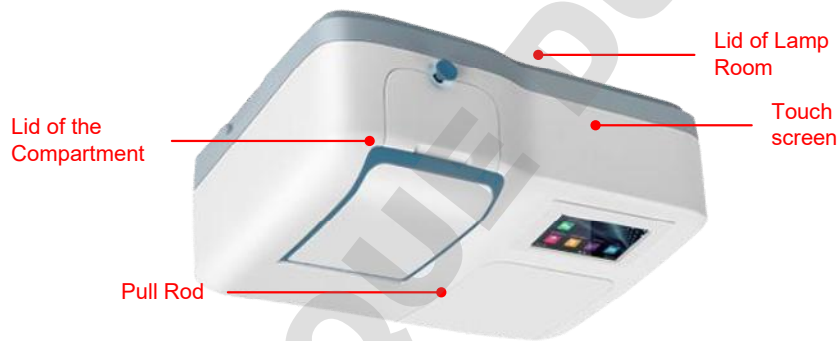




Front View



PV3 Single Beam VIS Spectrophotometer

As a part of Precision Series , PV3 Single Beam Vis Spectrophotometer is a user-friendly instrument 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 and spectrum scanning. Optionally, It can be connected with computers through USB interface and controlled by the included EasyUV 1.0 software.



Specifications

Model		PV3 Vis Spectrophotometer
Optical System		Single Beam
Light Source		Tungsten Lamp
Detector		Silicon Photodiode
Bandwidth		4nm
Wave-length	Range	320 – 1100nm
	Accuracy	±0.5nm
	Repeatability	≤0.2nm
	Display	0.1nm
	Gyration speed	10000nm/min
	Scan speed	4200nm/min
Photo-metric	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 warming up)
Stray Light		≤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) Serial port (printing), USB-A (storage and printing), USB-B (online)
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	Yes
	Quantitation	Yes
	Spectrum	Yes
	File Management	Yes
	System Management	Yes
	Performance Verification	Yes
Language		6 language(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

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

USB Interface

- USB A:Printer
- USB B:Save data

Color Screen

- Friendly interface
- Built-in Method

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

Right View



Rear View







Getting Started

The following chart describes the basic operation of the instrument.

Turn On and Self-check

Switch on the power. Self-check includes the following steps: Turn On Lamp → Locating Filter Disc → Locating Automatic Sample Holder (If Installed) → Get Dark Current → Locating Wavelength → Check Energy → Check System baseline.

System initialization		
	Light source	
	Filter	
	Sample holder	
	Dark current	
	Wavelength	
	Energy	
	System baseline	

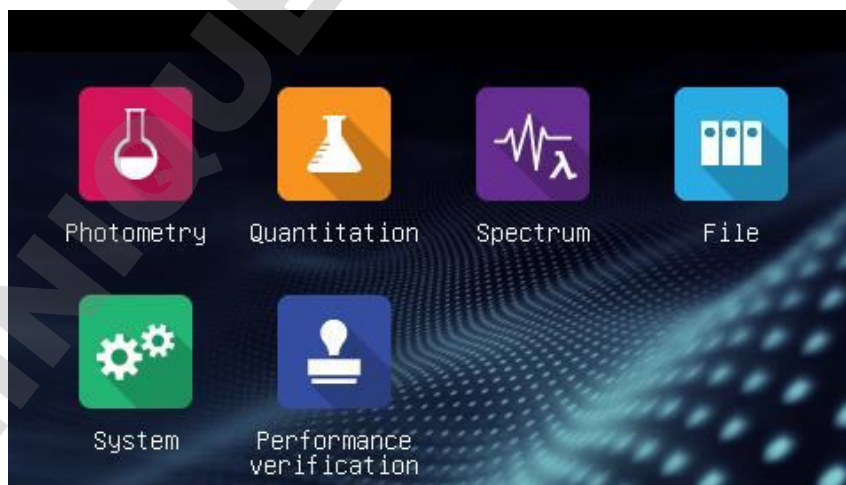
General Operating Instructions







Touch Screen Using Tips

The entire screen can be started with a touch. To make a choice, use your nails, fingertips, pencil, or stylus to press the screen. Don't press the screen with sharp objects (such as ball point).




Select Application

Main Interface, press the icon to select application.







