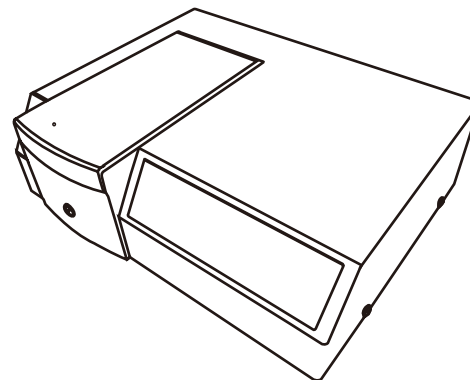




China's leading expert of color  
and gloss analysis



## **SERIES OF SPECTROPHOTOMETER OPERATION MANUAL ► CS-810**



Service hotline:+86 571 85888707

Address:No.166 of Wen Yuan Road,Jiangan District,Hangzhou City,China



Please do not disassemble the product without the assistance of  
customer support center. If you have any questions, please contact the  
local agency.

[www.chnspec.com](http://www.chnspec.com)

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## Terms of use

1. Our spectrophotometer is the first model in China that adopts spectrum splitting technology. It is mainly used to measure the sample spectral value, color value, color difference value, etc. It is bench-top model with compact structure which makes it easy to carry out, accurate and high precise.
2. Our spectrophotometer is widely used in factories, labs and on spot. It can achieve great color measurement result in the quality control of almost all fields.
3. The warranty period starts from date you purchase the spectrophotometer. If you need warranty service, please contact local agency or visit our website [www.chnspec.com](http://www.chnspec.com) to contact us.
4. To avoid damage to instrument accuracy or precision, please do not disassemble the instrument. Damage to the instrument caused by disassembly or improper use is NOT included in the warranty.

## Notes

1. Carefully put the instrument on a flat surface.
2. This instrument is not moisture proof, moisture may damage the instrument.
3. Large force, or sharp objects may damage the screen.
4. It is recommended to use the original power adapter with the instrument.
5. To ensure that the instrument works properly, please do not store, or use the instrument in places that are too hot or too cold; please do not put the machine in damp locations, or directly under sunlight. Do not use the instrument in severe environment such as strong shock or quake.
6. Check battery before usage.
7. Please avoid strong electromagnetic interference in usage.
8. Please do not use the instrument to measure surfaces that are not flat.
9. Please keep the instrument steady; do not shake the instrument in usage.
10. Please put the instrument directly on the spot to be measured, but do not apply strong force.
11. Please store the instrument in a dry area. If it is not used in a long time, please take the battery out.
12. If this user manual is further updated, we are not obliged to notify you. If you have further questions, please ask on the website.

## Technical Specifications

Model	CS-810
Illumination mode	d/0 (diffused illumination, 0 degree observer angle), conform to CIE No.15, ISO 7724/1, ASTM E1164, DIN 5033 Teil7, and JIS Z8722 Condition c standards
Size of integrating sphere	Φ40mm, Avian-D diffused reflection surface coating
Illumination Light source	CLEDs (total spectrum LED light source)
Sensor	dual light path sensor array
Wavelength range	400~700nm
Wavelength interval	10nm
Half spectral width	5nm
Transmittance/reflectivity range	0~200%
Spectral resolution	0.01%
Observer angle	2°/10°
Measurement light source	A, C, D50, D55, D65, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12
Data displayed	Transmittance Value and Figure, chromatic values, color difference values, pass/fail results, color deviation, color simulation, color simulation history, input standard samples, test results
Test intervals	1second
Test time	1second
Measurement caliber	Φ10mm
Color space	CIE Lab, LCh, CIE Luv, XYZ, Yxy, transmittance
Color difference formulas	$\Delta E^*ab, \Delta E^*CH, \Delta E^*uv, \Delta E^*cmc(2;1), \Delta E^*cmc(1;1), \Delta E^*94, \Delta E^*00$
Other color indices	WI(ASTM E313-00, ASTM E313-73, CIE/ISO, Hunter, Taube, Berger Stensby), YI(ASTM D1925, ASTM E313-00, ASTM E313-73), Tint(ASTM E313-00), Milm, color stain, color fastness, APHA, Pt-Co, Gardner, Saybolt, Astm color Hazen
Repeatability	Transmittance: Standard deviation within 0.08% Chromaticity value: $\Delta E^*ab$ : 0.15 Avg(When a white tile is measured 30 x at 5-second intervals after white calibration), 0.03 Max
Data port	USB
Light source longevity	5 years, 1.5 million tests
Data storage	20000 measurements
Size	475*340*150mm(L*W*H)
Working temperature range	0℃ to 45℃, relative humidity 80% or below (at 35℃), no condensation
Storage temperature range	-25℃ to 55℃, relative humidity 80% or below (at 35℃), no condensation
Standard accessories	Power cable, color QC software, driver software, USB cables, black calibration tile, glass cell
Optional Accessories	40*33mm glass cell(ASTM Color), 40*100mm glass cell(Saybolt)

