SPECTROPHOTOMETER V-1200

INSTRUCTION MANUAL

North American Catalog Number:

10037-434

Version: 1.0.0
Issued: 06, December 2013

Legal Address of Manufacturer

United States
VWR International, LLC
100 Matsonford Rd
Radnor, PA 19087
800-932-5000
http://www.vwr.com

Made in China

Table of Contents

Safety Information

Please follow the guidelines below, and read this manual in its entirety to ensure safe operation of the unit.

VWR recommends against the use of SPECTROPHOTOMETER V-1200.

- Do not open the device.
- Disconnect the device from the mains supply before carrying out maintenance work or changing the fuses.
- The inside of the device is a high-voltage area Danger!
- Do not use the device if it is damaged, especially if the main power cable is in any way damaged or defective.
- Repairs may only be carried out by the service technicians from your local VWR office and authorized contractual partners.
- The device must be connected to a power outlet that has a protective ground connection.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

- Do not allow any liquid to enter into the device.
- Do not operate the device in a hazardous location or potentially explosive environment.

Package Contents

Description	Quantity
SPECTROPHOTOMETER V-1200	1PC
Glass Cuvette	4PCS
Power Cord (US Plug)	1PC
Quick Manual	1PC
Instruction Manual	1PC
Dust Cover	1PC

Unpacking

Open the package, according to carefully check the packaging packing list items, if found inside the packaging are missing or damaged items please contact your local VWR office and authorized contractual partners.

Installation

Placement

Place the instrument on the stable table carefully.

Install printer (Printer is Optional Accessories)

Check to confirm instrument power switch is turned off, connect the printer's data cable to the Instrument's parallel port.

Link the power cord

Check to confirm instrument power switch is turned off, the power cord plug into two separate power interface and power supply socket apparatus.

Intended Use

SPECTROPHOTOMETER V-1200 used in Chemistry, Pharmaceuticals, Biochemical, metallurgy, Light Industry, Textile, Material, Environments, Medical, Education and some other fields. It is one of the most important instruments in Quality Control and an essential in normal laboratories.

Symbols and Conventions

The following chart is an illustrated glossary of the symbols that are used in this manual.

	**CAUTION** This symbol indicates a potential risk and alerts you to proceed with caution
	**CAUTION** This symbol indicates the presence of high voltage and warns the user to proceed with caution
	**CAUTION** This symbol indicates risks associated with hot surfaces

Specifications

Optical System	Single Beam
Wavelength Range	325-1000nm
Band Width	4nm
Stray Light	≤0.2%T
Photometric Range	0 to 200%T,-0.3 to 3.0A, 0 to 9999C
Wavelength Accuracy	±2nm
Photometric Accuracy	±0.5%T or ±0.005A@1A
Stability	0.002A/h @ 500nm
Memory	200 Results & 200 Standard Curves
Language	English, French, German, Spanish

Display	128×64 Dots Matrix LCD
Interface	USB, Parallel
Measuring Procedure	Photometry, Quantitation
Power Supply	AC 110V, 60Hz, 100W
Dimension	490×360×210mm
Weight	12kg
Work Environment	15 to 35℃, 15 to 70% relative humidity
Store Environment	-10 to 50℃, 15 to 70% relative humidity

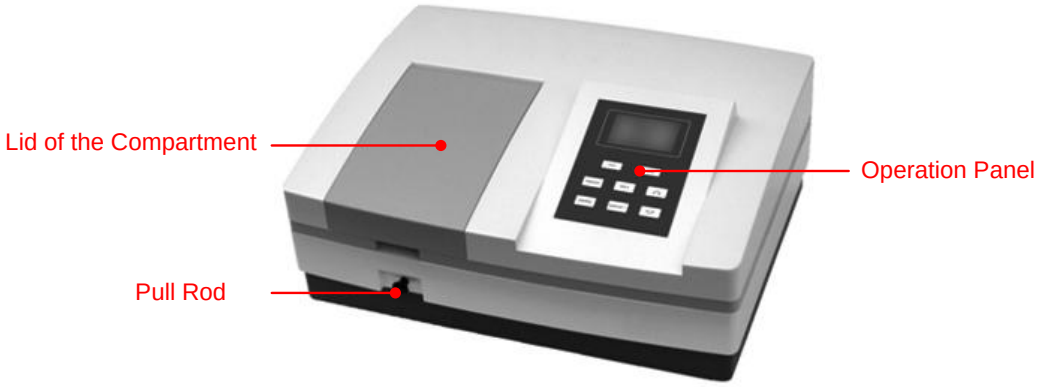
This instrument is compliant to the U.S. and Canada Directives on
UL 61010-1 Issued: 2012/05/11 Ed: 3
CSA-C22.2 No. 61010-1 Issued: 2012/05/11 Ed: 3
47CFR Part 15 (2011)
ANSI C63.4 (2009)