	Photometry Measure the absorbance or transmittance of the sample.
	Quantitation Establish the standard curve and measure the concentration of the sample.
	Spectrum Scan the sample in a wavelength range.
	File Manage files stored in the instrument or USB disk.
	System System calibration and setup.
	Performance verification Verify the performance of the instrument.


Basic Operation

	Home Back to main interface.
	Return Back to the previous interface.
	Page Up/Down Go to previous/next page.

Measurement Results Operation

	Open Open result(s) from internal/USB memory.
	Save Save result(s) to internal/USB memory.
	Print Print result(s).
	Delete Delete selected result(s).

Rename, Print and Delete Results



Name	Wavelength	Result	Date	
Spl - 1	500.0	0.006 A	14/04/01 12:00:03	
Spl - 2	520.0	0.013 A	14/04/01 12:01:12	
Spl - 3	610.0	0.125 A	14/04/01 12:01:58	
Spl - 4	700.0	0.169 A	14/04/01 12:02:07	
Spl - 5	835.0	0.011 A	14/04/01 12:02:49	

Rename a Sample:

List interface, press the area **Name**, key in the sample name (Up to 8 characters).

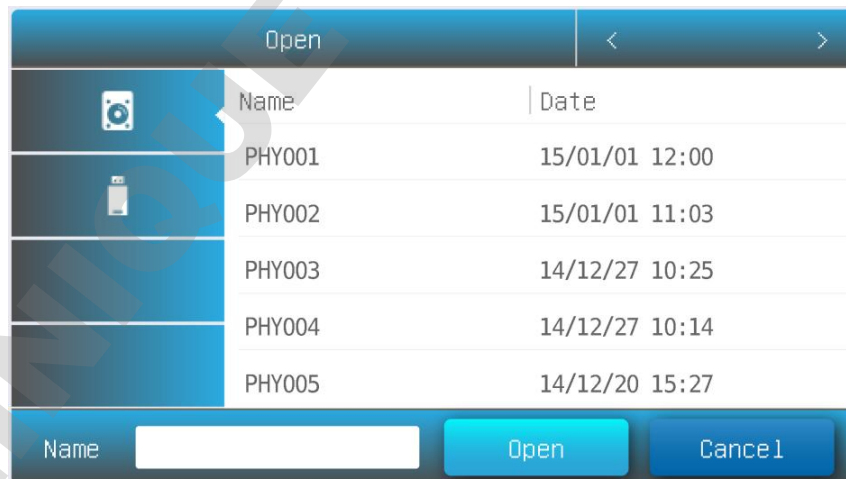
Print the Measurement Report:

List interface, press the icon .

Delete sample(s):


List interface, press the **Check Box**, and press the icon .

Open Results

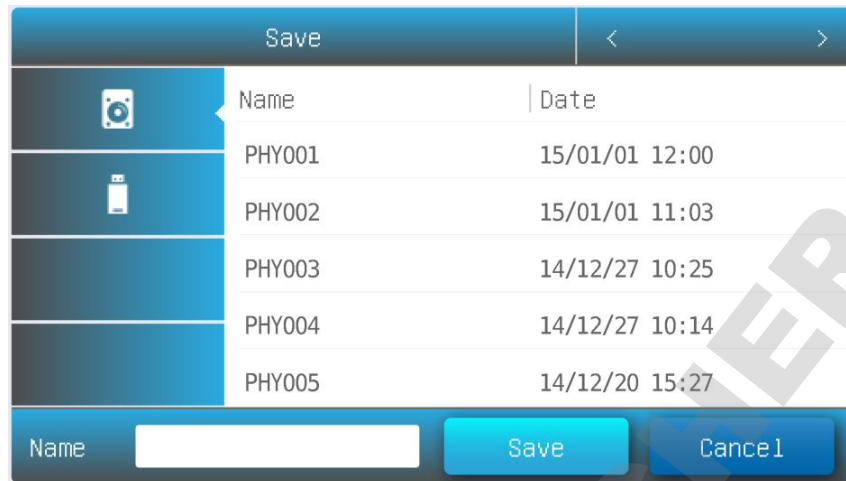


Name	Date
PHY001	15/01/01 12:00
PHY002	15/01/01 11:03
PHY003	14/12/27 10:25
PHY004	14/12/27 10:14
PHY005	14/12/20 15:27



Open:

1. **List** interface, press the icon .
2. Press the icon **internal memory/USB memory** to select the memory which the file saved.
3. Press file lists to select, press the button **Open**.







