

UV-6300PC DOUBLE BEAM SPECTROPHOTOMETER

UV-6300PC is an advanced double beam design, with 1.0nm fixed 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, the memory is 32K. They are suitable for pharmaceutical, biochemical and clinical lab applications as well as routine applications such as quantitative analysis, kinetics, wavelength scan, multiple components and DNA/Protein, PC Windows application software make these instruments versatile. All instruments provide excellent performance for measurements.



Specifications

Model	UV-6300PC
Wavelength Range	190-1100nm
Spectral Bandwidth	1nm
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 ±0.003A@1A
Photometric Range	0-200%T, -0.3-3A
Stray Light	0.04%T@220nm, 360nm
Stability	0.0003A/h@500nm
Display	5 inches LCD (320*240 dots)
Baseline Flatness	±0.0005A
Standard Cell Holder	Standard 10mm single cell holder (2pcs)
Sample Compartment	Standard 10mm pathlength cuvette
Light Source	Tungsten & Deuterium lamp (pre-aligned)
Output	USB Type A port for USB memory device (Right side)
	USB Type B port for optional computer connectivity (Back)
	Parallel Port for Printer
Power Requirement	AC 110/220V 50/60HZ
Dimension(L*W*H)	589*428*200mm
Weight	22kg

Features

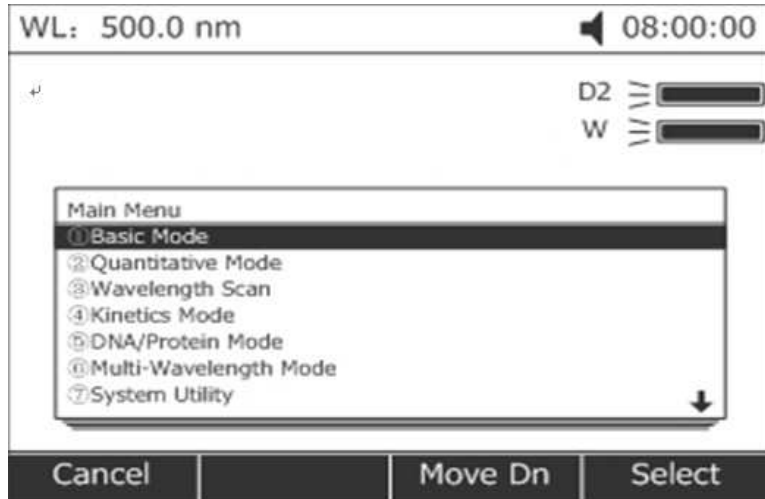
1. Fixed Bandwidths
2. For Stand-alone models, all software methods are included as built-in standard; this eliminates the need of software.
3. Online software upgrading via internet helps to keep it updated.
4. Data Download-to-PC software expands the data storage to unlimited.
5. The stand-alone model has 5 inch screen and the PC model has UV/Vis Analyst software.
6. Data can be saved by USB memory device directly
Stand-alone models of UV-6 Series have the same functions as UV-3 series, see next page for details.



Brief Function Introduction

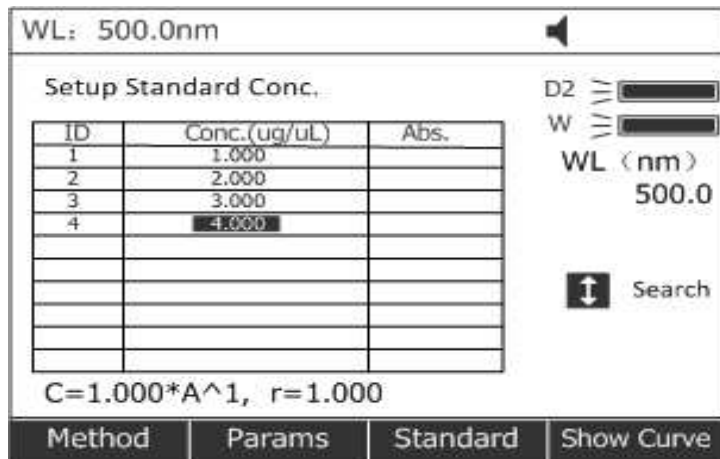
All methods are included as built-in standard; this eliminates the need of software. Online software update via internet.

