CHN Spec

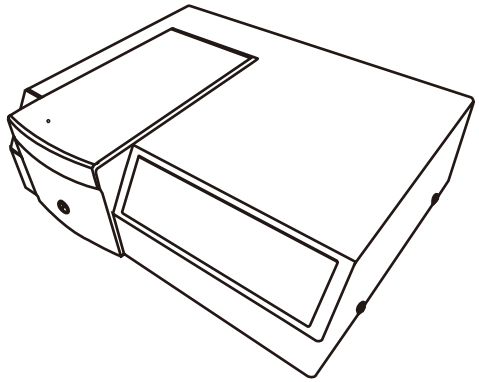
China's leading expert of color and gloss analysis

CHN Spec

SERIES OF SPECTROPHOTOMETER

OPERATION MANUAL

CS-812



Service hotline:+86 571 86872381

Adress:No.166 of Wenyuan Road,Jianggan District,Hangzhou City,China

WARNING

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

V. 2018.12

CATALOGUE

Terms of use

1. Our spectrophotometer is the first model in China that incorporates spectrum splitting technology in the measurement of color. It is primarily used to measure the sample's spectral data, spectral graph, color values, color differences and so on. The structure is compact and handy; measurement is easy to carry out, accurate and precise.
2. Our spectrophotometer is widely used in factories, labs and on spot. It can achieve great color measurement in the quality control of almost all fields.
3. The warranty period starts on the date you buy the spectrophotometer. If you need warranty service, please go to a local sales division of our company nearby, or visit the website www.chnspec.com to contact us for repair.
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.

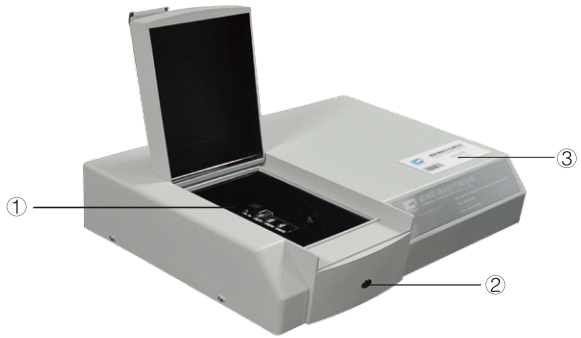
Notes

1. Carefully put the instrument on a flat surface.
2. This instrument is not moistureproof,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 the machine to work 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,
12. please take the battery out.
13. 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-812
Illumination mode	0/0 perpendicular irradiating; perpendicular receiving, SCS optical engine (Spectral integration system) conform to CP(2015 China pharmacopoeia color standard)
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~F12,CMF,U30,DLF,NBF,TL83,TL84
Cuvette	Size:12.5*14.5*20mm,Thickness：1cm
Minimum sample volume	1.5ml
Data displayed	Transmission mapping/data, chromatic values, color difference values, Closest Color No. to CP standard color solution,pass/fail results, color deviation, color simulation, color simulation history, input standard samples, test results
Test intervals	2 second
Test time	0.5 second
Measurement caliber	25.5*10mm (Cuvette holder)
Color space	CIE Lab,LCh,CIE Luv,XYZ,Yxy, transmittance,Hunter Lab Munsell,MI,CMYK
Color difference formulas	ΔE*ab,ΔE*CH,ΔE*uv,ΔE*cmc(2:1),Δ E*cmc(1:1),ΔE*94,ΔE*00
Other color indices	CP,WI(ASTM E313-00,ASTM E313-73, CIE/ISO, AATCC, 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
Repeatability	Transmittance: SD within 0.08% ,color values: ΔE*ab: 0.015 Avg（After calibration, standard deviation of 30 measurements on test white board, 5 second intervals）, 0.03 Max
Data port	USB
Light source longevity	5 years,1.5 million tests
Data storage	mass storage memory
Size	475*340*150mm(L*W*H)
Working temperature range	0℃to45℃, relative humidity 80% or below（at 35°C ）,no condensation
Storage temperature range	-25℃ to 55℃, relative humidity 80% or below（at 35°C ）, no condensation
Standard accessories	Power cable, color management software, driver software, USB link, black calibration, cylindercolorimetric cuvette