## Appearance and structure



Instrument Front

- ①.Sample Room: for holding target and samples
- ②.Sample Support Pulling Bar: Pushing the bar will change sample support bar position
- ③.Instrument Brand



Instrument Back

- ①.Power Socket: Instrument Power Socket
- ②.On-off Button: Turn on or turn off the instrument
- ③.USB Output: Connect instrument with PC

## Instrument Installation

### Part One. Instrument Installation Environment

1. Instrument rated voltage should be 220V,50Hz. Instrument can not work well with unstable voltage.
2. Instrument should be installed in dry environment.
3. Instrument should be fixed on a flat place and no vibration.
4. Instrument should be away from electric field.
5. No direct sunlight to the instrument.
6. Instrument power supply should be with earth wire.

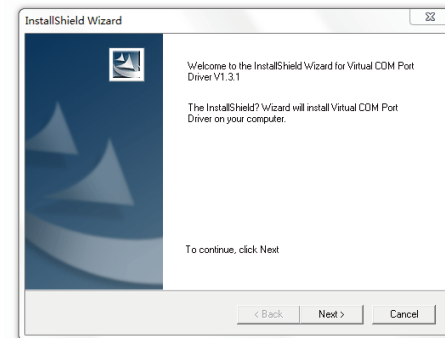
### Part Two. Instrument Installation

1. Check if any damage on the instrument after open the case. Then check all accessories according to the packing list.
2. Take the instrument out after all accessories are OK.
3. Check if the instrument is in good condition.

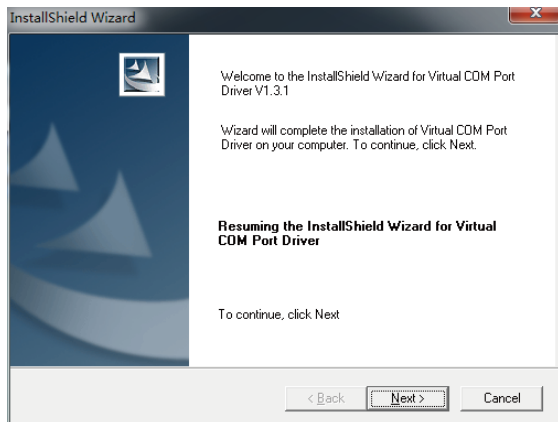
## Driver Installation

- 1.Turn on the driver file, if your PC is 64, double click VCPVCP\_V1.3.1\_Setup\_x64.exe as show in figure

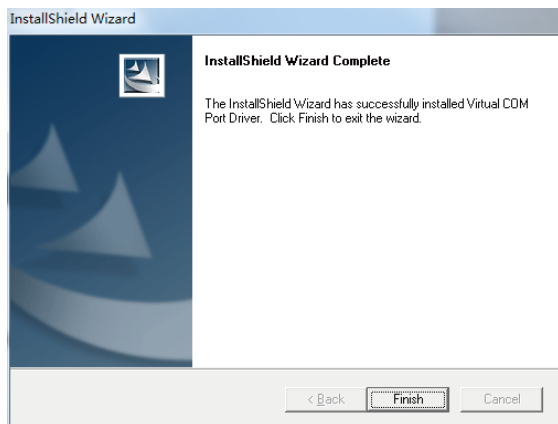
inf	2014/12/25 10:20	文件夹	
VCP_V1.3.1_Setup.exe	2010/7/23 22:08	应用程序	6,345 KB
VCP_V1.3.1_Setup_x64.exe	2010/7/23 22:10	应用程序	6,345 KB
驱动安装说明.txt	2014/12/25 10:20	文本文档	1 KB



2. Press “next” for installation



3. When you see the below picture, the installation is finished.



4. If your computer is 32, double click dpinst dpinst\_x86.exe . Then install the software according to the above steps.

## Instrument Operation

Step 1. When using the instrument, firstly let it warm up for 30 minutes.