Overview

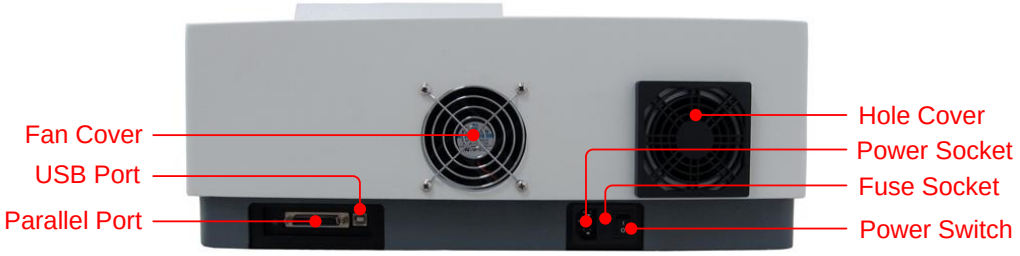
SPECTROPHOTOMETER V-1200 has the characters of wide range of wavelength, high sensitivity, powerful function, easy to use, simple structure and pretty figure. Besides these, the Large LCD, High Precise A/D and easy to store RAM makes the instrument much more superior than other originals. It is widely used in Chemistry, Pharmaceuticals, Biochemical, metallurgy, Light Industry, Textile, Material, Environments, Medical, Education and some other fields. It is one of the most important instruments in Quality Control and an essential in normal laboratories.

Description of Buttons and Switches

Front View


Lid of the Compartment
Operation Panel
Pull Rod

Rear View

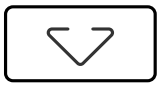

Fan Cover
USB Port
Parallel Port
Hole Cover
Power Socket
Fuse Socket
Power Switch

Operational Keys

Key	Functions
——	**FUNCTION Key: Functions on-screen prompts**
PRINT	**PRINT Key: Print measuring result**
ZERO	**ZERO Key: Blank**

SET Key: Set Parameters

GOTO λ Key : Set Wavelength


, 

UP, DOWN Keys: Scroll menu/data and set Y scale

Getting Started

The following chart describes the basic operation of the instrument.

Turn On and Self-check

Switch on the power. Then the instrument begins to self-check and 15 minutes' warm up. Self-check includes the following steps: Turn on Lamp → Check Sensor → System Position → initialize A/D → Get Dark Current.

Important Guidelines

- Reagents and dilution buffers can cause cauterization and other damage to health.
- Samples (nucleic acids, proteins, bacteria cultures) can be infectious and cause serious damage to health.
- During sample preparation, measuring procedures and maintenance and cleaning work, observe all local laboratory safety precautions (e.g. wear protective clothing and gloves, use of disinfectant) regarding the handling of sample material.
- Dispose of measuring solutions and cleaning and disinfectant materials in accordance with the relevant local laboratory regulations.

General Operating Instructions

Select Application

Main interface, press the key [—](left) to enter into.

Set Wavelength

Test Interface, press key [GOTOλ] to set wavelength, [△], [▽] to modify wavelength value, then press key [—] (left) to go to wavelength and blank.

Set Parameters

Press [SET] enter into setup interface, [△], [▽] to select items or input parameters, [—] (left) to confirm.

Delete the test result and stored data

Test Interface, press key [PRINT], then press key [△], [▽] to select “Clear Data, not Print ”, [—] (left) to delete.

Blank

Put the Reference in the light path, press [ZERO] to do blank.

Measure Samples

Put the samples in the light path, press [—] (left) to measure.

Print the test results

Test Interface, press key PRINT ,  ,  select “Print, clear data”, press key  (left) to print.

Store the Standard Curve

After got the Standard Curve by Marked, press  ,  input the file name and press  (left) to save.

Load the Standard Curve

“Quantitative” interface, press  ,  to select “Load Curve”, press  ,  to choose the curve you want, press  (left) to open.

Operation

Self-check

Remove all the blocks in the light path and close the lid of the compartment; Switch on the power supply to begin the self-check.

Warm up

After self-test, the instrument goes into pre-warm state. For accurate test, at least 30 minutes of warm up is required.