Save Results



Save:

1. **List** interface, press the icon **Save**.
2. Press the icon  /  to select the Internal/USB memory which the file to save.
3. Type in the file name, press the button **Save**.

Files Operation

	Internal Memory Internal memory of the spectrophotometer.
	USB Memory USB extended mass memory.
	Copy Copy the selected file(s) from internal /USB memory to USB/internal memory.
	Export csv Export file(s) to *.csv format
	Export txt Export file(s) to *.txt format
	Delete Delete the selected file(s).


Rename, Import, Export and Delete Files


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

Rename a File: **File management** interface, press the area **Name**, key in the file name (Up to 8 characters).

Copy File(s) From/To Internal Memory/USB Memory: **File management** interface, press the **Check Box**, press the button  (Need USB disk) .

Export File(s) To *.csv Format **File management** interface, press the **Check Box**, press the button  (Need USB disk) .

Export File(s) To *.txt Format **File management** interface, press the **Check Box**, press the button  (Need USB disk) .

Delete File(s): **File management** interface, press the **Check Box**, and press the icon  .

Basic Function Instruction

Photometry Test







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


Photometry

Photometry mode is used to measure the absorbance or transmissivity of the sample.





1. Main interface, press the icon  to start a **Photometry** application.

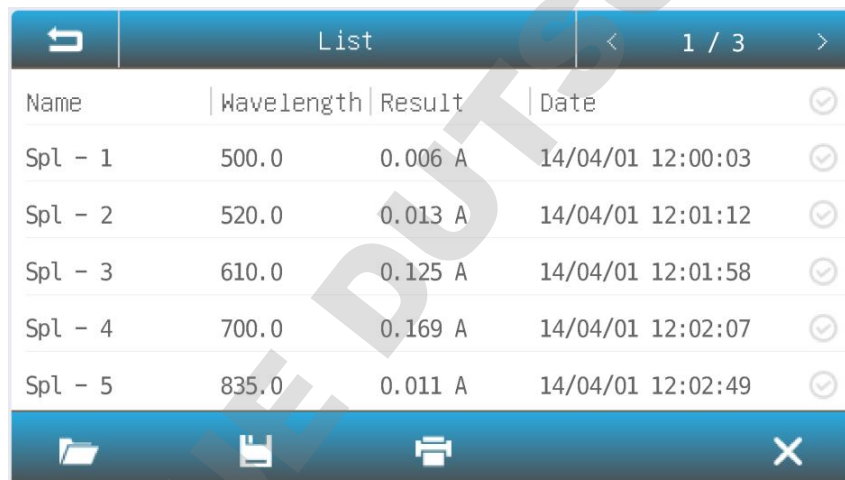


	Mode Switch measurement mode to %T, Abs or Energy.
	Wavelength Set measurement wavelength.
	Zero Do 0Abs/100%T.
	Read Measure sample and record the result.
	List View the result(s) list.
	Increase/Decrease Increase/Decrease the gain of signal. Only for Energy mode.

2. Press the icon  to switch to the measurement mode.

Abs	Measure absorbance value of the sample(s).
%T	Measure transmittance value of the sample(s).
E	Measure energy value of the sample(s).

- Press the icon  to set wavelength, key in the measurement wavelength.
- Put the reference in the measurement channel, press the icon  to do zero.
- Put the sample in the measurement channel, press the icon  to measure a sample and record the result.
- Press the icon  to browse the result(s).