Step 2. Connect it with power 220V as show in figure.



Step 3. Turn on the instrument.

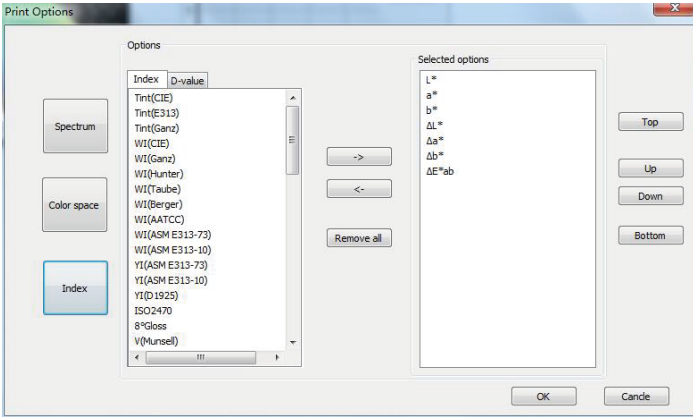
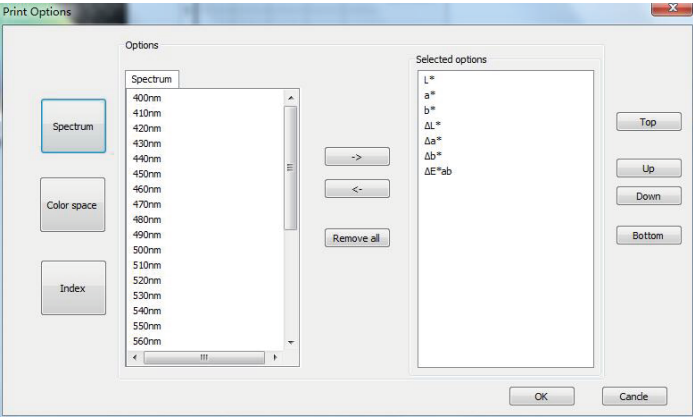
Step 4. Black calibration: open the sample room, put the calibration tile into it and then close the cover for calibration.

Step 5. White calibration: Pour distilled water into the glass cell, then put the glass cell into measurement area.

Step 6. Open the software. Measure the target firstly and then the measure the sample.

Step 7. In the software, click “setup” — “list option” — “Spectrum” , “Color space” , “index”

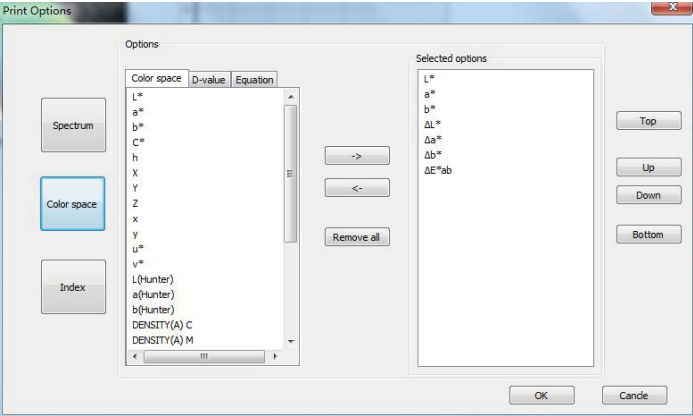
As show in the figure



The position could be changed, as show in figure

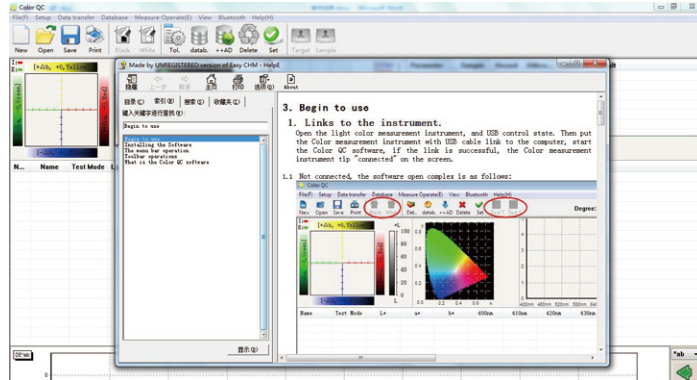
Num	Name	Test Mode	L*	a*	b*	ΔE*ab	400nm	410nm

