UV/VIS SPECTROPHOTOMETER

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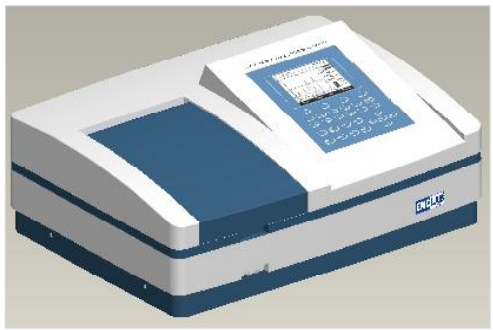
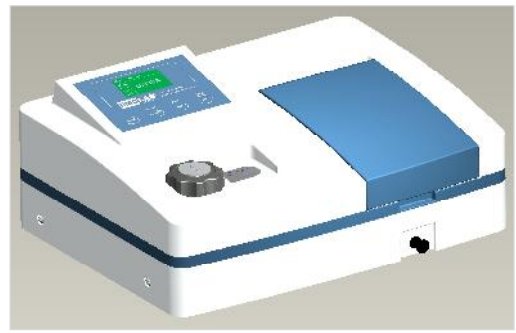
EMCLAB Spectrophotometer selection guide

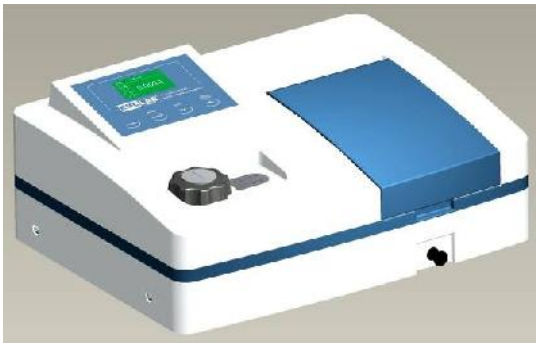
Model	Optical System	Lamp sources	Wavelength Range	Band Width	Comments
EMC V-1100D	Single Beam	Tungsten Lamp	325-1000nm	4 nm	
EMC UV-1100	Single Beam	Tungsten & Deuterium Lamp	200-1000 nm	4 nm	Laboratory workhouse
EMC UV-6100	Double Beam	Tungsten &Deuterium Lamp	190-1100 nm	1.8nm	Ideal for QC labs
EMC UV-6100/PC	Double Beam	Tungsten &Deuterium Lamp	190-1100 nm	1.8nm	

"PC" means with PC software All products have CE certificate Other models on request!

All products have safety certifications (CE 2006/95/EC Report No.:15027384 001)







EMC V-1100D/UV-1100D

V-1100D is the only model of manually setting wavelength, but precise design and high quality components ensures excellent performance. It is widely used in high schools and colleges for general analysis and experiments.

Specifications

Model	EMC V-1100D
Wavelength Range	325-1000nm
Spectral Bandwidth	4nm
Optical System	Single Beam , Grating 1200 lines/mm
Wavelength Accuracy	±2nm
Wavelength Repeatability	1nm
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 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
Output	USB Port & Parallel Port(printer)
Power Requirement	AC 85V~265V 50/60Hz
Dimensions(W*D*H)	480*360*160mm
Weight	10kg

Features

1. Large LCD Screen(128*64Dots).
2. Wavelength can be read out from the screen directly.
3. Auto Zero and Blank.
4. Parallel port, printed directly.
5. Large sample compartment, it can accommodate 5-100mm path length cuvettes with optional holders.
6. Pre-aligned design ensure the user can change lamp conveniently.
7. Optional software PC soft M. Wave Professional based on Windows can expand the applications to Standard Curve & Kinetics
8. High quality silicon photometric diode detector and 1200 lines/mm grating ensure high accuracy and precision.

EMC V1200/UV-1200/UV-1100

EMC V/UV-1200, UV-1100 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.

Specifications

Model	EMC V-1200	EMC UV-1200	EMC UV-1100
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(W*D*H)	470*370*180mm		
Weight	12kg	14kg	

Features

1 Large LCD screen(128*64 Dots).

2 Can display total 50 groups of data, 3 groups per screen. Can display standard curve and the curve equation.

3 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.