Name	Wavelength	Result	Date
Spl - 1	500.0	0.006 A	14/04/01 12:00:03
Spl - 2	520.0	0.013 A	14/04/01 12:01:12
Spl - 3	610.0	0.125 A	14/04/01 12:01:58
Spl - 4	700.0	0.169 A	14/04/01 12:02:07
Spl - 5	835.0	0.011 A	14/04/01 12:02:49

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 inputs



Photometry - Abs	500.0 nm
Quantitation	500.0 nm
A1 = 1.149 Abs	7.239 mg/ml
A2 = 0.036 Abs	
A = 1.113 Abs	

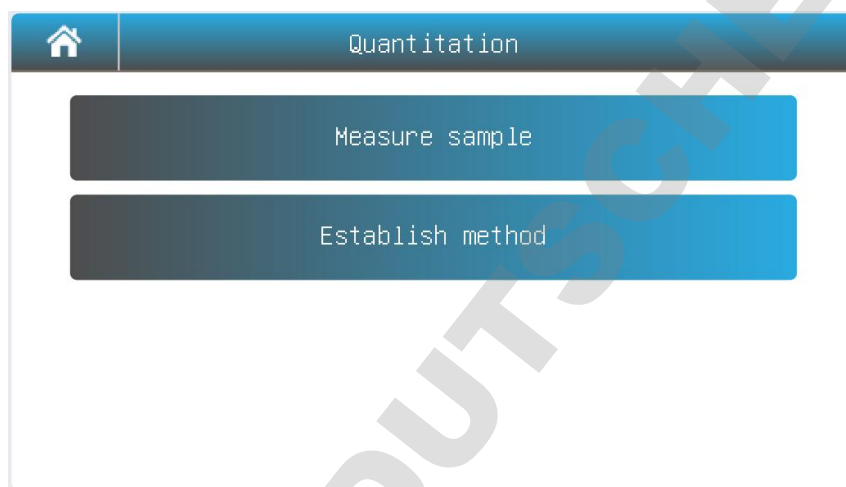
- The measurement results can be recorded, edited, deleted, saved, and printed.

Quantitation

Quantitation mode is used to measure the concentration of the sample(s).



- 1 **Main** interface, press the icon  to start a **Quantitation** application.



- 2 Establish Method

- 2.1 **Quantitation** interface, press the button **Establish method**.



Measurement	<p>A=A1: Absorbance is equal to the measured absorbance value of the measured wavelength 1</p> <p>A=A1-m*A2: Absorbance is equal to the difference between the</p>
--------------------	--

	absorbance value of the measured absorbance at the wavelength 1 and the wavelength 2, m is the Coefficient A=A1/A2: Absorbance is equal to the ratio of the measured absorbance value of the measured wavelength 1 and 2
Wavelength 1	Measurement wavelength 1
Wavelength 2	Measurement wavelength 2
Fitting	LIN-0: Linear to zero LIN: Linear. QUA: Quadratic.
Unit	- (No Unit), %, ppm, ppb, g/L, mg/L, µg/L, ng/L, g/dL, mg/dL, µg/dL, mg/mL, µg/mL, ng/mL, µg/µL, ng/µL, mol/L, mmol/L, IU, Custom(User input, Up to 8 characters).
Calibration	Coe K: Input equation coefficient. Std M: Measure standard sample(s) Std I: Input standard sample(s)
Standard quantity	Standard sample number (Up to 10)

- 2.2 Press the item to set measurement parameters.
- 2.3 After all the parameters are set up, press the button **Next** to start establishing the standard curve. If the item **Calibration** is set to the parameter Coe K, Std M or Std I, please refer to 2.3.1, 2.3.2 or 2.3.3.

2.3.1 Input equation coefficient to establish standard curve.

- (1) Input equation coefficient K0 ~ K3. Press button **Next**.

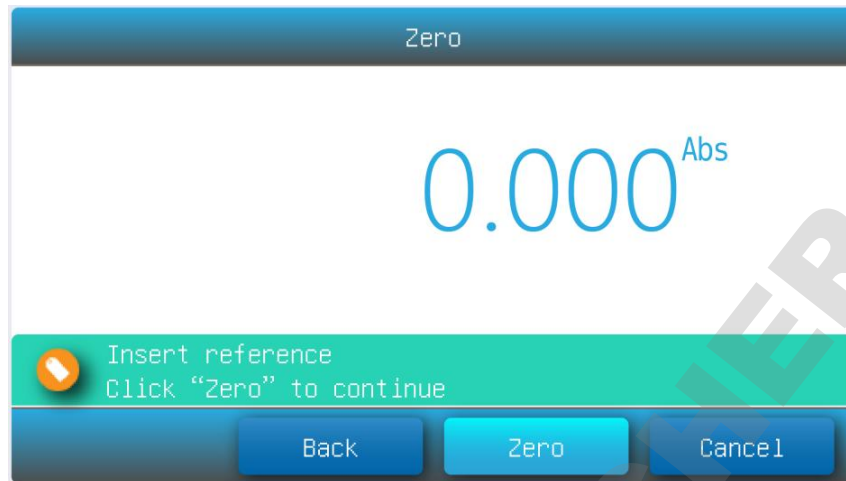
Input coefficient	
Coefficient K2	1.000
Coefficient K1	1.000
Coefficient K0	0.005

