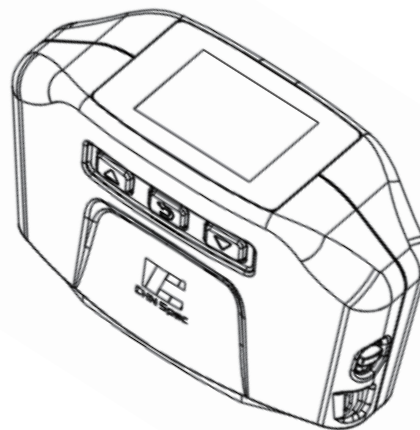




领先的中国色彩与光泽分析专家
China's leading expert of color and gloss analysis



三角度分光测色仪 产品使用说明 ▶ CS-390/CS-392



杭州彩谱科技有限公司
HANGZHOU CHNSPEC TECHNOLOGY CO.,LTD

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CATALOGUE

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使用须知

- 1、三角度分光测色仪是基于分光技术平台的测色仪，主要用于测量样品的光谱数据、光谱图、色度值、色差值、呈现合格/不合格、历史数据、色彩仿真示意图等。结构紧凑轻便测试高度精准、操作简易。
- 2、三角度分光测色仪广泛应用于汽车修理厂、油漆厂，不仅可简化配色流程，还可精准查找油漆配方。
- 3、限制性保修的时间段是自购买本仪器开始起（时间：如一年）的时间。如果您的仪器需要服务，请将仪器带到当地的销售部或通过网址：www.hzcaipu.com 联系我们来进行维修。
- 4、为了避免仪器精度受影响，请不要将仪器私自拆开。如果由于私自拆卸机器或不正确的使用而导致仪器损坏，请用户自行负责。

注意事项

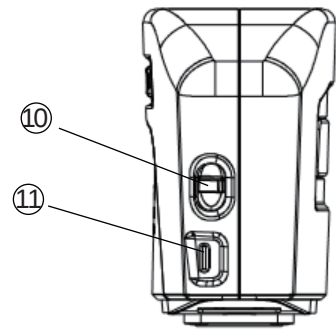
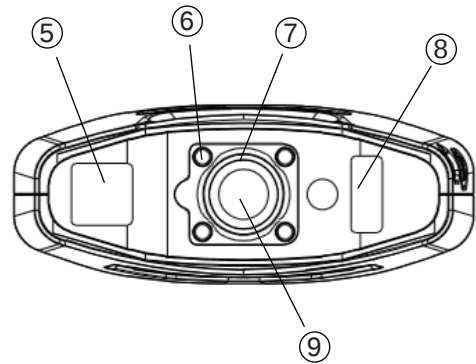
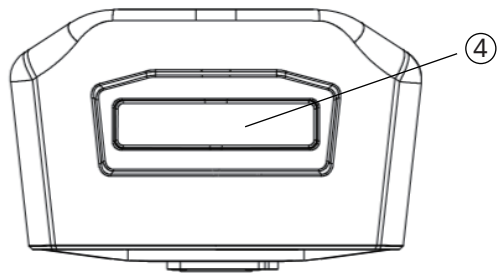
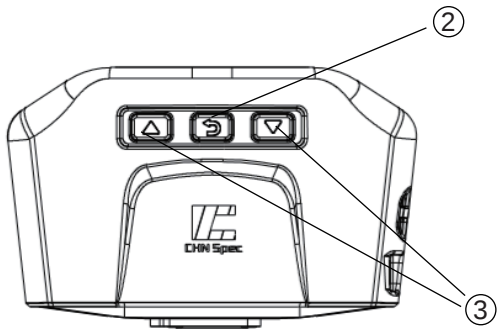
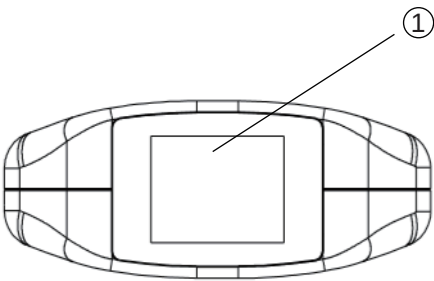
- 1、本机属精密仪器，不能承受因跌落而导致的碰撞，使用时请放置于相对平整的地方。
- 2、本机不能防潮或抗潮，受潮或液体溅入易损坏本机，需在干燥的环境中存放。
- 3、本机的屏幕是由玻璃制成，受到异常外力或锐器的作用易损坏。
- 4、本公司建议使用原配电源适配器。
- 5、为保障本机正常工作，请不要在过冷或过热的地方存储和使用，也勿将本机放置在潮湿或阳光长期直射的地方，更不要在强震等恶劣的环境中使用本机，以免发生意外。
- 6、为了保证测试的准确性，请在测试之前仔细检查锂电池。
- 7、本机是精密仪器，使用时请避开强电磁干扰。
- 8、为保证测量准确，请不要用本机测量不平整的表面。
- 9、为保证测量准确，测试时请保持仪器平稳，不要摇晃。
- 10、测试时请将仪器的测试口紧贴测试物体表面，但不要用力按压。
- 11、本机属精密仪器，使用完毕请将仪器装入包装箱内保管。
- 12、本机及说明书如有进一步改进或补充，恕不另行通知。如有疑问，敬请垂询本公司。