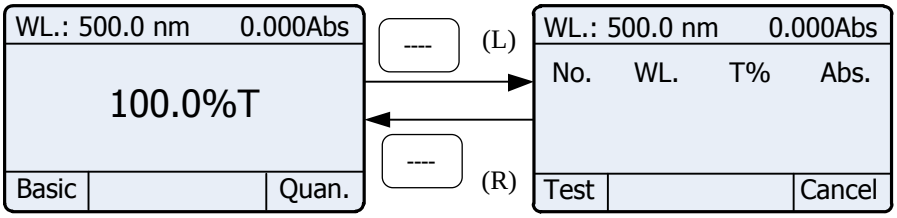
Check the cuvettes

The cuvettes must be clear and there’s no remains of the samples on the surface of it.

Photometry

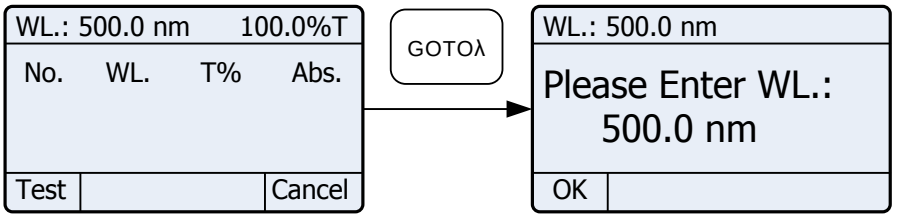
1. Enter into Photometry

"Main menu", press [—] (left) to enter into "Basic".



2. Set Wavelength

Press [GOTOλ] to set wavelength, press [△], [▽] to input wavelength value, press [—] (left) to go to wavelength.



3. Blank

Put the reference in the light path, then press [ZERO] to do blank.

4. Test sample

Put the sample in the light path, press [—] (left) to test, the result will be displayed in the data list, repeat this step to test all the samples.

5. Print Test Results

Press the key [PRINT], [△], [▽] select "Print, clear data", press key [—]

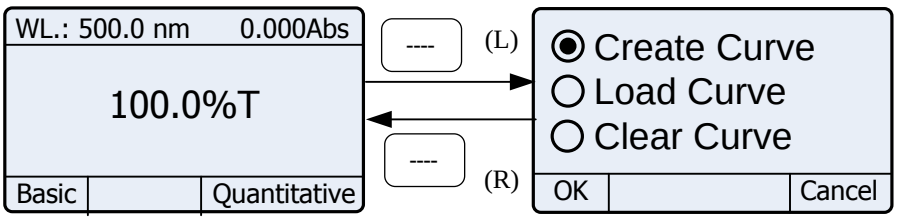
(left) to print.

```
Photometry
Date&Time: mm-dd-yyyy, hh:mm:ss
Model: V-1200
Serial No.: VECXXXXXXX
Firmware Version: x.x.x
VWR International, LLC
No.   WL.(nm)    Abs    %T
1          500.0  0.000  100.0
2          500.0  0.000  100.0
3          500.0  0.000  100.0
End.
```

Quantitative Mode

1. Enter into Quantitative Mode

"Main menu", press [—] (right) to enter into "Quantitative".

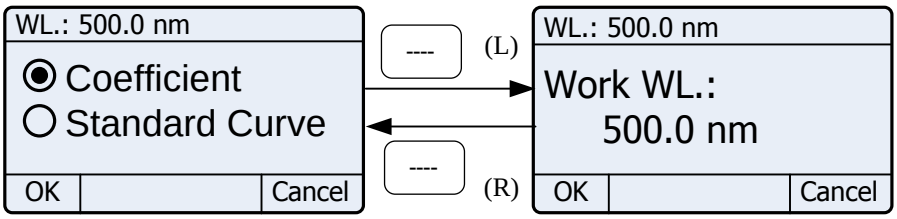


2. Build standard curve or use the saved standard curve

There are two methods to build standard curve, you can choose one method according to your situation:

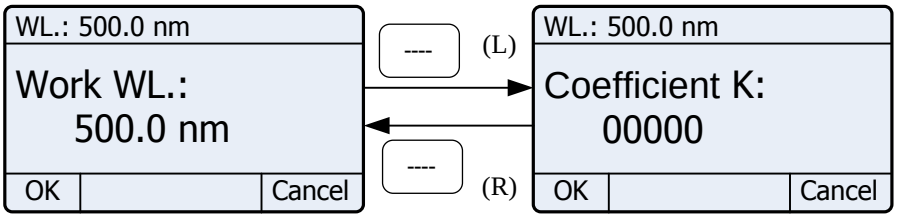
Input Coefficient:

1) **Choose Coefficient.** Press [△], [▽] to choose "Create Curve", press [△], [▽] to choose "Coefficient".