4 Data can be restored after a sudden power cut.

5 Auto setting wavelength.

6 Tungsten lamp & Deuterium lamp can be turned on/off individually to extend lifetime.

7 Pre-aligned design makes it convenient to change lamps.

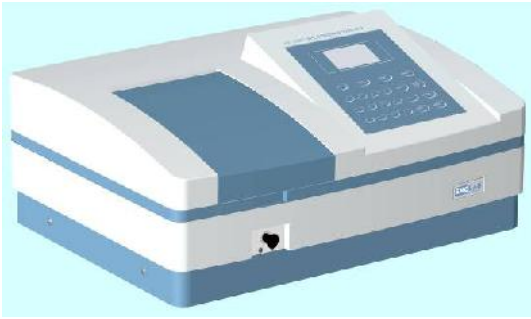
8 Large sample compartment, it can accommodate 5-100mm path length cuvettes with optional holders. A variety of optional accessories are available.

9 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:

- Quantitative
- Kinetics
- Wavelength Scan
- Multi Wavelength
- DNA/Protein.

EMCV-1600/UV-1600/V-1800/UV-180

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



Specifications

Model	EMC V-1600 V-1600PC	EMC V-1800 V-1800PC	EMC UV-1600 UV-1600PC	EMCUV-1800 UV-1800PC
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	0-200%T , -0.3 - 3A ,0-9999Conc			
Stray Light	≤0.05%T@360nm		≤0.05%T@220 ， 360nm	
Stability	±0.002A/h @500nm			
Display	Graphic LCD(128*64 dots)			
Keyboard	22 Membrane keypad			
Standard Cell Holder	Standard 10mm pathlength cuvette			
Sample Compartment	4-position 10mm cell changer			
Light Source	Tungsten lamp		Tungsten& Deuterium lamp	
Output	USB Port & Parallel Port(printer)			
Power Requirement	AC 110/220V 50/60Hz			
Dimensions(W*D*H)	470*370*180mm			
Weight	12kg		14kg	

Features

10 Large LCD screen(128*64 Dots).

11 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.

12 Data can be stored after a sudden power cut.

13 Auto setting wavelength

14 Tungsten lamp & Deuterium lamp can be turned on/off individually to extend lifetime.

15 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.

16 Pre-aligned design makes it convenient to change lamps.

17 Large sample compartment, it can accommodate 5-100mm path length cuvettes with optional holders. A variety of optional accessories are available.

Functions

1. Photometry

Absorbance, Transmittance or Energy measurements. It can display and save 200 groups of data, 5 groups per screen.

2. Quantitative.

2.1 Standard Curve

At most, 9 standard samples can be used to establish a standard curve. The curve and its equation will be displayed on the screen simultaneously. You can measure your unknown concentration solutions by the curve.

Total 100 curves can be saved in the Memory.

2.2 Coefficient Method

If the coefficient k & b in the formula C=k*a + b is known, you can input them directly by the button, and then test your unknown solutions.

3. 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. It can most record 1000 data.

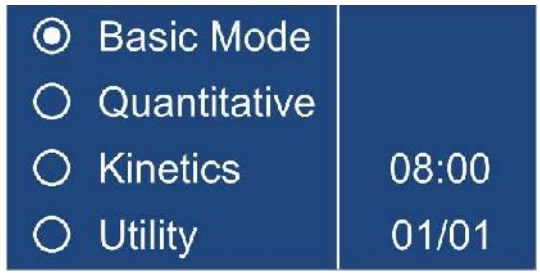
4. System Utilities

Lamp management, time & date set, obtain dark current, calibrate wavelength, default system, and some other system functions.

EMC 1600/1800 Series Local Control Software

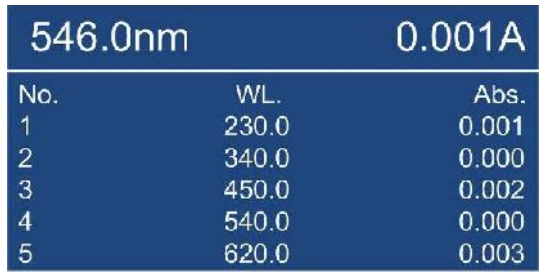
Main Menu

Move the cursor on the function menu you want, then press ENTER key to go into the corresponding interface.