功能描述

- 1、简化配色流程
- 2、配色方案不二之选
- 3、快速测试两次便可获得配方结果
- 4、界面直观简单，仪器方便易用
- 5、橡胶垫脚可防止读取时仪器滑动
- 6、开口小，方便测量曲面
- 7、蓝牙可连接手机等移动设备

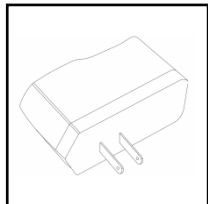
技术参数

型号	CS-390	CS-392
照明角度	45°	
测量角度	颜色角度：15°、45°、110°	颜色角度：15°、45°、110° 颗粒角度：积分球漫射
测量参数	颜色参数：L*a*b*,dE*ab	颜色参数：L*a*b*,dE*ab 颗粒参数：颗粒等级(G)
光谱范围	400 - 700nm	
光谱间隔	10nm	
测量范围	0 - 500%	
分辨率	0.01%	
照明光源	LED	
测量时间	小于 5 秒	
重复性	dE ≤ 0.05(测量白板30次，间隔5秒)	
台间差	dE ≤ 0.5(测量BCRA标准板平均值)	
测量区域	直径17mm	
观察角度	2° 和 10°	
照明光源	A、C、D50、D65、F2、F7、F11 & F12	
支持语言	中文、英语、法语、德语、俄语	
行业标准	DIN 6175	
接口	USB、蓝牙、WiFi选配	
尺寸	约145*58*99mm	
重量	500g	
电源	3.7V/3000mAh 可充电锂电池	
使用温度	0 - 40	
存储温度	- 20 - 50	

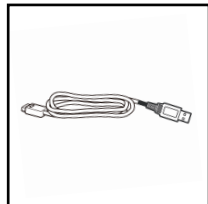


- | | | |
|-----------|--------|---------|
| ① 液晶显示屏 | ⑤ 仪器型号 | ⑨ 测试口 |
| ② 返回键 | ⑥ 触点 | ⑩ 开关 |
| ③ 上下选择键 | ⑦ 橡胶圈 | ⑪ USB接口 |
| ④ 确定键和测试键 | ⑧ 出厂编码 | |