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

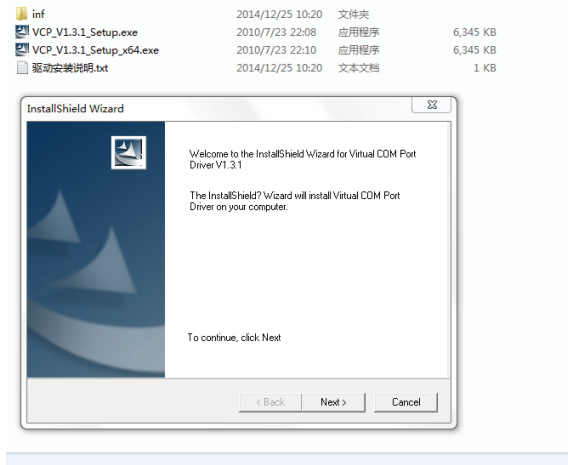
1. Instrument rated voltage should be 220V,50Hz. Instrument can not work well with unstable voltage.
2. Instrument should be installed in dry environment.
3. Instrument should be fixed on a flat place and no vibration.
4. Instrument should be away from electric field.
5. No direct sunlight to the instrument.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

Part Two. Instrument Installation

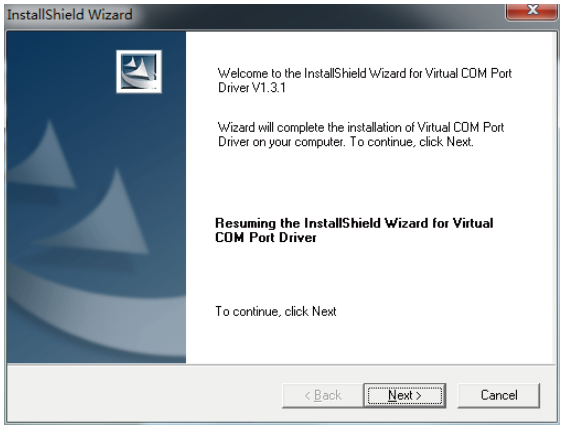
1. Check if any damage on the instrument after open the case. Then check if all accessories according to the packing list.
2. Take the instrument out after all accessories are OK.
3. Check if the instrument is in good condition.

Driver Installation

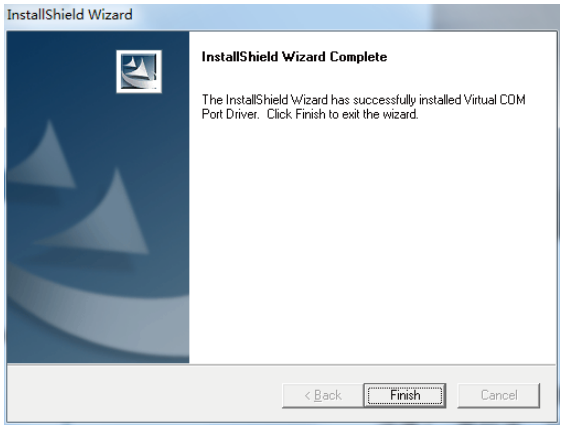
1.Turn on the driver file, if your PC is 64, double click VCPVCP_V1.3.1_Setup_x64.exe as show in figure