1.Basic Mode

Absorbance, Transmittance or Concentration measurements. It can display and save 200 groups of data, 5 groups per screen.



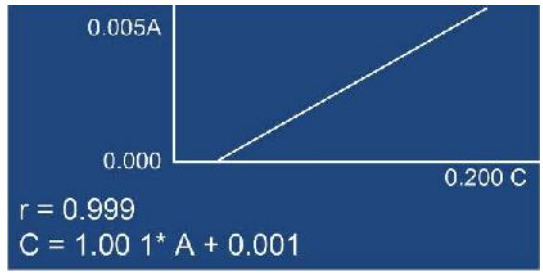
2.Quantitative

2.1 Standard Curve

At most 9 standard samples can be used to establish a standard curve. The curve and its equation will be displayed on the screen simultaneously. You can measure your unknown concentration solutions by the curve. Total 100 curves can be saved in the RAM.

2.2 Coefficient Method

If you have known the coefficient K*a + b is known, you can input them directly by the button, and then test your unknown solutions.



3.Kinetics.

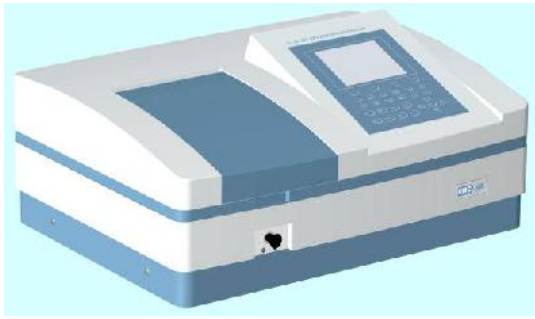
This mode may be used for time course scanning or reaction rate calculations. Abs. VS time graphs is displayed on the screen in real time. It can most record 1000 data.

4.System Utilities

Lamp management, time & date set, obtain dark current, calibrate wavelength, default system, and some other system functions.

EMC UV3xxx

Scanning Spectrophotometer



UV-3 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, pharmaceutical, and bio-chemical lab applications,, 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. 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

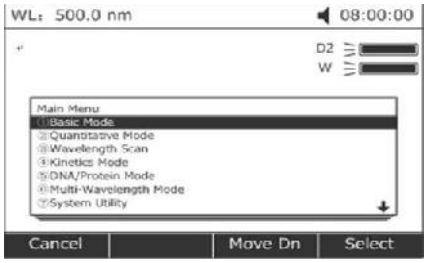
Features

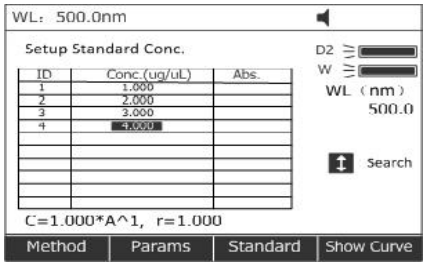
Fixed or variable slits (bandwidths)
Sealed, solvent-resistant tactile keypad with alpha-numeric entry for file names and units.
Pre-aligned deuterium lamp for easy lamp replacement. The status of the lamps may be monitored
Powerful built-in program or PC Windows® based software UV/Vis Analyst including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

Model	EMC UV-3000 UV-3000PC	EMC UV-3100 UV-3100PC	EMC UV-3200 UV-3200PC	EMC UV-3200S UV-3200PCS	EMC UV-3300 UV-3300PC
Wavelength Range	190-1100nm				
Spectral Bandwidth	4.0nm	2.0nm	1.8nm	0.5/1.0/ 2.0/4.0nm	1.0nm
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 ±0.005A@1A				
Photometric Range	0-200%T , -0.3 - 3A ， 0-9999Conc.				
Stray Light	0.05%T@220，340nm				
Stability	±0.002A/h @500nm				
Display	5 inches LCD(320*240 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(W*D*H)	480*360*160mm		600*450*200mm		
Weight	14kg		20kg		

EMC UV3xxx Series Local Control Software

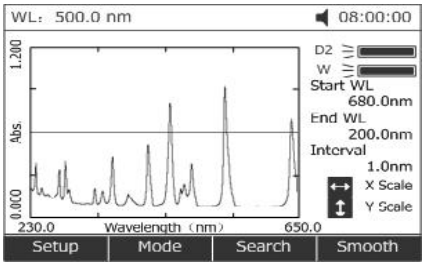
All methods are included as built-in standard; this eliminates the need of software. Online software update via internet.
The local control software includes functions such as: Photometry, Quantitative, Wavelength Scan, Kinetics, DNA/Protein, Multi-wavelength and System Utilities.