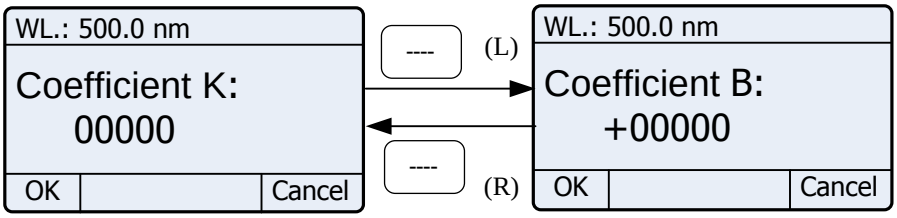


2) **Set wavelength.** Press , to input test wavelength value, press (left) to confirm.

3) **Set test coefficient K.** Press , to input test coefficient K, press (left)to confirm.

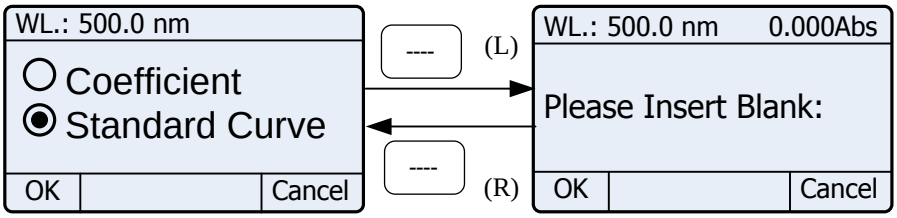


4) **Set test coefficient B.** Press , to input test coefficient B value, press (left)to confirm to finish setting of this method, the curve will be displayed in the screen.

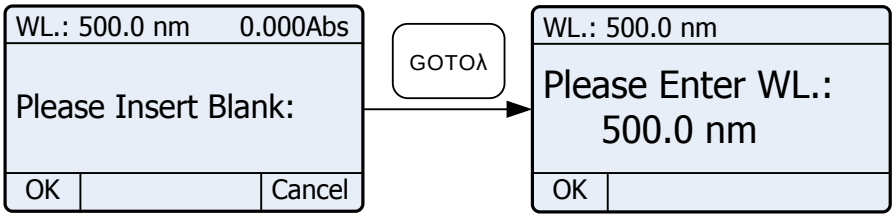


Create Standard Curve:

1) **Choose Create Curve.** Press ⏶, ⏷ to choose “Create Curve ”, press ⏶, ⏷ to choose “Standard Curve”, press — (left) to enter into.

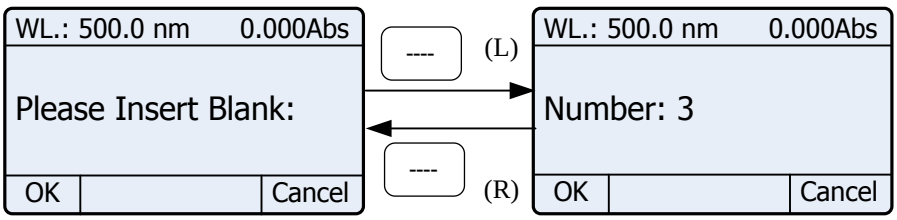


2) **Set wavelength.** Press GOTOλ to enter to set wavelength, Press ⏶, ⏷ to input wavelength value, press — (left) to go the setting value.

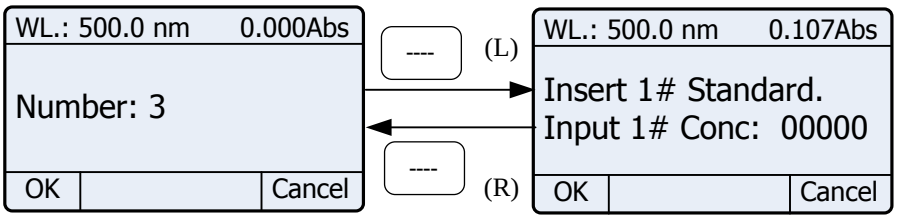


3) **Blank.** Pull the reference in the light path, press — (left) to do blank.

4) **Input the number of standards.** Press  ,  to input the quantity of standard sample(Not more than 9 standard curve), press  (left) to confirm.