2. Press “next” for installation



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

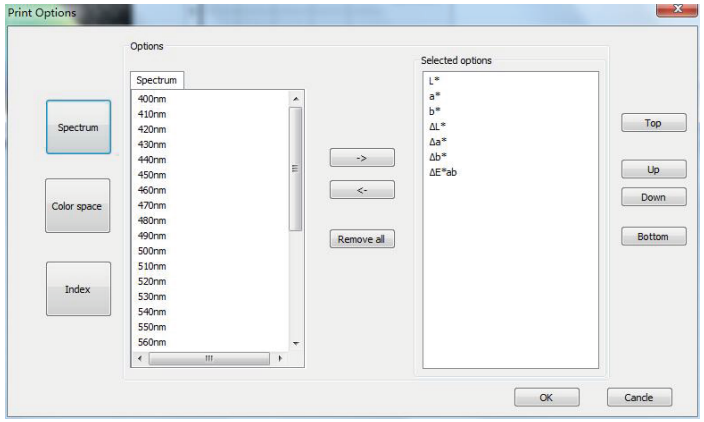


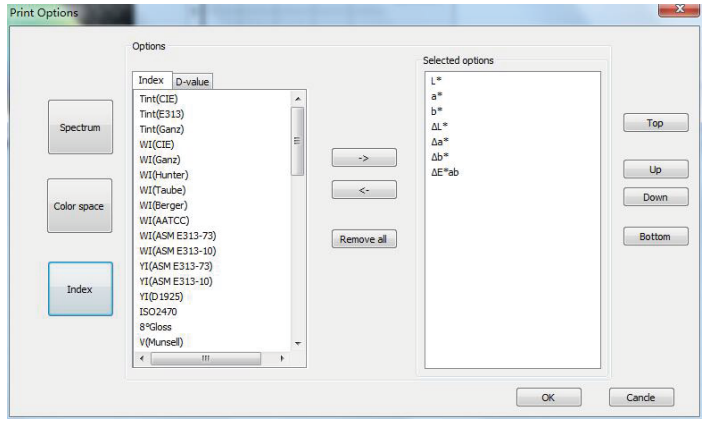
4.If your computer is 32, double click dpinst dpinst_x86.exe . Then install the software according to the above steps.

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: put the distilled water on the sample support, pull the sample bar and then close the cover for calibration.
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

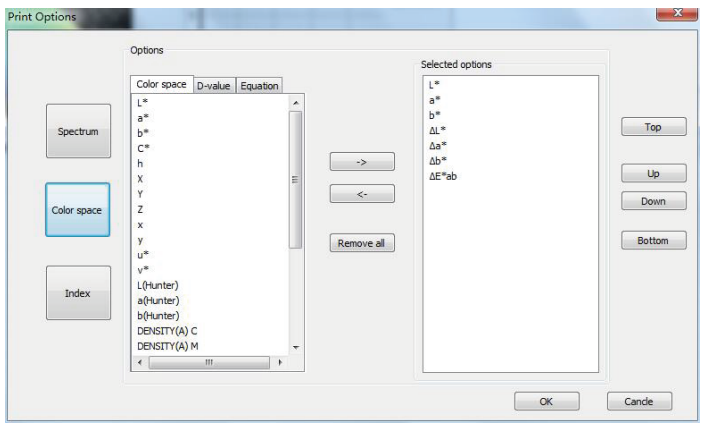




The position could be changed, as show in figure

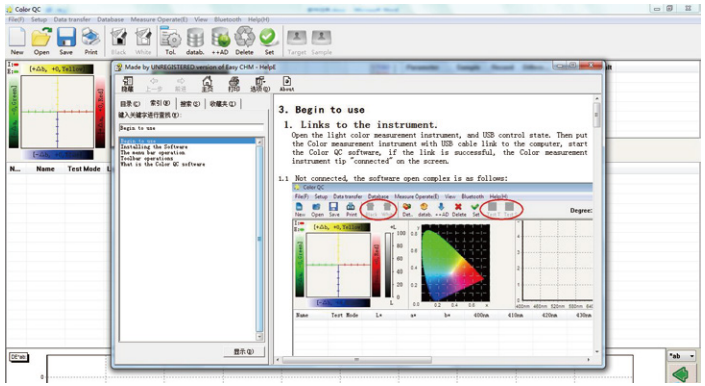
Num	Name	Test Mode	L*	a*	b*	Δ E*ab	400nm	410nm

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

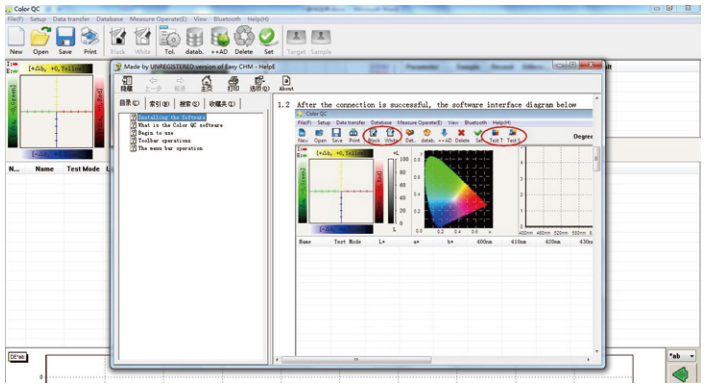


The selected option position could also be changed by pressing “up” or “down”.