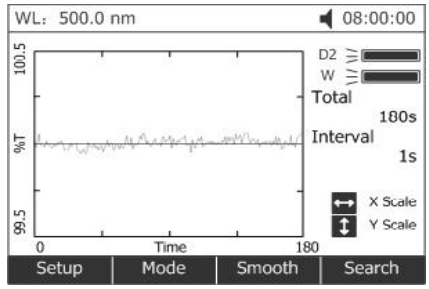
Standard Curve

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



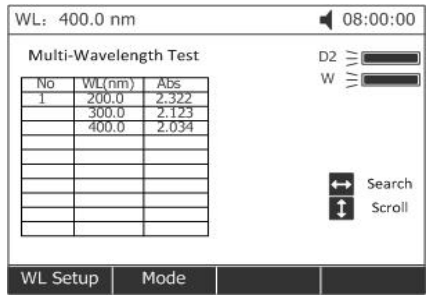
Wavelength Scan

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.



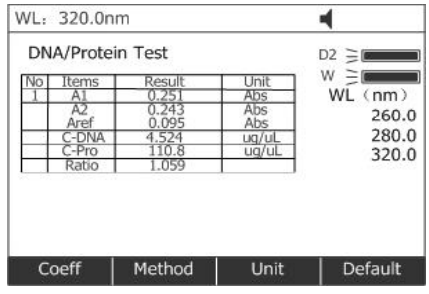
Kinetics

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.



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 by Absorbance ratios 260nm/280nm or 260nm/230nm with optional subtracted absorbance at 320nm
DNA Concentration=62.9*A260-36.0*A280
Or 49.1*A260-3.48*A230
Protein Concentration=1552*A260-757.3*A280
Or 183*A260-75.8*A230
Other wavelengths and factors may be entered.

EMC UV-6xxx

Double Beam Spectrophotometer

EMC UV-6 Series is an advanced double beam design consisting of six models.

Stand-alone model:
UV6100 with 1.8nm fixed bandwidth
UV6300 with 1.0 fixed bandwidth.
UV6100S with variable bandwidth:0.5/1/2/5nm

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 analysis, kinetics, wavelength scan, multiple components and DNA/Protein, PC Windows application software make these instruments versatile. All instruments provide excellent performance for measurements.

- 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 upgrading via internet helps to keep it updated.
- Data Download-to-PC software expands the data storage to unlimited.
- The stand-alone model has 5 inch screen and the PC model has UV/Vis Analyst software.

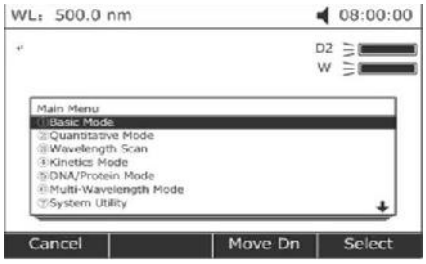
  Stand-alone models of UV-6 Series have the same functions as UV-3 series, see next page for details.

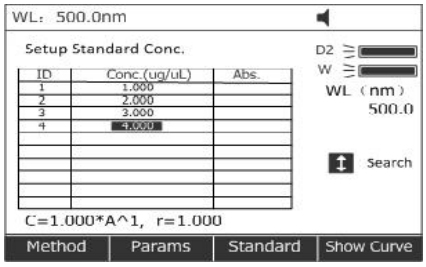
Specifications

Model	EMC UV-6100 UV6100PC	EMC UV-6300 UV-6300PC	EMC UV-6100S UV-6100PCS
Wavelength Range	190-1100nm		
Spectral Bandwidth	1.8nm	1.0nm	0.5,1,2,4nm
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	≤±0.5%T or ±0.005A@1A		
Photometric Range	0-200%T , -0.3 - 3A .		
Stray Light	0.05%T@220 ， 340nm		
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(W*D*H)	600*450*200mm		
Weight	22kg		

