±0.002A(0-0.5A), ±0.004A(0.5-1A)			
Photometric Repeatability	≤0.15%T (0-100%T), 0.001A(0-0.5A), 0.002A(0.5-1A)			
Scanning Speed	Low, Medium, High(up to 3000nm/min)			
Stray Light	≤0.05%T@220nm,360nm			
Baseline Flatness	±0.003A	±0.002A	±0.002A	±0.002A
Drift	0.003A/30min @500nm	0.002A/30min @500nm	0.002A/30min @500nm	0.002A/30min @500nm
Noise	0.0003A@500nm			
Working Mode	T,A,C,E			
Wavelength Setting	Automatic			
Detector	Solid Silicon Photodiode			
Light Source	Tungsten Halogen/Deuterium Lamp			
Output Port	RS232, USB(A),USB(B)			
Power Requirements	AC 110-220V 50-60Hz			
Humidity Range	Less Than 85%			
Weight	610*465*240mm			830*630*320mm
Dimension	23kg			34kg
Shipping Dimensions and Weight	790*660*370mm, 28kg			940*740*510mm 52kg

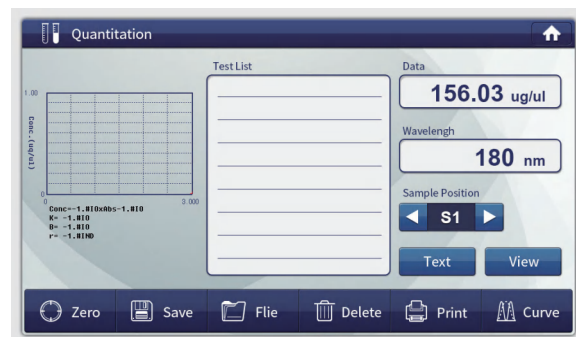
Function Design

(For Touch Screen)



Photometry

There are three test modes.
Absorbance, transmittance and energy.



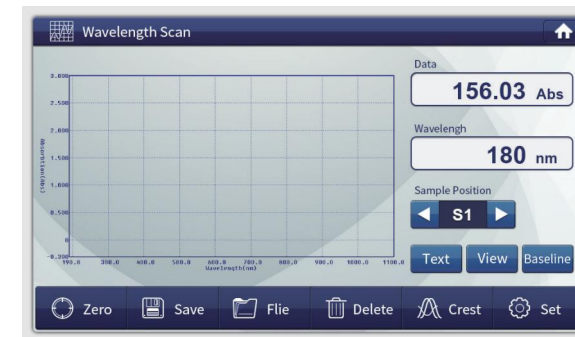
Quantitative Measurement

To test sample solution concentration, you can choose different methods like coefficient, standard curve, linearity, linearity through zero and quadratic. Up to 15 standard samples can be used to create a curve. Advanced arithmetic makes curvilinear regression more precise and test data more accurate.



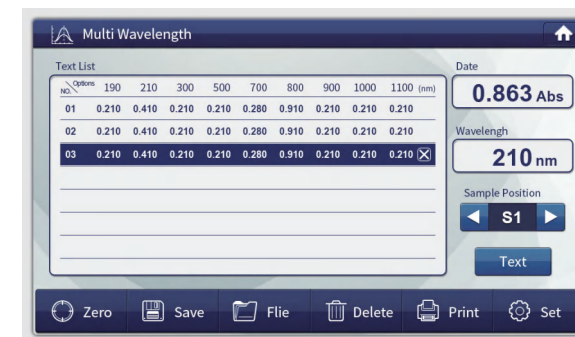
Kinetics Measurement(Time Scanning)

To test the sample chemical reaction process by fixed time scanning the sample solution with fixed wavelength. The equipment can calculate its changing rate after entering the corresponding parameters.



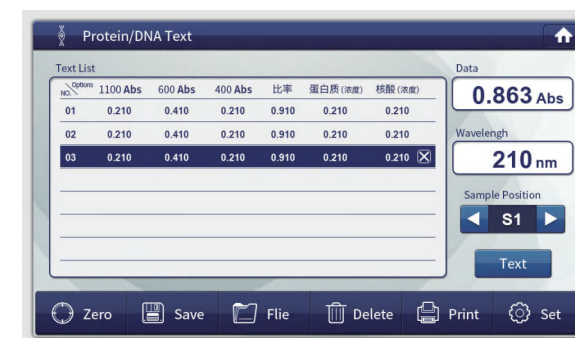
Wavelength Scanning(Qualitative Test)

To test sample solution absorbance peak, can scan the sample characteristic curve of any wavelength range between 190 and 1100nm. You can look up the peak value on the standalone device.