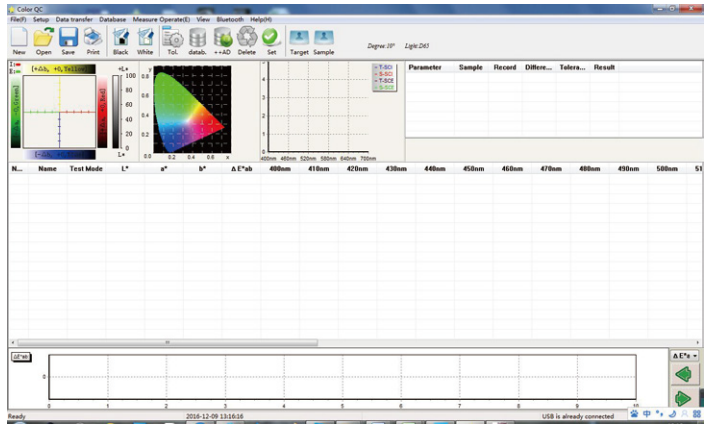
Testing



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

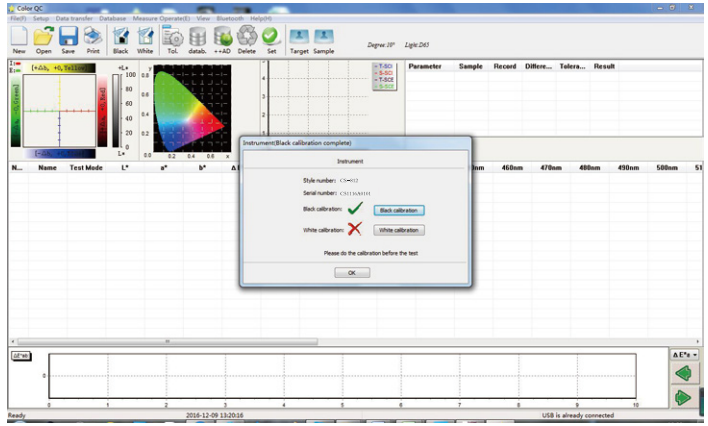


In the left column, we could see the catalogue of the operating manual. When instrument is not connected with PC, black/white calibration and target / sample button is grey.

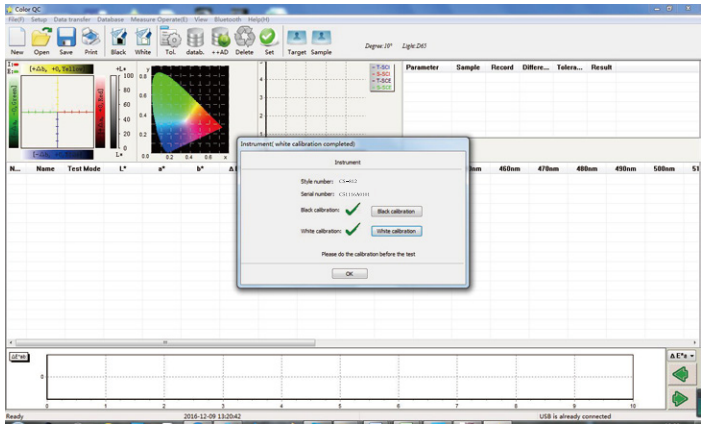


When instrument is connected with computer, black/white calibration and target / sample button can be clicked.

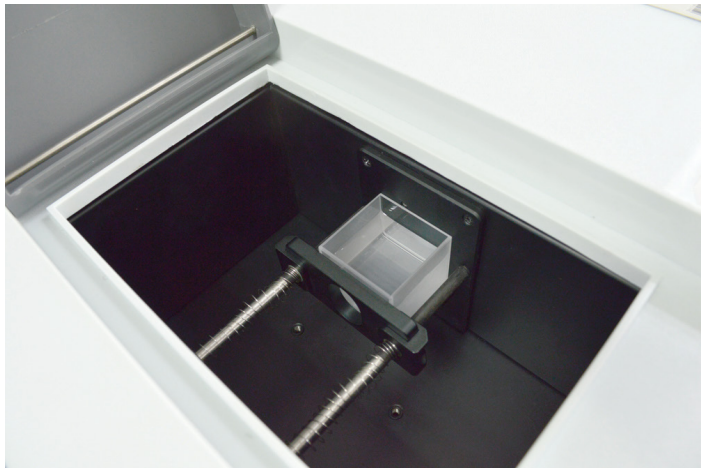
Calibration



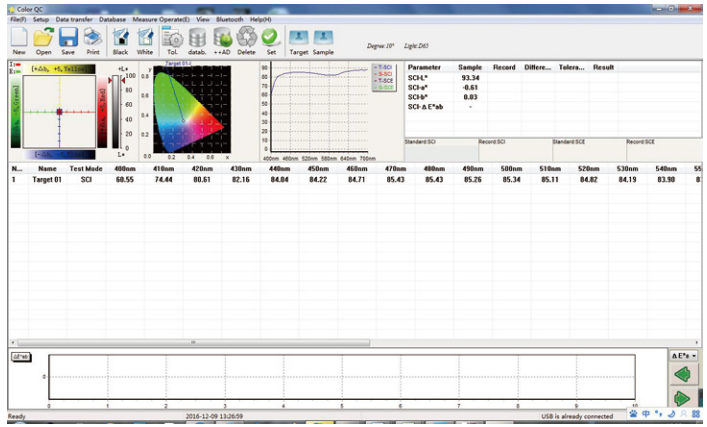
When instrument is connected with computer, put the black calibration tile into the instrument, close the cover, click “Black” for calibration.