Num	Name	Test Mode	L*	a*	b*	400nm	ΔE*ab	410nm

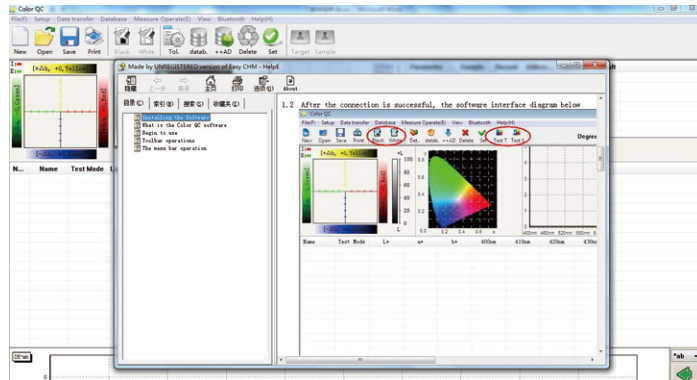


The selected option position could also be changed by pressing “up” or “down” .

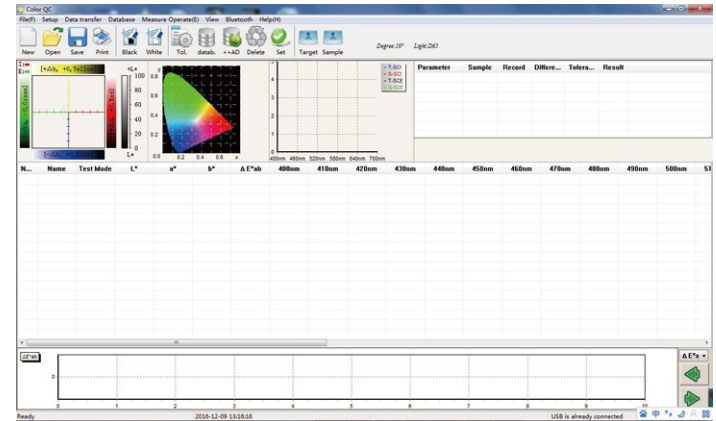
## Testing



Turn on color QC software, click “help” and “content” . We could see the software operating manual as show in figure.

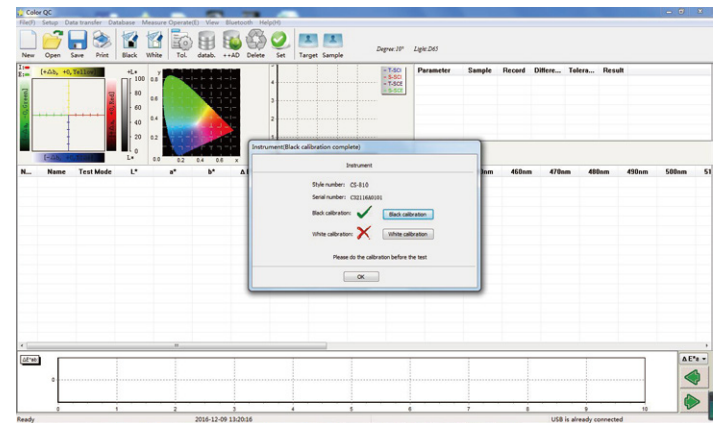


In the left column, we could see the catalogue of the operating manual. When instrument is not connected with PC, black/white calibration and target / sample button is grey.



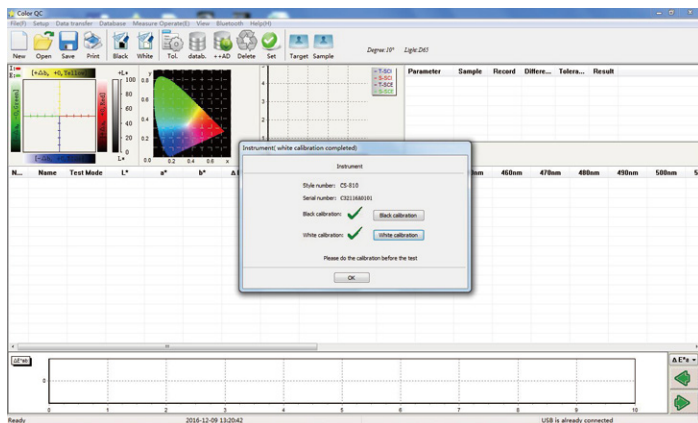
When instrument is connected with computer, black/white calibration and target / sample button can be clicked.