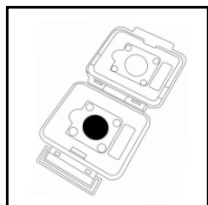
随机配件



充电器*1



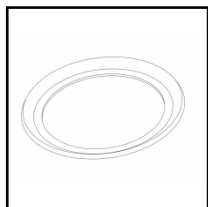
Type-C数据线*1



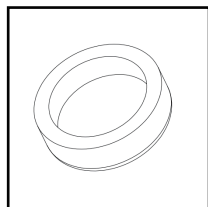
黑白校准盒*1



彩板校准盒*1



测试口软胶圈*1



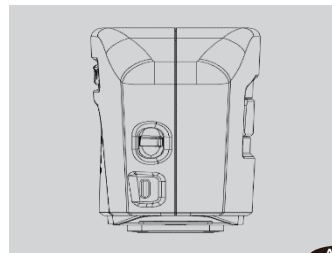
脚垫*4

使用入门

A-1

开关机：

红色开关向上拨动，开机；红色开关向下拨动，关机；开机状态下，待机1个小时后自动关机，如若开机，需要先关机再开机；

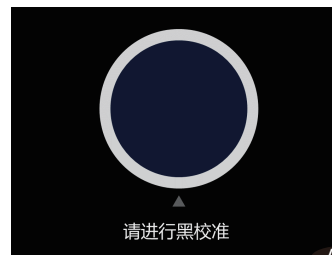


A-1

A-2

黑校准：

当仪器上提示您“请进行黑校准”，请打开黑白校准盒，将仪器放在黑腔上，确保仪器已经放好，点击仪器侧面的『确定』按钮，开始进行黑校准，等待校准完成；

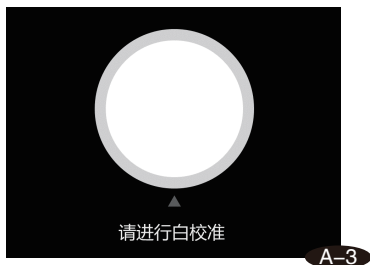


A-2

A-3

白校准：

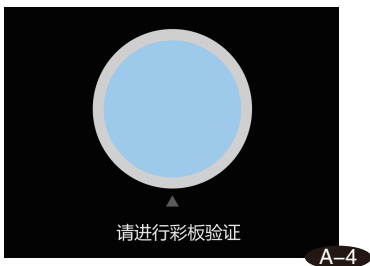
当仪器上提示您“ ”请进行白校准”，请打开黑白校准盒，将仪器放在白板上，确保仪器已经放好，点击仪器侧面的『确定』按钮，开始进行白校准，等待校准完成；



A-4

彩板验证：

当仪器上提示您“ ”请进行彩板验证”，请打开彩板验证盒，将仪器放在彩板上，确保仪器已经放好，点击仪器侧面的『确定』按钮，开始进行彩板验证，等待验证完成；



主界面

B-1



找色

C-1

找色：



在没有连接电脑或者手机的情况下，进入该页面测量目标颜色数据并自动保存至仪器内部，然后可以通过连接电脑或者手机将数据导出。

C-2

进入该页面，将仪器平放在目标样品A上，保证目标样品A表面干净平整，点击侧面的『确定』按钮开始测试，等待测试完成，期间不要移动机器（如果在『设置』—『测量设置』—『平均次数』设置大于1，需要在一次测试完成后，将目标样品A旋转90°后再将仪器平放在同一位置，再次测试，重复上述操作直至测试完成，默认平均次数为3次）。



C-2

D-2

进入该页面，将仪器平放在目标样品A上，保证目标样品A表面干净平整，点击侧面的『确定』按钮开始测试，等待测试完成，期间不要移动机器，测量完成后，仪器上会显示该目标A具体的LAB颜色数据以及G颗粒值*。

再次点击『确定』按钮，进入QC功能，可以选择另外一个目标B，测试后仪器上会显示目标A以及目标B之间的每个角度颜色差值 dL^* 、 da^* 、 db^* 和 dE^*ab 以及颗粒差值 dG 。可以更换为目标C再次进行QC测试。