Back Next Cancel

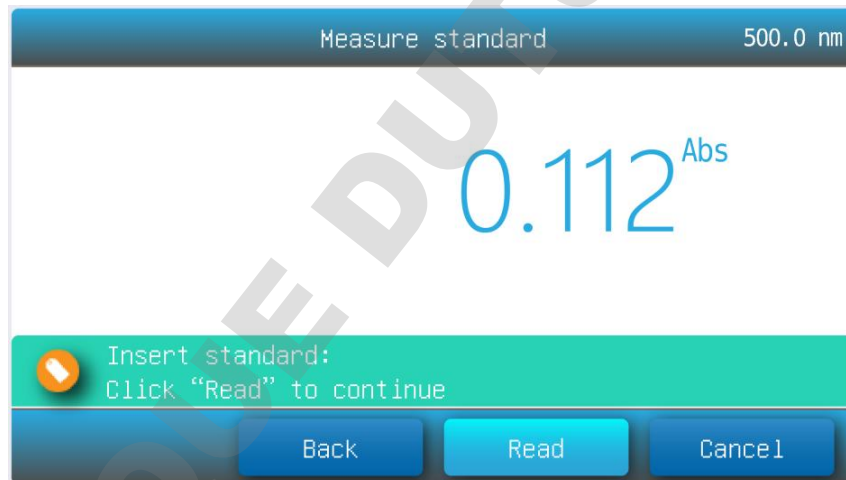
2.3.2 Measure standard sample to establish standard curve

- (1) Put the reference in the measurement channel, press the button **Zero** to do

zero.



- (2) Put the 1# standard sample in the measurement channel, press the button **Read** to measure.



- (3) Repeat step 3.3 to measure other of the standard samples.
- (4) Press the item to input concentration of standard samples, press the button **Next**.

Input standard					
Name	Abs	Conc	Name	Abs	Conc
Std - 1	0.000	0.000	Std - 6	1.788	16.00
Std - 2	0.112	1.000			
Std - 3	0.225	2.000			
Std - 4	0.448	4.000			
Std - 5	0.895	8.000			

Back Next Cancel

2.3.3 Input standard sample to establish standard curve

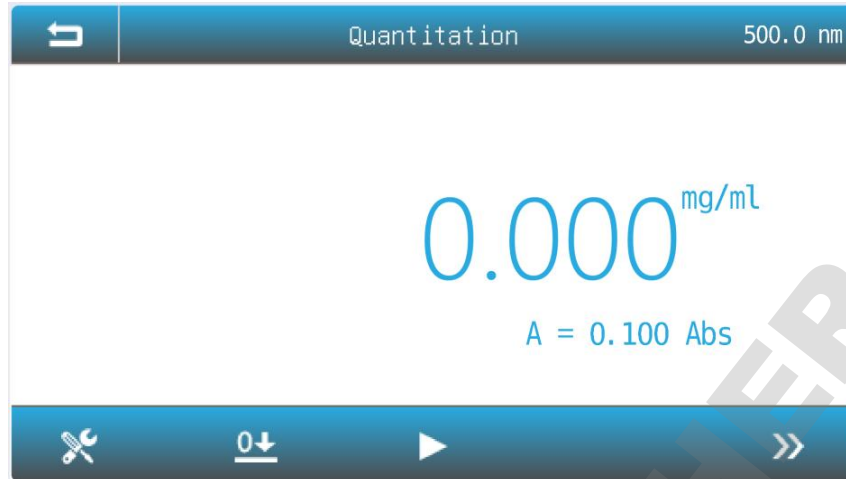
(1) Press the item **Abs** and **Conc** to input absorbance and concentration of standard samples, press the button **Next**.





2.4 Finished establish method. Press the button **Save** to save the method, press the button **Measure** to accept the new method and go to the **measurement interface**, Press the button **Finish** to exit.