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



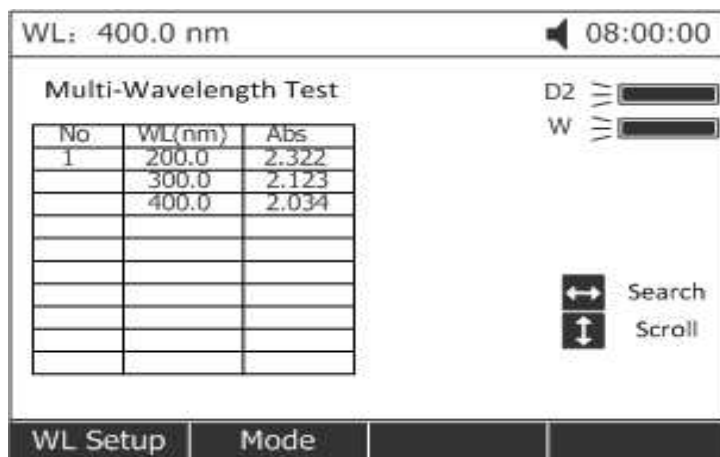
Standard Curve

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.



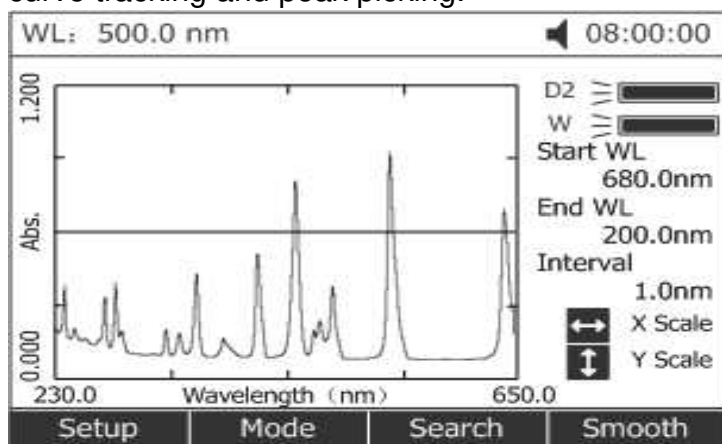
Multi-Wavelength

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



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 3000 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.

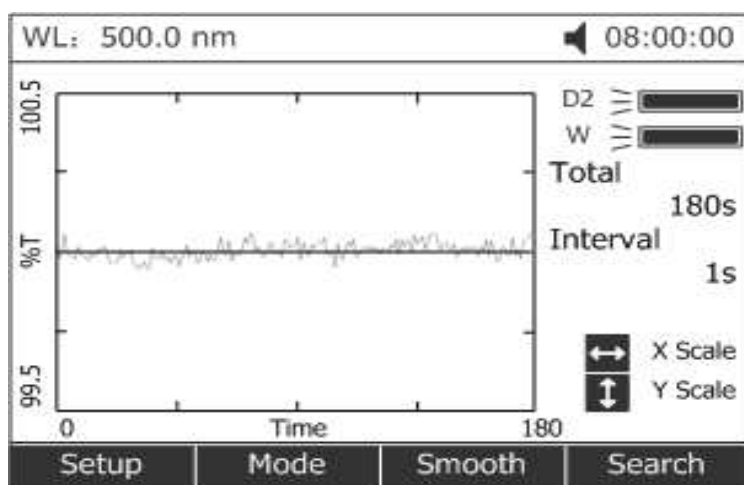


Kinetics

This mode may be used for scanning time course or reacting 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.



DNA/Protein Test

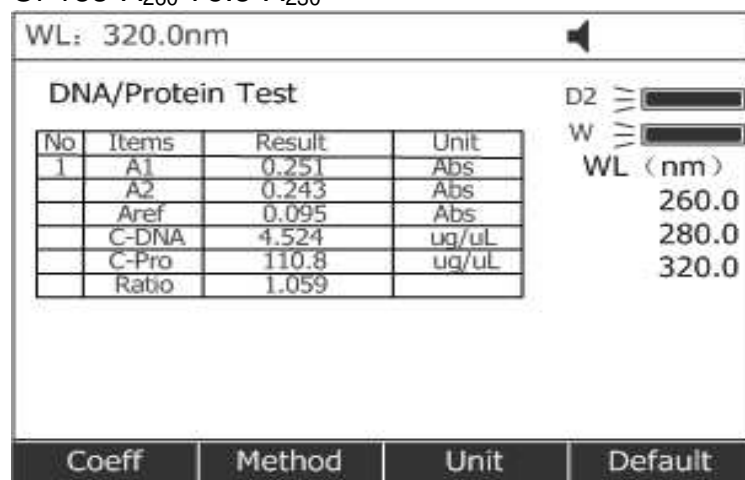
Concentration and DNA purity are calculated by Absorbance ratios 260nm/280nm or 260nm/230nm with optional subtracted absorbance at 320nm

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

$$\text{Or } 49.1 * A_{260} - 3.48 * A_{230}$$

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

$$\text{Or } 183 * A_{260} - 75.8 * A_{230}$$



The screenshot shows a software window titled "DNA/Protein Test" with a wavelength (WL) of 320.0nm. It contains a table with the following data:

No	Items	Result	Unit
1	A1	0.251	Abs
	A2	0.243	Abs
	Aref	0.095	Abs
	C-DNA	4.524	ug/uL
	C-Pro	110.8	ug/uL
	Ratio	1.059	

Below the table is a legend with columns: Coeff, Method, Unit, Default. To the right of the table, there are controls for D2, W, and WL (nm) with values 260.0, 280.0, and 320.0 respectively.