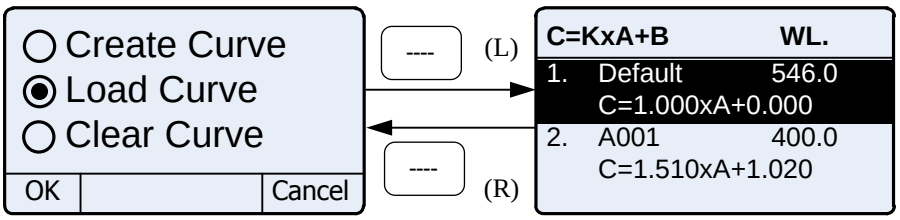


5) **Input the concentration of standards.** When you have finished the last step, the system will ask you to input the standards' sample in the light path, press  ,  to input the concentration, press  (left) to confirm, to finish all the standard samples. It will appear a Save Information. Press  ,  to input the name, press  (left) to confirm, and press  (left) again to finish save.

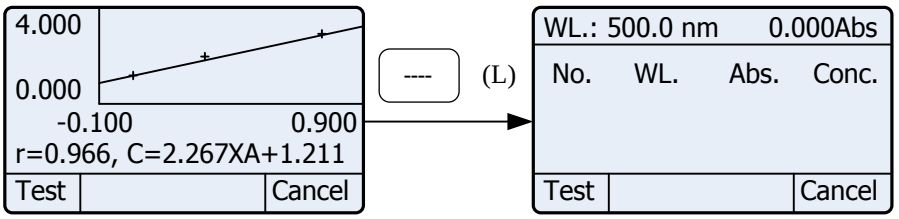


Load curve:

Press [△], [▽] to choose “Load Curve”, press [△], [▽] to choose the curve, press [—] (left) to confirm.



Press [—] (left) to enter the test mode after building or loading standard curve.



3. Blank.

Put reference in the light path, press [ZERO] to do blank.

4. Using standard curve to test sample.

Put samples into light path, Press [—] (left) to test result will be displayed in the data list. Repeat this step to finish all samples test.

5. Print Test Results

Press the key [PRINT], [△], [▽] select “Print, clear data”, press key [—] (left) to print.

Quantitation
Date&Time: mm-dd-yyyy, hh:mm:ss
Model: V-1200
Serial No.: VECXXXXXXX
Firmware Version: x.x.x
VWR International, LLC
C=1.000*A+1.000
r=1.0000

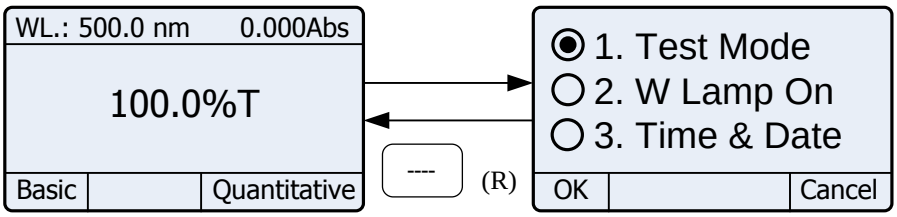
No.	WL.(nm)	Abs	Conc.
1	500.0	0.120	1.120
2	500.0	0.127	1.127
3	500.0	0.121	1.121

End.

System Utility

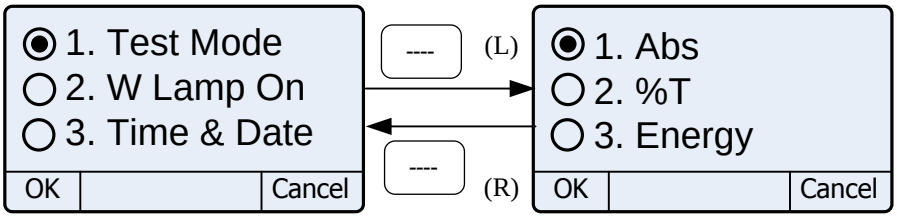
Users can set the system utilities according their own situation.

"Main menu", press [SET] to go into utility setting.



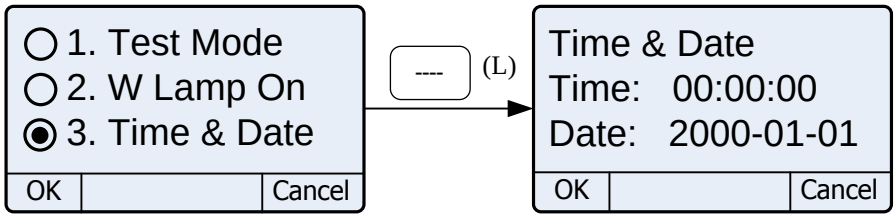
Test Mode

Press [△], [▽] to choose "Test Mode", press [—] (left) to enter, press [△], [▽] to choose "Abs", "%T", "Energy", press [—] (left) to confirm.