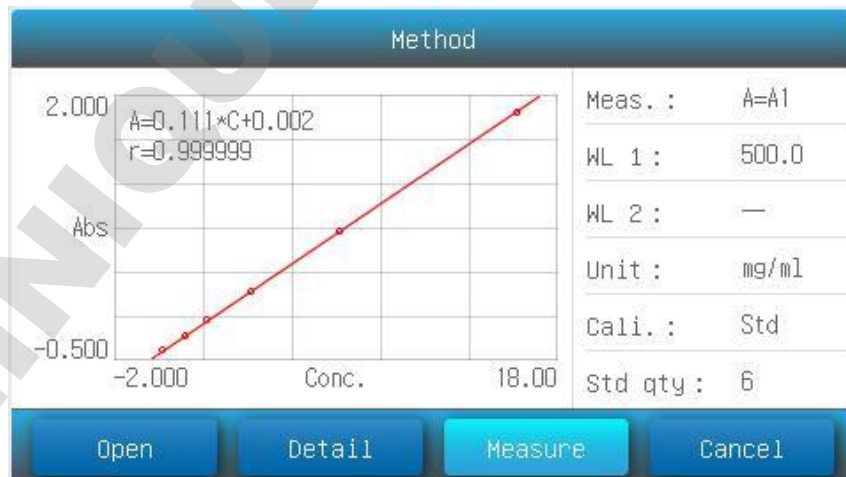
3 Measure Sample

3.1 **Quantitation** interface, press the button **Measure sample**.




	Method Select measurement method.
	Zero Do 0Abs/100%T.
	Read Measure the sample and record the result.
	List View the result(s) list.


3.2 Press the icon  to select method.




3.3 Press the button **Open** to load measurement method stored in the internal memory/USB disk.

3.4 Press the button **Measure** to accept the new measurement method and back to **measurement interface**.

3.5 Put the reference in the measurement channel, press the icon  to do zero.

3.6 Put the sample in the measurement channel, press the icon  to measure a sample and record the result.

3.7 Press the icon  to browse the result(s).



Name	Abs	Result	Date	
Spl - 1	0.002	0.012	14/04/01 12:00:03	✓
Spl - 2	0.003	0.018	14/04/01 12:01:12	✓
Spl - 3	0.010	0.060	14/04/01 12:01:58	✓
Spl - 4	0.353	0.706	14/04/01 12:02:07	✓
Spl - 5	0.357	0.714	14/04/01 12:02:49	✓

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.

Spectrum

Spectrum mode is used to scan the absorbance or transmissivity of the sample in a wavelength range.

1. **Main** interface, press the icon  to start a **Spectrum** application.





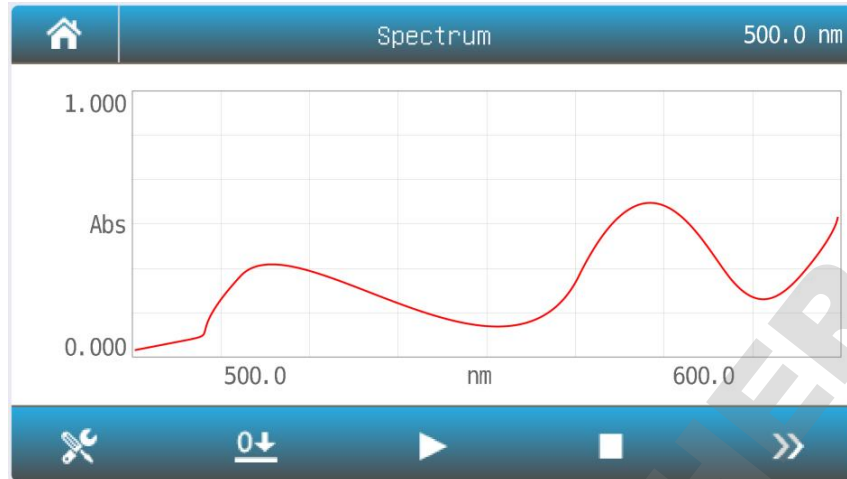
	Method Set the measurement parameters.
	Zero Scan baseline.
	Read Scan the sample and draw curve.
	Stop Stop scanning.
	List View the result(s) list.