Multi Wavelength Measurement

It is much more convenient for users to test the absorbance of several wavelengths for the same sample solution, which is much simpler than single wavelength testing.



DNA/Protein Measurement

There are two test modes and formulas based on absorbance ratio 260nm/280nm or 230nm with subtracted absorbance at 320nm.

Accessories

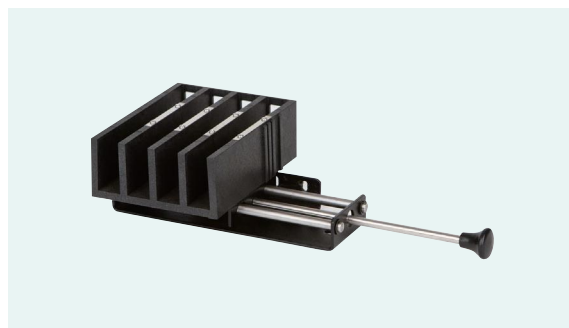
Cell Holder



Manual 4-position 1cm cell holder
(standard for single beam)



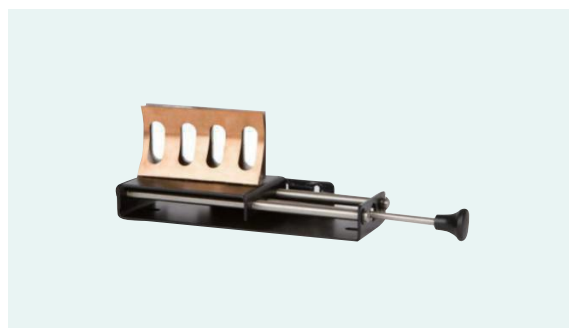
Single hole 1cm cell holder
(standard for double beam)



Manual 4-position 5/10cm cell holder
(optional for single beam)



Single hole 5cm cell holder
(optional for double beam)



Manual 4-position film holder
(optional for C-5000, C-5100 Series)



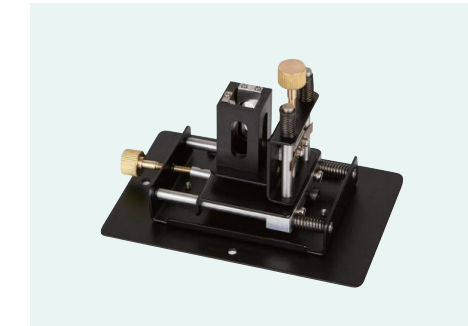
Single hole film holder
(optional for C-5200, X & T Series)



Automatic 8-position cell holder
(optional for all models except for E-3000)



Tube rack
(optional for all models except for E-3000)



Adjustable micro cell holder
(optional for all models except for E-3000)

Other Accessories

Items	Description
Glass Cuvette	5/10/20/30/40/50/100mm, for all visible and UV models
Quartz Cuvette	5/10/20/30/40/50/100mm, for all UV models
Software for E-3000 Series (only for XP systems)	For E-3000V & E-3000UV
Software for Auto Wavelength & Single Beam	For C-5000, C-5100, T-7100 Series
Software for Auto Wavelength & Double Beam	For C-5200, X-6200, T-7200 Series
Software with audit trail and data logging	For C-5000, C-5100, T-7100 Series
Software with audit trail and data logging	For C-5200, X-6200, T-7200 Series
Auto Sampler/Sipper w/o heating	Optional for all models except for E-3000
Auto Sampler/Sipper with heating	Optional for all models except for E-3000
Thermal printer	Optional for all models
Cut-off filter	Stray light test
Holmium Oxide Filter	Wavelength accuracy measurement
Neutral Glass Filter	Visible range transmittance accuracy test
Potassium Biochromate Filter	UV range transmittance accuracy test
Integrating Sphere	For touch screen spectrophotometers(T-7100&T-7200 series)