(PC-Control software)

The 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 UV3/6 series PC models and is optional to stand-alone models.

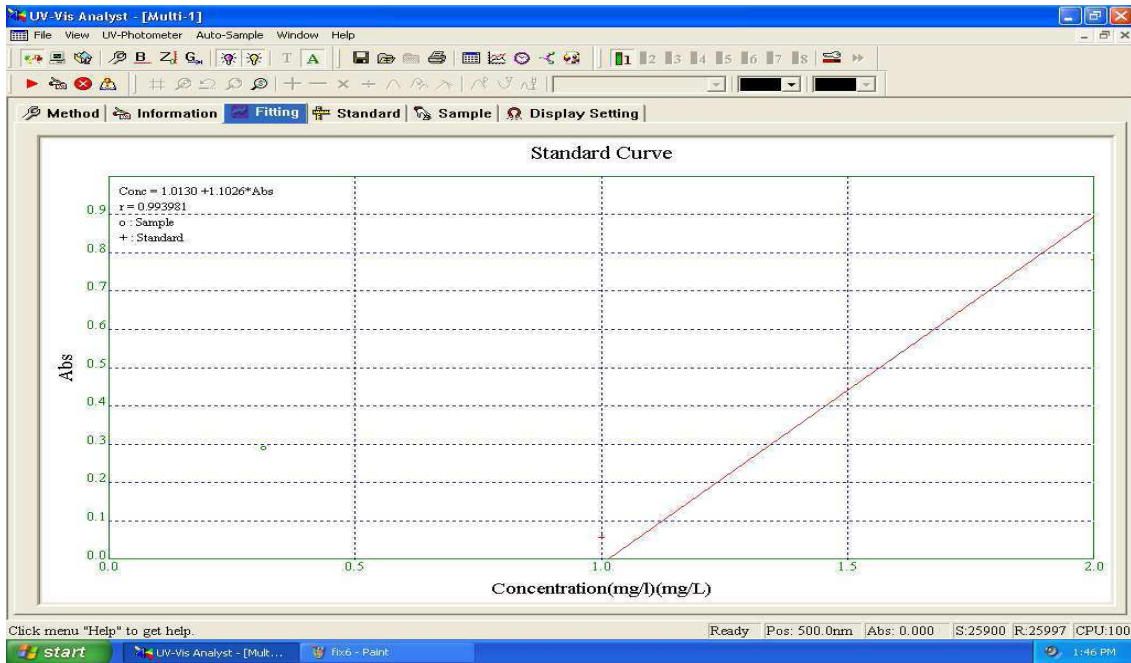
The PC application software offers

1. Photometric Mode
2. Quantitative test (Standard curve)
3. Wavelength Scan
4. Kinetics
5. DNA/Protein
6. Multi-Wavelength
7. System Utility

Quantitative Test (Standard curve)

Use up to 20 standards to establish standard curve. Four methods for fitting a curve:

1. Linear fit
2. Linear through zero
3. Square fit
4. Cubic fit



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)

UV-Vis Analyst - [Multi-1]

File View UV-Photometer Auto-Sample Window Help

Method Information **Fitting** Standard Sample Display Setting

Number of WL points: 20
Calculate Concentration:
Use Standard Samples:

Curve Fit
Linear Fit

K0: 1.01301
K1: 1.10262
K2: 0
K3: 0

$\Delta A = A_2 - \frac{m_2 A_1 + n_2 A_3}{m_2 + n_2}$
 $m_2 = A_3 - A_2 \quad n_2 = A_2 - A_1$