2. Press the icon  to setup the measurement parameters.

Setting			
Start wavelength 190.0 - 1100.0	1100.0	Photometry mode	Abs
End wavelength 190.0 - 1100.0	190.0	Y minimum	0.000
Step	1.0	Y maximum	1.000
Speed	MS		







Start wavelength	Scan start wavelength
End wavelength	Scan end wavelength
Step	Scan interval: 0.1,0.2, 0.5, 1.0,2.0, 5.0,10.0 nm
Speed	HS: High speed MS: Medium speed LS: Low speed
Photometry mode	Abs: absorbance %T: transmissivity
Y minimum	Minimum ordinate
Y maximum	Maximum ordinate

- Press the item to select or key in the parameters, press the button **Measure** to accept the new parameters and back to **measurement** interface.
- Put the reference in the measurement channel, press the icon  to scan baseline.
- Put the sample in the measurement channel, press the icon  to scan a sample and record the result.



6. Press the icon  to browse the curve and result(s).





	Scale Set the Coordinate value.
	Left Moves the cursor to the left point (peak) to point(peak).
	Right Moves the cursor to the left point (peak) to point(peak).
	Mode %T Change the mode to %T.
	Mode Abs Change the mode to Abs.
	Point/Peak Peak Change the search mode point/peak.

File Management

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

File management		< 1 / 3 >
Photometry	Name	Date
	PHY001	15/01/01 12:00
Quantitation - Result	PHY002	15/01/01 11:03
Quantitation - Method	PHY003	14/12/27 10:25
	PHY004	14/12/27 10:14
Spectrum	PHY005	14/12/20 15:27

Memory Management

	Format Internal Memory Format the internal memory of the spectrophotometer.
	Format USB Memory Format the USB mass storage.

Select Tab **Memory** in the **System** interface. The use of the internal and USB memory (If inserted)

are show. Press the icon  /  to format internal memory/USB memory.

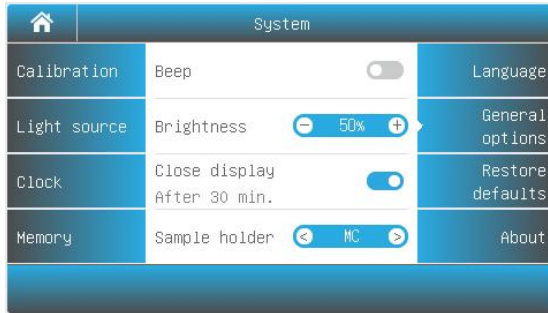
System Utility

- system calibration (dark current, wavelength, system baseline) ;
- Light source management (light source switch, timing) ;
- Clock management;
- Memory management (storage status display, formatting) ;
- Multi language (can be switched) ;

System	
Calibration	Dark current <input checked="" type="radio"/> Language
Light source	Wavelength <input type="radio"/> General options
Clock	System baseline <input type="radio"/> Restore defaults
Memory	About

System	
Calibration	English <input checked="" type="radio"/> Español <input type="radio"/> Language
Light source	Deutsch <input type="radio"/> Portugués <input type="radio"/> General options
Clock	Français <input type="radio"/> 简体中文 <input type="radio"/> Restore defaults
Memory	About

- Wavelength accuracy; Photometric precision;
 - Hetero astigmatic light; Wavelength accuracy;
 - Photometric precision; Hetero astigmatic light; Noise; Noise;
- General settings (sound display sample rack and other settings) .



Performance Verification

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



DOMINIQUE DUTSCHER SAS

Software Introduction (optional)

EasyUV 1.0 is an application software based on Windows 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 P series UV / Vis spectrophotometer very convenient.

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

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;

Packing List

Part No.	SN	Description	Qty
PV3	1	Instrument	1set
	2	User's manual	1pc
	3	Cuvette glass,10mm	4pcs
	4	Fuse(3.15A/250V)	2pcs
	5	Power cable(national standard)	1pc
	6	Dustcover	1pc
MEAS:	456 (W) x 360 (D) x 185 (H) mm		
N.W.:	10.5KGS		
G.W.:	13.5KGS		

Equipment Disposal



This equipment is marked with the crossed out wheeled bin symbol to indicate that this equipment must not be disposed of with unsorted waste.

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