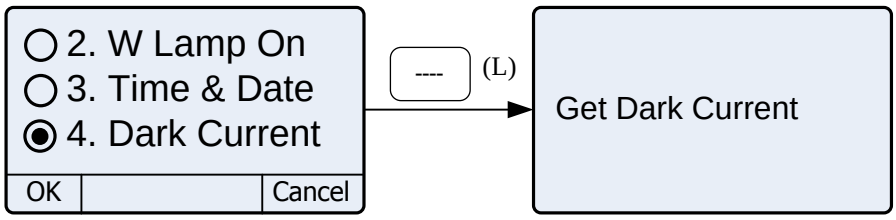
Edit Clock

Press ⏶, ⏷ to choose “Time & Date”, press — (left) to enter into, press ⏶, ⏷ to input value, SET to set next item, press — (left) to confirm and return.



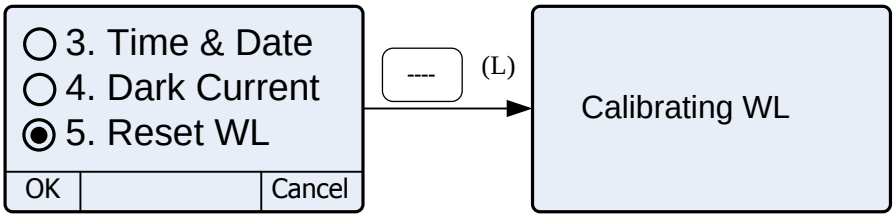
Refresh Dark Current

Press ⏶, ⏷ to choose “Refresh Dark Current”, press — (left) to confirm(Be sure that the sample room is closed during the whole refreshing course), return after finish this.



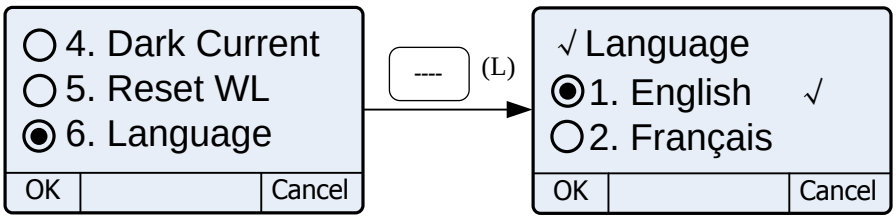
Reset WL

Check the sample room first, and then close it. Press , to choose “Reset WL”, press (left) to calibrate, be sure that the sample room is closed during the whole refreshing course, come back after finish this.



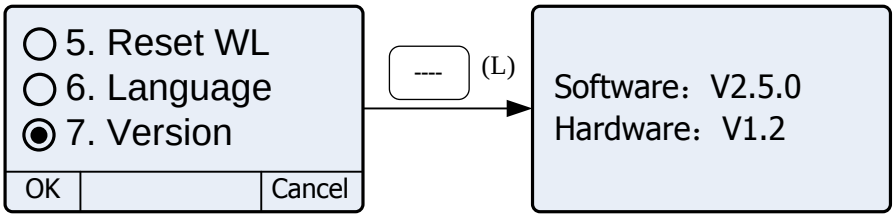
Select Language

Press , to choose Language (English, French, German or Spanish), press (left) to enter into, press , to select. (left) to confirm.



About Version

Press , to choose “Version”, press (left) to view version information, press any key to return.



Load Default Parameter

Main Interface, press PRINT + GOTO∧ , all parameters will be restored to factory setting and the Instrument will restart.

Troubleshooting

Review the information in the table below to troubleshoot operating problems.

Problem	Cause	Solution
Power on, no response	Power cord connection is not reliable	Improve connectivity
	Fuse burning	Replace fuse
Measurement uncertainty	Warm up is not enough	Warm up more time
	Sample is not Stable	Improve the sample
	The concentration of sample is too high	Diluted sample
	Power Supply Voltage Low or not Stable	Improve the Power Supply
	Lamp damage or lamp life maturity	Replace lamp
Dark Current Error when self-check	The lid of the compartment is open during self-check	Close the lid, restart
System Calibrate Failed	Something block the Light path	Remove it, calibrate again
Power on, back light is	Display Contrast problem	Adjust the contrast potentiometer

OK, but nothing display on the screen or display is not clear		
Measurements inaccurate	Cuvettes were contaminated	Clean cuvettes
	Samples were contaminated	Improve samples
	Worse matching of the cuvettes	Improve the matching of the cuvettes
	Dark current error	Resample dark current

Repair and Maintenance

Daily Maintain

Check the compartment

After measurement, the cuvettes with sample solutions should be taken out of the compartment in time. Or the volatilization of the solution would make the mirror go moldy. Users must pay more attention to the corrosive sample and liquid easy to volatilize. Any solution remains in the compartment should be wipe off immediately.