## Calibration

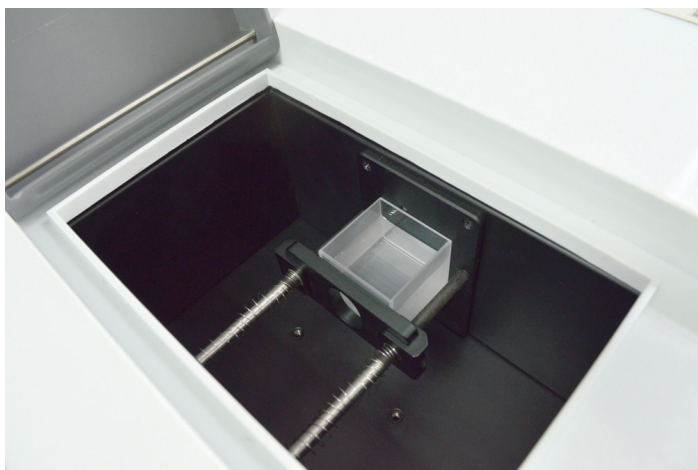


When instrument is connected with computer, put the black calibration tile into the instrument, close the cover, click “Black” for calibration.

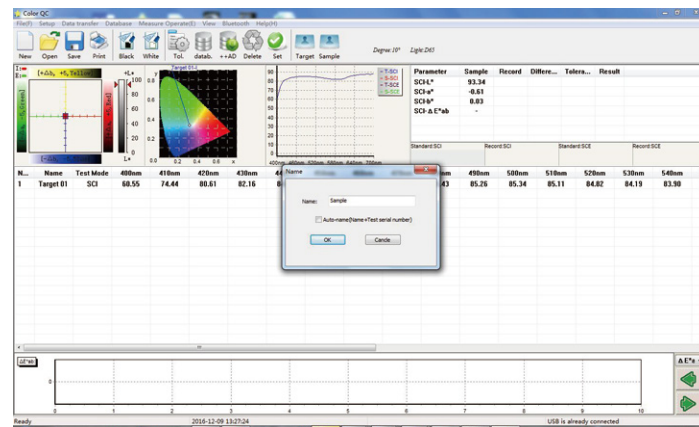
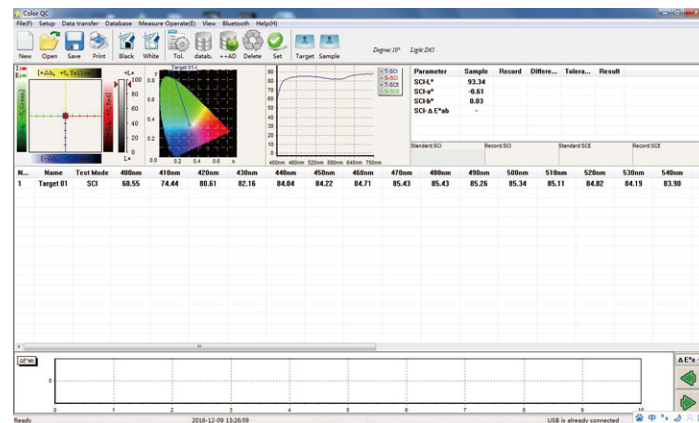




After black calibration, take the tile out, put the glass cell with distilled water glass cell support, then press white calibration on the pop-up menus for white calibration.



After white calibration, put the target on the cuvette support. Click "target" for measurement (as show in the figure).



After measurement, save and name the sample (as show in figure).





## Company's statement

- 1.The company promises that our spectrophotometer offers one year of warranty from the purchase date. Non-artificial damage under normal use is subjected to free warranty. The company offers repair services for artificial damage, or damage after the warranty period ; however, the repair services would require fees relative to the damage.
- 2.The warranty only holds for the person, or company who purchased the instrument. Damage occurred by the third party usage would not be eligible for warranty service.
- 3.The company is not responsible for data loss because of error, repairing, or power outages. To prevent loss of important data, please save copies of the data on your PC.
- 4.The copyright ownership of the instrument and its associated software belong to CHNSpec and is protected by the Copyright Laws of People's Republic of China.
- 5.Our company sells the instrument does not mean we transfer the copyright, or any intellectual property's ownership to the user.
- 6.The specifications and information in this manual are subjected to further updates without notice.