EMC UV-6xxx Series Local Control Software

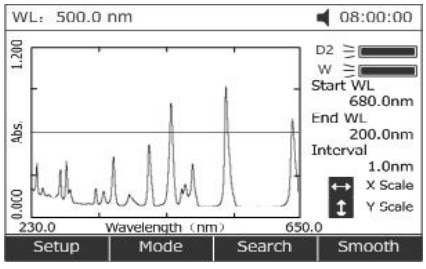
All methods are included as built-in standard; this eliminates the need of software. Online software update via internet..
The local control software includes functions such as: Photometry, Quantitative, Wavelength Scan, Kinetics, DNA/Protein, Multi-wavelength Test and System Utilities.





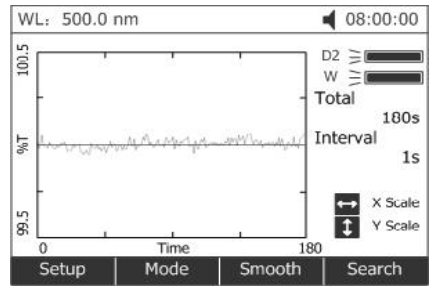
Standard Curve

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.



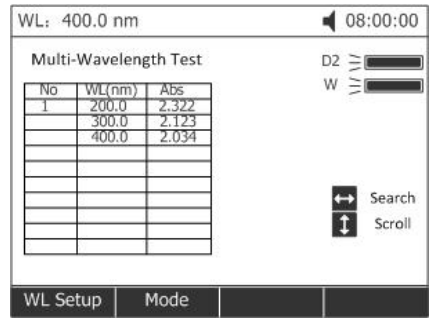
Wavelength Scan

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.



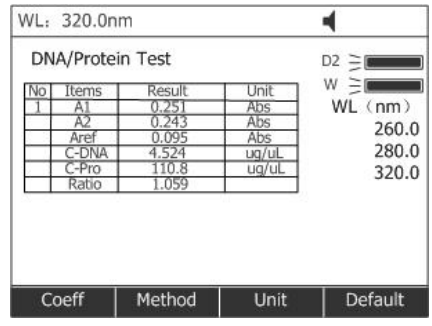
Kinetics

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



Multi-Wavelength

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

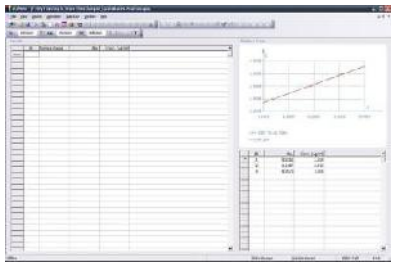


DNA/Protein Test

Concentration and DNA purity are calculated by Absorbance ratios 260nm/280nm or 260nm/230nm with optional subtracted absorbance at 320nm
DNA Concentration=62.9*A260-36.0*A280
Or 49.1*A260-3.48*A230
Protein Concentration=1552*A260-757.3*A280
Or 183*A260-75.8*A230

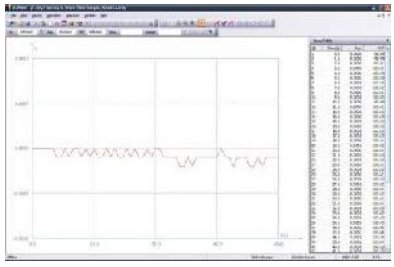
M. Wave Professional PC-Control Software

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 UV/Vis Series with more functions and easy to control.



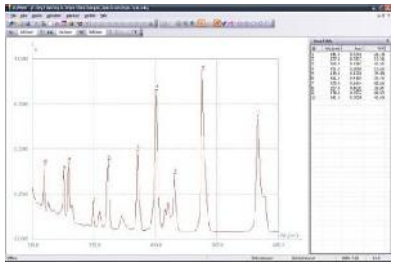
Quantitative

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

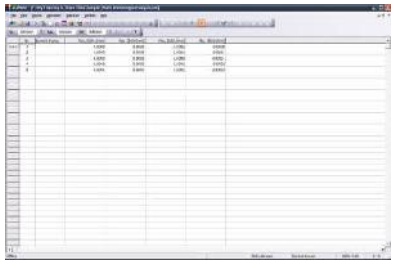
The Kinetics mode may be used for scanning time course or reacting rate calculations. Abs. Vs. Time graphs is displayed.