Surface Clean

The cover of the instrument is with paint. Please use wet towel to wipe off the drips on the surface immediately. Organic solution is forbidden to be used to clean the cover. Please wipe off the dirt on the cover timely.

Clean the cuvettes

After every test or after a solution change, the cuvettes should be cleaned carefully, or the remains on the surface would cause measuring error.

Check Lamp

In “Photometry” mode, set the test parameters as follow:

WL.: 500nm

Test Mode: Energy

Gain: 1

Check the energy, you need replace W lamp as following two cases:

Energy＜20　　W lamp is damaged

Energy＜5000　　W lamp energy is too low.

Spare Parts Replacement

Replace the fuse

Danger! Be sure to switch off the power and unplug the socket before replacement!

1. **Tools preparation**

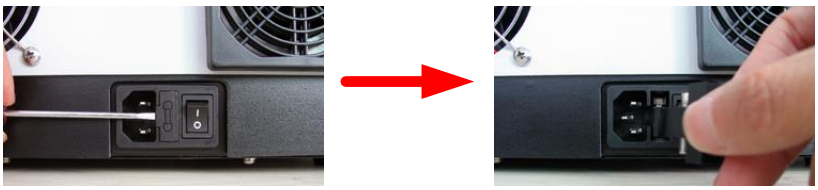
   Prepare a 3×75 Flat Blade screwdriver**.**

2. **Switch Off the power supply**

   Switch off the power supply, and unplug the socket.

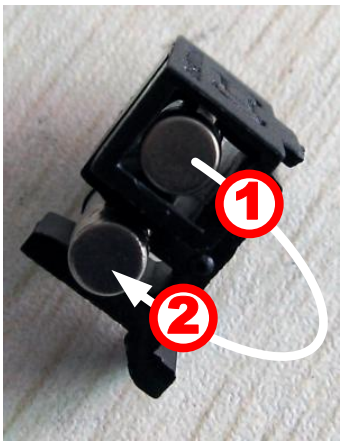
3. **Take out the Fuse Seat**

   Take out the fuse seat by the screwdriver.



4. **Replace a new fuse**

   Pick out the spare fuse (3.15A/250V) and replace it to the working position.



5. **Reset the fuse seat**

   Replace the fuse seat in the power socket.

6. **Switch on the power**

   Plug the socket and switch on the power.

Replace lamps

Hot！ Wait 20 minutes before open the lamp chamber after power off to avoid scald!

1. **Tools preparation**

   Prepare a 6×150mm Cross Blade screwdriver and a pair of glove.

2. **Power Off**

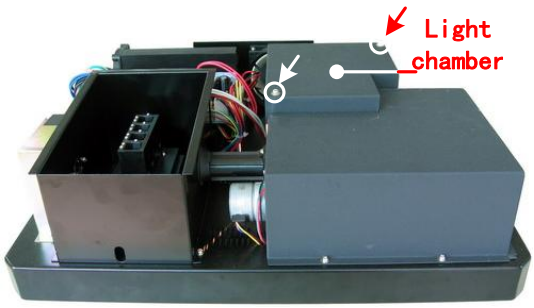
   Switch off the power supply and unplug the socket.

3. **Open the cover**

   Unscrew the 4 screws indicated(Each side with 2 screws) and remove the cover.

4. Open the cover of the light chamber

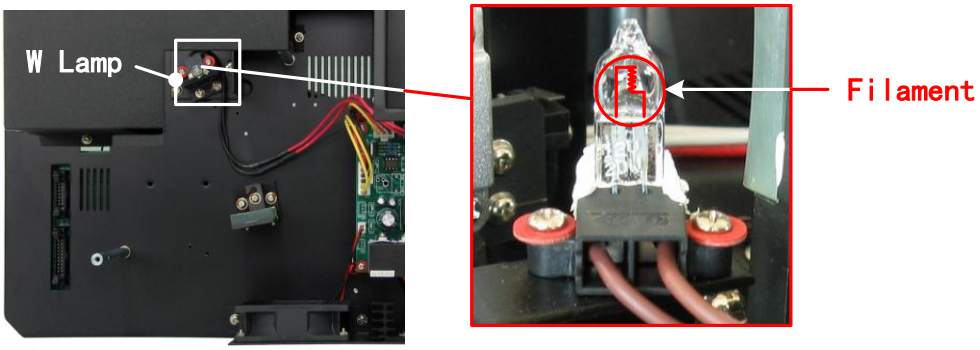
Unscrew the 2 screws on the light chamber cover and remove it.