点击『返回』按钮退出QC功能，『上』『下』按钮可以选择不同的历史目标最为标样进行QC，也可以选择新建进行新的标样测试。

+新建	L*	a*	b*	E*	
Car 1	15°	38.15	-6.03	-38.09	---
	45°	10.60	-2.59	-17.28	---
Car 2	110°	3.62	0.06	-6.14	---
Car 3	G	3.54			
Car 4	确认 测量 返回 退出				

D-2

注：颗粒参数为CS-392特有

设置

E-1

设置：



E-1

进入该页面进行语言选择、触点设置、测量设置、黑白校准、彩板验证、仪器信息和恢复出厂的设置。

测色

D-1

测色：



D-1

在没有连接电脑或者手机的情况下，进入该页面测量目标颜色数据并显示LAB、G值，可以将该颜色设为标样，然后测量其他颜色进行QC检测，并且显示LAB、G的差值以及每个角度的 dE^*ab 。

进入该页面，有以下几个设置选项，『上』『下』键移动光标至目标，『确定』按钮进入，『上』『下』键调整设置，『返回』键保存修改设置并返回上一级。

E-2

语言设置：选择中文、英语、德语、法语、俄语语言

触点设置：设置打开或者关闭底部触点感应

测量设置：设置测量平均次数以及QC的容差大小

黑白校准：进行黑白校准

彩板验证：进行彩板验证

仪器信息：查看仪器出厂信息

恢复出厂：仅清除仪器保存数据或者将仪器恢复至出厂状态。



电量图标

F-1

电量图标：



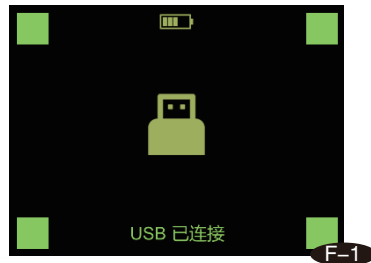
显示当前设备的电量，格数越多，电量越多，使用时间越长。

连接其他设备

F-1

数据线连接：

开机进入主界面，使用配套的Type - C数据线，一端插在电脑上，一端插在仪器上即可完成电脑和仪器的数据线连接，此时仪器界面上显示USB已连接（如果电脑端PC软件显示USB未连接，请将USB数据线拔掉重新插上）。



蓝牙连接：

开机进入主界面，使用手机端或者电脑端的软件，搜索设备，如果查询到的设备编号和仪器底部的SN号一致，可以点击连接设备，连接成功后，仪器端会显示蓝牙已连接。



公司声明

- 1、本公司向用户承诺，我们生产的测色仪系列产品，保修期限为购买之日起的三年 时间内有效，正常使用情况下非人为造成的故障问题，本公司将负责给予免费维修，超过保修期或人为因素导致的故障，本公司将提供维护，将收取维修材料及相关费用。（详细保修参看彩谱保修细则）
- 2、本公司对于第三者因使用本产品引起的任何损失或索赔不负任何责任。
- 3、本公司对于由于因故障、维修或断电造成的数据丢失而导致的任何损害或损失均不负任何责任。为防止重要数据的丢失，请务必对所有重要数据进行备份。
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- 5、我公司出售本产品的行为不代表向用户转让或授予与作品版权相关的任何权利。本说明书所提到的产品规格及信息仅供参考，内容亦会随时更新，恕不另行通知最新版本可到 www.hzcaipu.com 查询。



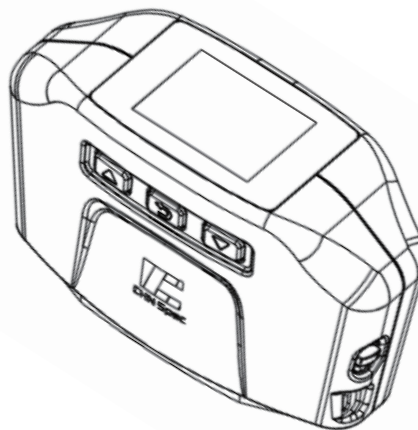
China's leading expert of color and gloss analysis