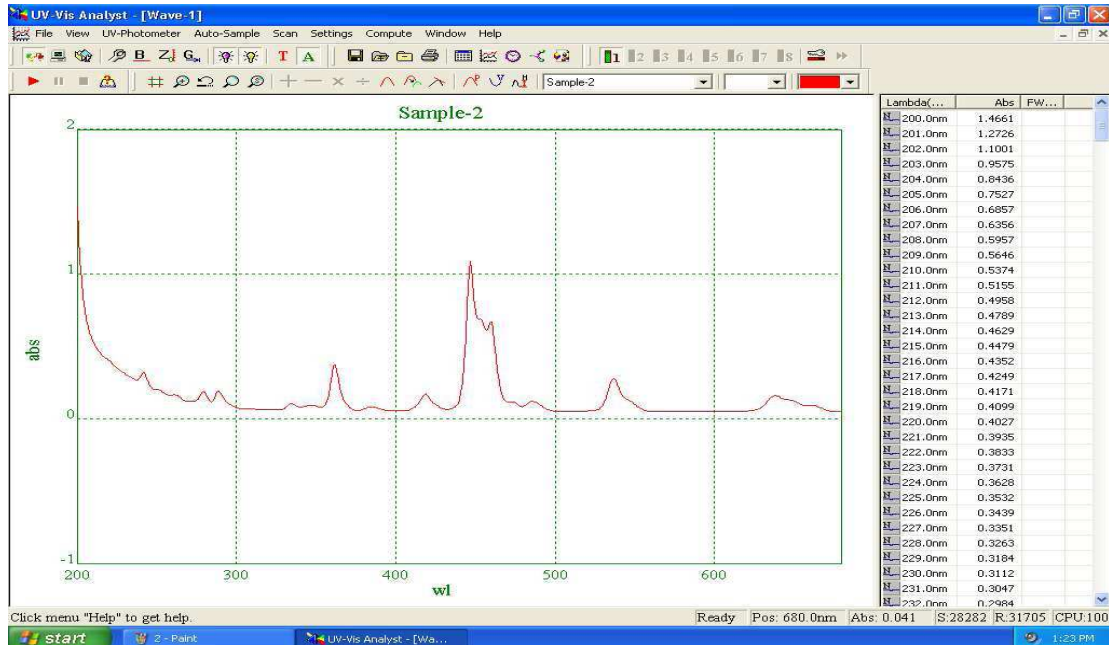
Wavelength		Wavelength	
WL 1	500	WL 11	360
WL 2	510	WL 12	370
WL 3	520	WL 13	380
WL 4	530	WL 14	390
WL 5	540	WL 15	400
WL 6	510	WL 16	410
WL 7	320	WL 17	420
WL 8	330	WL 18	430
WL 9	340	WL 19	440
WL 10	350	WL 20	450

Click menu "Help" to get help. Ready Pos: 500.0nm Abs: 0.003 S:25825 R:25997 CPU:100

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:

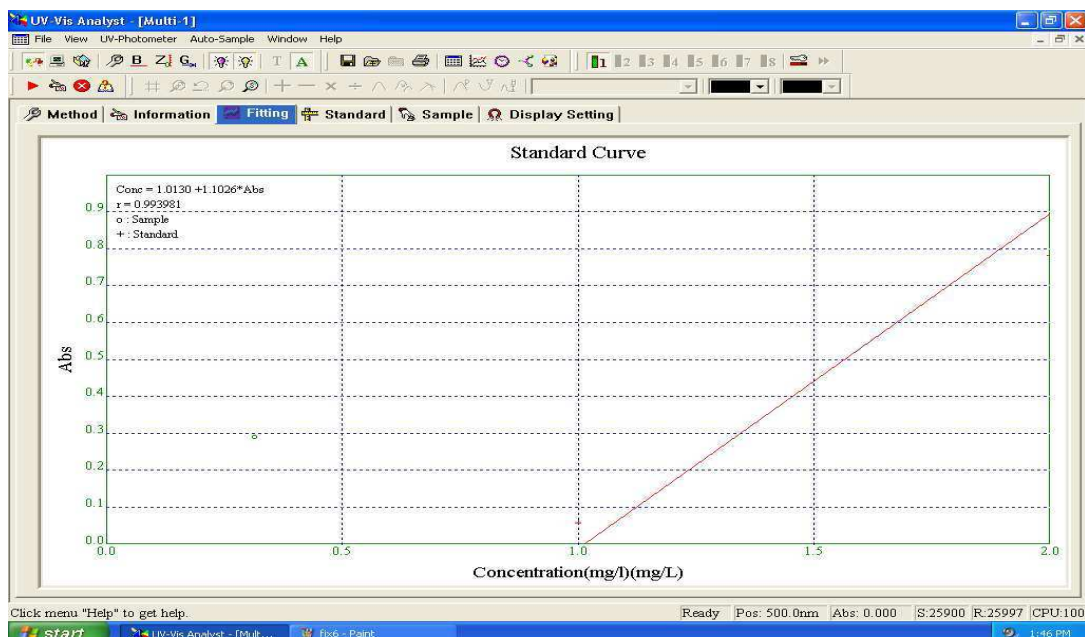
1. Re-scaling axes, curve.
2. 1st to 4th derivative.
3. Smoothing, combination, zooming, overlap.



Kinetics (Abs. VS Time)

The Kinetics mode may be used for scanning time course or reacting rate calculations. Abs. VS Time graphs are displayed on the screen in real time. Wait 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.