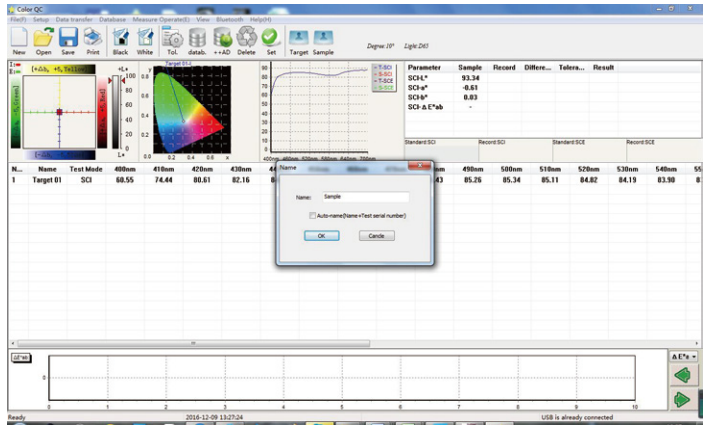


After black calibration, take the tile out, click white on the pop–up menus for white calibarion.

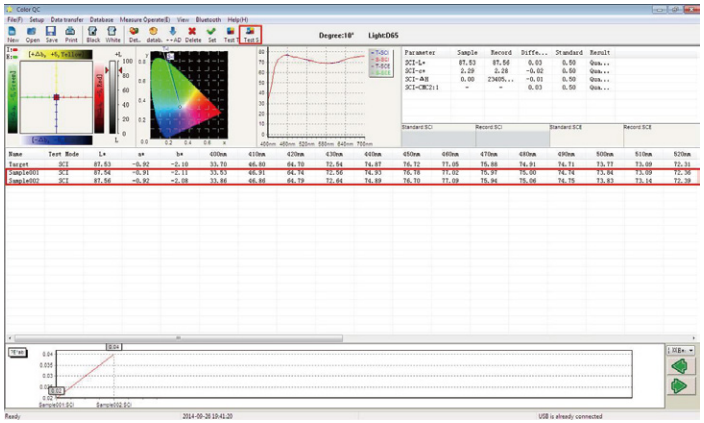


After white calibration, put the target sample on the cuvette support. Click "target" for measurement (as show in the figure).





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



After traget measurement is finished, put sample on the cuvette support. Click "sample" for measurement,we will get the testing result. We could compare and print the testing result.

Error handling

Error	Analysis	Handling
1. Unable to power up	1. Check battery or power cable	Install connect power cable to outside power source
2.Exception in measurement results	Check if the tolerance settings are reasonable	Check and change tolerance settings
3.Unreasonable measurement results	1.Check if the instrument is lying stably on a flat sample 2.Check if the sample is too thin 3.Check if there are multiple colors in a small spot being tested	1.Make sure instrument is lying flat 2.Put a thick piece of white paper under sample 3.Only check spots of single color

Testing Result Analysis

▼ΔE Color Difference Scale $\Delta E^*ab = \sqrt{(\Delta L^*)^2+(\Delta a^*)^2+(\Delta b^*)^2}$

ΔL+ represents white, ΔL− represents black, Δa+ represents red, Δa− represents green, Δb+ means yellow, Δb− represents blue. When we use CIE*a*b* to show a clolr, L* is balck or whilte. a* is red or green.b* is yellow or green.

▼CIE LAB

CIE LAB is color space based on the fact that a color can't be both red and green, or both blue and yellow, because these colors oppose each other.So a single data could be used to describe red/green and yellow/blue. When we use CIEL*a*b* to describe a color,L* means lightness, a* means red/green and b* means yellow/blue.

▼CIE LCH

CIE LCH adopts same color space as L*a*b*, but its L* represents lightness, c* represents saturation and h* represents hue.

Company's statement

1.The company promises that our spectrophotometer offers one year of warranty after 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 occurring under 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 our company 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.