Triangulation spectrophotometer

Product instructions ►

CS-390/CS-392



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Economic and Technological Development Zone

National toll free: 4000 - 7272 - 81

Fax: 0571 - 85888727

CATALOGUE

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Instructions for use

- 1、The triangulation spectrophotometer is based on the spectroscopic technology platform, which is mainly used to measure the spectral data of samples, spectrogram, chromaticity value, chromaticity difference value, present qualified / unqualified, historical data, color simulation diagram, etc. Compact and light, highly accurate and easy to operate.
- 2、Triangulation spectrophotometer is widely used in automobile repair shop and paint factory. It can not only simplify the color matching process, but also accurately find the paint formula.
- 3、The limited warranty period is the period of time (such as one year) since the purchase of this instrument. If your instrument needs service, please take it to your local sales department or contact us at www.hzcaipu.com for repair.
- 4、In order to avoid the accuracy of the instrument being affected, please do not disassemble the instrument without permission. If the instrument is damaged due to dismantling the machine without permission or improper use, the user shall be responsible for it.

Matters needing attention

1. This machine is a precision instrument, it can't bear the impact caused by falling. Please place it in a relatively flat place when using.
2. The machine shall not be moisture-proof or moisture-resistant. It is easy to be damaged by moisture or liquid splashing. It shall be stored in a dry environment.
3. The screen of this machine is made of glass, which is easily damaged by abnormal external force or sharp tool.
4. The company recommends using the original power adapter.
5. In order to ensure the normal operation of the machine, please do not store and use it in the place where it is too cold or too hot, nor place it in the place where it is wet or directly exposed to the sun for a long time, nor use it in the harsh environment such as strong earthquake to avoid accidents.
6. To ensure the accuracy of the test, please check the lithium battery carefully before the test.
7. This machine is a precision instrument. Please avoid strong electromagnetic interference when using.
8. To ensure the accuracy of measurement, please do not use this machine to measure the uneven surface.
9. To ensure the accuracy of measurement, please keep the instrument stable and do not shake.
10. During the test, please keep the test port of the instrument close to the surface of the test object, but do not press hard.
11. This machine is a precision instrument. Please put the instrument in the packing box for safekeeping after use.
12. This machine and the manual are subject to further improvement or supplement without notice. If you have any questions, please contact us.

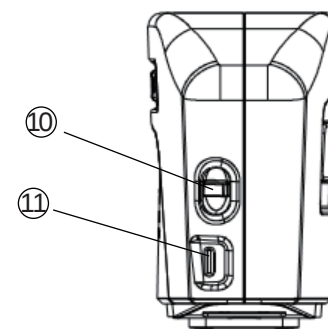
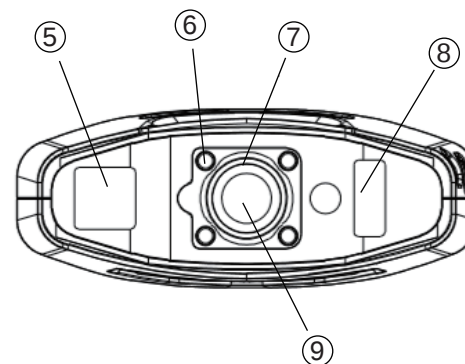
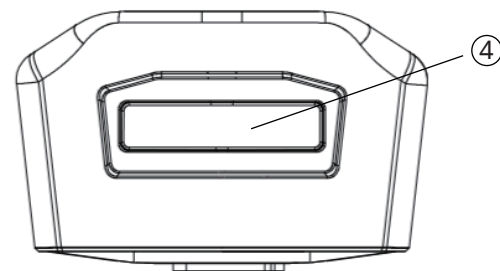
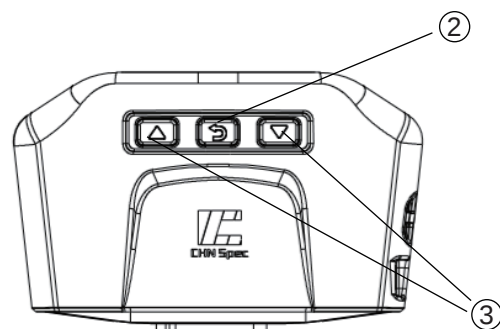
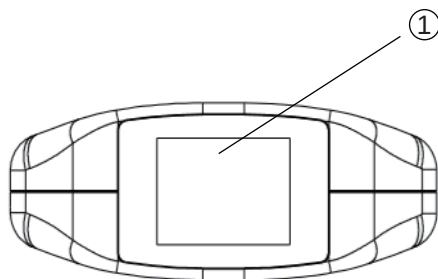
Function description