Wavelength Scan

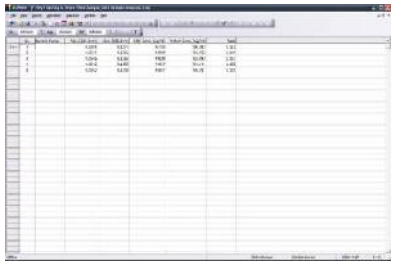
Automatically records peaks and valleys. The quantity of the curves stored is unlimited.
Post-run manipulation and processing includes.

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



Multi-wavelength Test

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

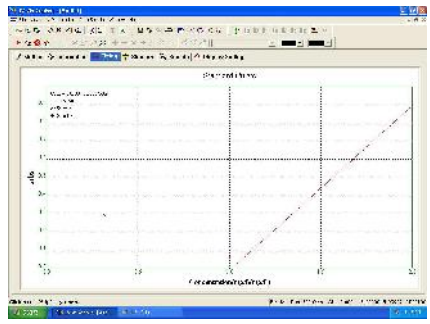


DNA/Protein Test

Optional two formulas:
DNA Concentration. =62.9*A260-36.0*A280
Or 49.1*A260-75.8*A230
You can also enter other wavelengths and factors to calculate.

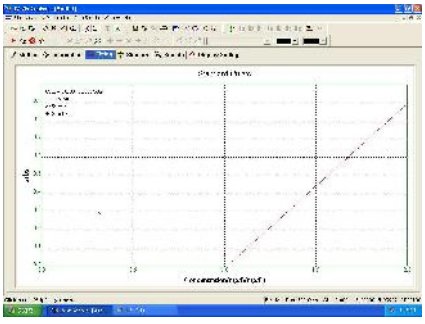
EMC UV/Vis Analyst for UV-3&UV-6 Series

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:

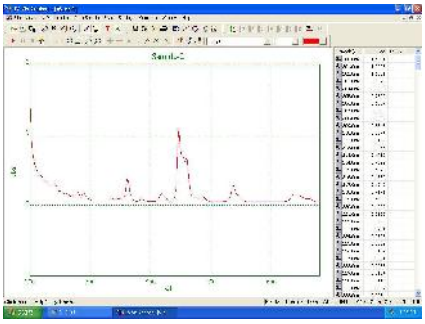
1. Photometric Mode
2. Quantitative test(standard curve)
3. Wavelength Scan
4. Kinetics
5. DNA/Protein
6. Multi-Wavelength
7. System Utility



● 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



● Wavelength Scan

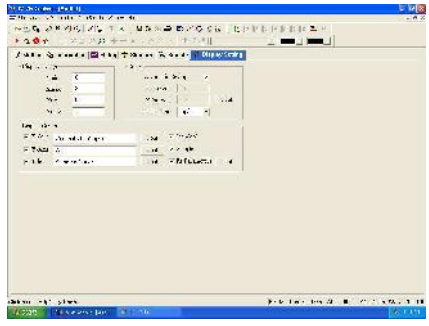
Automatically record peaks and valleys. The quantity of channels is unlimited; you can simultaneously store as many as desired. Post-run manipulation and processing includes:

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

● Kinetics (Abs vs. Time)

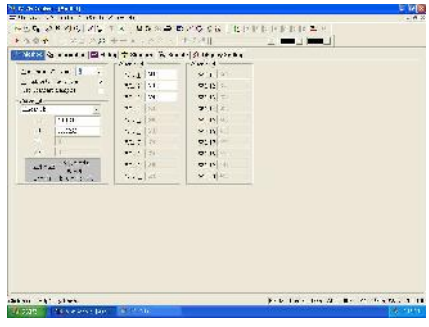
The Kinetics mode may be used for scanning time course or reacting rate calculations. Abs.Vs.time graphs are displayed on the screen in real time. Wait time, measurement time and time intervals may be entered.

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*A260-36.0*A280
Protein Concentration=1552*A260-757.3*A280
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)