5. Replace W lamp

The Tungsten lamp is equipped with a blue-grey silicon coating by manufacturer. This coating is only a transport safety device. It can be removed with the first exchange of lamp.

Pull out the defected W lamp and draw on the cotton glove. Insert the new W lamp as deep as possible on the lamp seat. Be sure to keep the filament in the same direction as the old one face. Switch on Power, check the light spot is in the middle of the entrance slit.



6. Finish

Reset the cover of the light chamber and fix the screws. Reset the cover of the instrument and fix the screws. Recover the Pole in the compartment, then the course finished.

Replace the Battery

Be sure to switch off the power supply and unplug the socket before open the Bottom Cover！

1. Prepare the tools

Prepare a 6×150mm Cross Blade Screwdriver.

2. Switch off the power supply

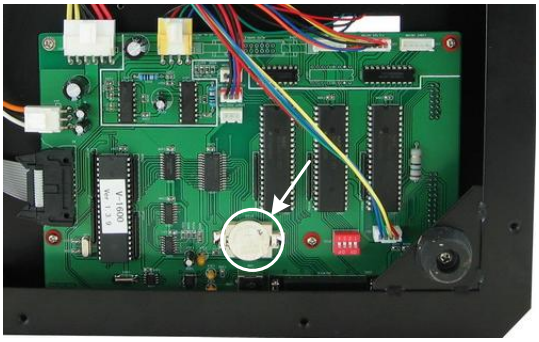
Switch off the power supply and unplug the socket

3. Open the Bottom cover plate

Unscrew all the screws indicated then remove the bottom plate.

4. Replace the Battery

Pick out the old battery and replace a new one.



5. Finish

Recover the bottom plate and fix all the screws, then the course finishes.

Accessories and Spare Parts

Description	Quantity	Cat. No.
CELL HOLDER, 4-CELL, 10MM	1PC	10037-444
CELL HOLDER, 4-CELL,10 TO 50MM	1PC	10037-446
CELL HOLDER, 4-CELL, 100MM	1PC	10037-448
CELL HOLDER, FOR CYLINDRICAL CELL	1PC	10037-450
CELL HOLDER FOR TEST TUBES	1PC	10037-454

CELL HOLDER, SOLID SAMPLE	1PC	10037-458
CUVETTE, SQUARE.GLASS,10MM	4PCS	10037-462
CUVETTE, SQUARE.GLASS,20MM	2PCS	10037-464
CUVETTE, SQUARE.GLASS,30MM	2PCS	10037-466
CUVETTE, SQUARE.GLASS,50MM	2PCS	10037-468
CUVETTE, SQUARE.GLASS,100MM	1PC	10037-470
LAMP, HALOGEN, 12V20W	1PC	10037-484
PRINTER, THERMAL PRINTER	1PC	10037-488
CELL HOLDER FOR MICRO CELLS	1PC	10037-490
THERMAL PAPER	1PC	10037-504
DUST COVER	1PC	10037-546

Technical Service

Web Resources

Visit the VWR's website at **www.vwr.com** for:

- Complete technical service contact information
- Access to VWR's Online Catalogue, and information about accessories and related products
- Additional product information and special offers

Contact us For information or technical assistance contact your local VWR representative or visit. **www.vwr.com**.

Warranty

VWR International warrants that this product will be free from defects in material and workmanship for a period of two (2) years from date of purchase. If a defect is present, VWR will, at its option, repair, replace, or refund the purchase price of this product at no charge to you, provided it is returned during the warranty period. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or misapplication, or from ordinary wear and tear.

For your protection, items being returned must be insured against possible damage or loss. This warranty shall be limited to the replacement of defective products. IT IS EXPRESSLY AGREED THAT THIS WARRANTY WILL BE IN LIEU OF ALL WARRANTIES OF FITNESS AND IN LIEU OF THE WARRANTY OF MERCHANTABILITY.

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.
Instead it's your responsibility to correctly dispose of your equipment at lifecycle -end by handling it over to an authorized facility for separate collection and recycling. It's also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect from health hazards the persons involved in the disposal and recycling of the equipment.
For more information about where you can drop off your waste of equipment, please contact your local dealer from whom you originally purchased this equipment.

By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

Thank you!