1. Simplify color flow
2. The best color scheme
3. Quick test twice to get formula results
4. The interface is intuitive and simple, and the instrument is easy to use
5. Rubber feet prevent the instrument from sliding when reading
6. Small opening, easy to measure curved surface
7. Bluetooth can connect mobile devices such as mobile phones

Technical parameter

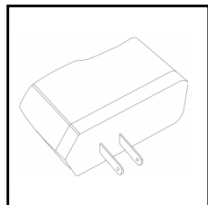
Model	CS -390	CS -392
Illumination angle	45 °	
Measuring angle	Color angle : 15 °、45 °、110 °	Color angle : 15 °、45 °、110 ° Particle angle: integral sphere diffusion
Measurement parameters	Color parameter : L*a*b*,dE*ab	Color parameters: L * a * b *, de * ab Particle parameter: particle grade (g)
Spectral range	400 - 700nm	
Spectral interval	10nm	
measuring range	0 - 500%	
Resolving power	0.01%	
Lighting source	LED	
Measuring time	Less than 5 seconds.	
Repeatability	De ≤ 0.05 (measure white board 30 times, interval 5 seconds)	
Inter station error	De ≤ 0.5 (measure the average value of BCRA standard plate)	
Measurement area	Diameter 17mm	
Observation angle	2 ° and 10 °	
Lighting source	A、C、D50、D65、F2、F7、F11 & F12	
Support language	Chinese, English, French, German, Russian	
Industry standard	DIN 6175	
Interface	USB, Bluetooth, WiFi optional	
Parameter	About145*58*99mm	
weight	500g	
Power Supply	3.7v/3000mah rechargeable lithium battery	
Service temperature	0 - 40	
Storage temperature	- 20 - 50	

Overview of CS -392

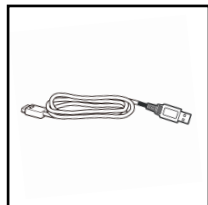


- | | | |
|---------------------------|-------------------|-----------------|
| ① LCD screen | ⑤ Instrument type | ⑨ Test port |
| ② Return key | ⑥ contact | ⑩ Opening key |
| ③ Up / down selection key | ⑦ Rubber ring | ⑪ USB interface |
| ④ OK key and test key | ⑧ Factorycodee | |

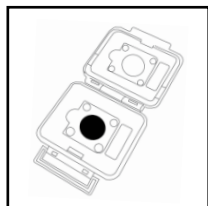
Random accessories



Charger*1



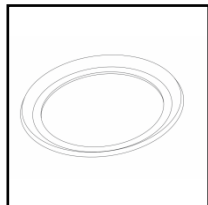
Type - C Data line *1



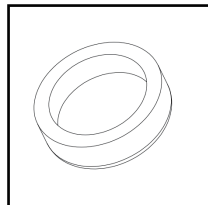
Black and white calibration box*1



Color plate calibration box *1



Test port soft rubber ring *1



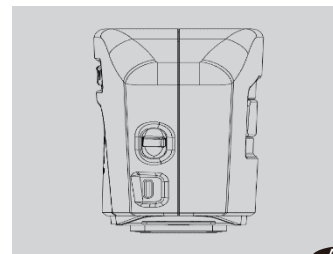
Door mat *4

Getting Started

A-1

On / off:

Turn the red switch upward to start the machine; turn the red switch downward to shut down the machine; in the power on state, the machine will automatically shut down after standby for 1 hour. If the machine is started, it needs to shut down first and then start the machine;

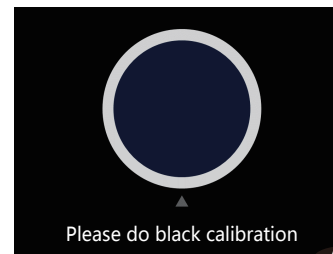


A-1

A-2

Black calibration:

When the instrument prompts you "please conduct black calibration", please open the black and white calibration box, place the instrument on the black chamber, make sure that the instrument has been placed, click the "OK" button on the side of the instrument, start black calibration, and wait for the completion of calibration;

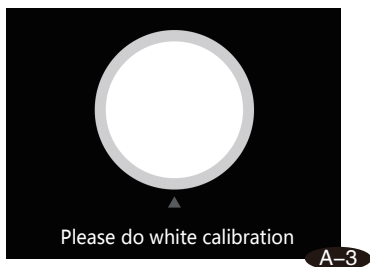


A-2

A-3

White calibration:

When the instrument prompts you "please conduct white calibration", please open the black and white calibration box, place the instrument on the white board, make sure that the instrument has been placed, click the "OK" button on the side of the instrument, start the white calibration, and wait for the completion of the calibration;



A-3

A-4

Color plate verification:

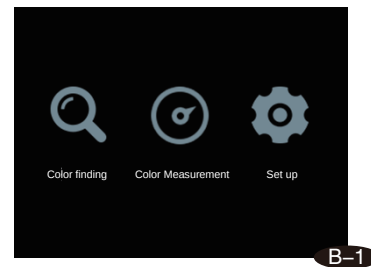
When the instrument prompts you "please carry out color plate verification", please open the color plate verification box, place the instrument on the color plate, make sure that the instrument has been placed, click the "OK" button on the side of the instrument, start the color plate verification, and wait for the verification to be completed;



A-4

Main interface

B-1



B-1

Color finding

C-1

Color finding :

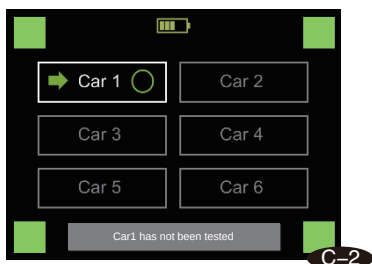


C-1

If you are not connected to a computer or mobile phone, go to this page to measure the target color data and automatically save it to the inside of the instrument. Then you can export the data by connecting to a computer or mobile phone.

C-2

Enter this page, place the instrument flat on the target sample a, ensure the surface of the target sample a is clean and flat, click the "OK" button on the side to start the test, wait for the test to be completed, and do not move the machine during this period (if the setting is greater than 1 in "setting" - Measurement setting "- average times", it is necessary to rotate the target sample a by 90 ° after one test is completed, and then level the instrument Put it in the same place, test again, repeat the above operations until the test is completed, the default average number is 3).



Color Measurement

D-1

测色：



D-1

When there is no connection to the computer or mobile phone, enter the page to measure the target color data and display the lab and g values. You can set the color as the standard sample, then measure other colors for QC detection, and display the difference between lab and G and the de * ab of each angle.

D-2

Enter the page, place the instrument flat on target sample a, ensure that the surface of target sample a is clean and flat, click the "OK" button on the side to start the test, wait for the test to be completed, do not move the machine during the period, after the measurement is completed, the specific lab color data and G particle value * of target a will be displayed on the instrument.

Click the "OK" button again to enter the QC function. You can select another target B. after the test, the instrument will display target a and the color difference DL of each angle between target B*, Da *, DB * and de * AB as well as particle difference * dg. Can be replaced with target C for QC test again.

Click the back button to exit the QC function, and the up button and down button can select the most standard samples for different historical targets for QC, or select new standard samples for new test.

	L*	a*	b*	E*
Car 1	15°	38.15	-6.03	-38.09
	45°	10.60	-2.59	-17.28
Car 2	110°	3.62	0.06	-6.14
Car 3	G	3.54		
Car 4	Confirmation Measure Return Sign out			

Note: particle parameters are specific to cs - 392

Set up

E-1

Set up：



E-1

Enter this page for language selection, contact setting, measurement setting, black and white calibration, color plate verification, instrument information and factory reset

To enter the page, there are the following settings: press up and down to move the cursor to the target, press OK to enter, press up and down to adjust the settings, press back to save the modified settings and return to the previous level,

E-2

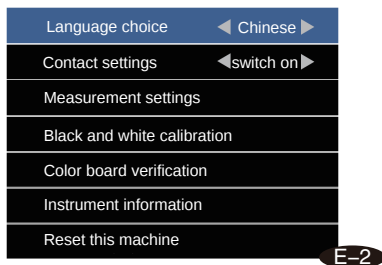
Language setting: Select Chinese, English, German, French, Russian
language contact setting: set to turn bottom contact sensing on or off

Measurement settings: set the average number of measurements and the tolerance size of QC black and white calibration: conduct black and white calibration

Color plate verification: color plate verification

Instrument information: view the factory information of the instrument

Restore to the factory: only clear the data saved by the instrument or restore the instrument to the factory status.



Electricity Icon

F-1

Electricity Icon :



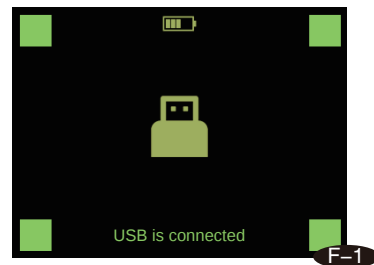
Display the current power of the device, the more cells, the more power, the longer the use time.

Connecting other devices

F-1

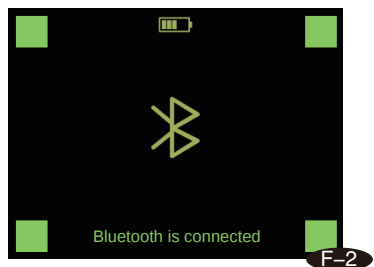
Data line connection :

Start the machine and enter the main interface. Use the matching type-C data cable. Plug one end into the computer and one end into the instrument to complete the data cable connection between the computer and the instrument. At this time, the instrument interface shows that USB is connected (if the PC software at the computer end shows that USB is not connected, please unplug the USB data cable and plug it in again).



Bluetooth connection :

Turn on the machine and enter the main interface. Use the software of mobile phone or computer to search for the device. If the device number queried is consistent with the SN number at the bottom of the instrument, you can click to connect the device. After the connection is successful, the instrument will show that Bluetooth is connected.



Company statement

- 1、 The company promises to the users that the warranty period of our color measuring instrument series products is valid within three years from the date of purchase. In case of non-human caused fault under normal use, the company will be responsible for free maintenance. In case of fault beyond the warranty period or caused by human factors, the company will provide maintenance, and will charge maintenance materials and related fees. (for detailed warranty, please refer to the detailed warranty rules of Caipu)
- 2、 The company shall not be liable for any loss or claim caused by the use of the product by any third party.
- 3、 The company shall not be liable for any damage or loss caused by data loss due to fault, maintenance or power failure. To prevent the loss of important data, make sure to back up all important data.
- 4、 The copyright of all works preset in this product belongs to Caipu company and is protected by the copyright law of the people's Republic of China.
- 5、 The sale of this product by our company does not mean the transfer or grant of any rights related to the copyright of the work to the user. The product specifications and information mentioned in this manual are for reference only, and the contents will be updated at any time. The latest version can be found at www.hzcaipu.com without notice.