CHN Spec

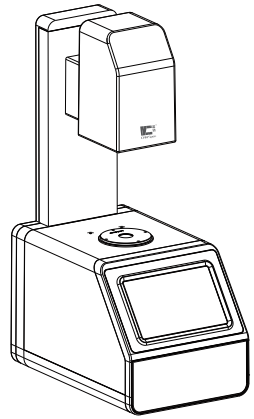
领先的中国色彩与光泽分析专家
China's leading expert of color and gloss analysis

CHN Spec

雾度计

产品使用说明

TH-110



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

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V. 2022.1

www.hzcaipu.com

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雾度计使用须知

1、雾度计是一台设计用于测定塑料、薄膜、玻璃制品、LCD面板等透明、半透明平行平面材料的雾度、总透光率的仪器。

2、雾度计广泛应用于实验室、工厂、或现场操作，足以在几乎所有应用领域的质量控制中实现准确的雾度测量。

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。

雾度计注意事项

1、本机属精密仪器，不能承受跌落导致的碰撞，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。
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贮和使用，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、本机是精密仪器，使用时请避开强电磁干扰。
7、为保证测量准确，测试时请保持仪器平稳，不要摇晃。
8、本机属精密仪器，使用完毕请将仪器关机保管。
9、请将仪器存放在干燥的地方。
10、禁止对积分球内部进行清洁。
11、如果仪器发生故障，请不要尝试自行修理，我们的客户服务部门会快速的为客户提供帮助。
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。

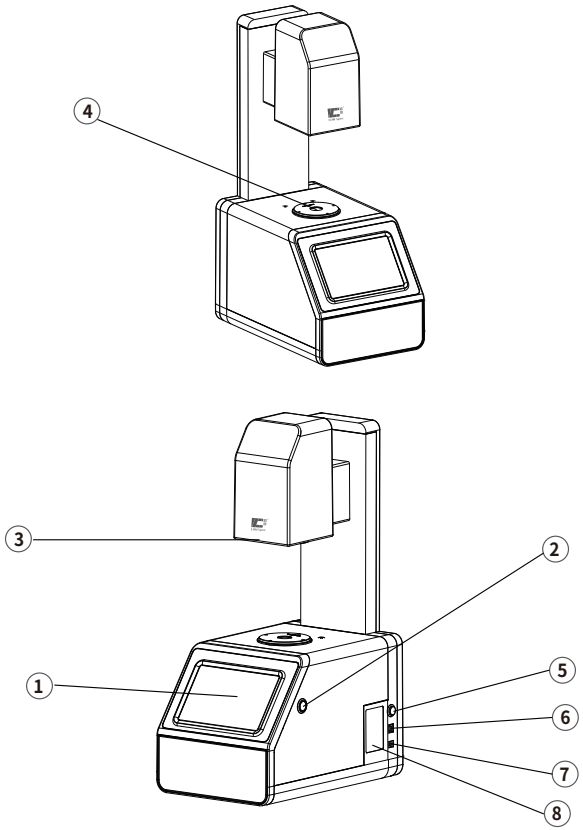
雾度计功能描述

1、雾度计符合以下测试标准：ASTM D1003/D1044,ISO 13468/ISO 14782,JIS K 7105,JIS K 7361,JIS K 7136,GB/T 2410-2008。
2、雾度计满足CIE-A、CIE-C、CIE-D65三种标准照明光源下的雾度与全透过率测量。
3、雾度计满足补偿法测试，可提供更准确的测试结果。
4、雾度计拥有开放式的测量区域，可以满足任意大小的样品测量。
5、雾度计采用5.0寸TFT显示屏，拥有良好的人机交互界面。
6、雾度计提供专业的雾度以及透过率的测量分析软件，可以满足用户对测试数据的分析以及管理。

技术参数

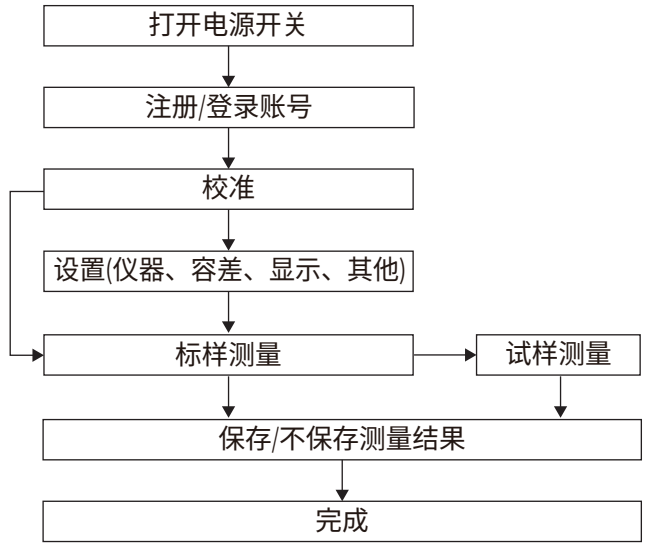
光源	CIE-A,CIE-C,CIE-D65
遵循标准	ASTM D1003/D1044,ISO 13468/ISO14782,JIS K 7105,JIS K 7361,JIS K 7136,GB/T 2410-08
测量参数	ASTM和ISO双标准下的雾度，透过率
光谱响应	CIE光谱函数Y/V（λ）
光路结构	0/d
测量口径	21mm,7mm
量程	0-100%
分辨率	0.01%
重复性	0.05
样品大小	厚度≤145mm
显示	7英寸触摸屏，安卓系统
存储数据	海量存储
接口	USB接口
电源	DC12V/3A
工作温度	5~40℃，相对湿度80%或更低（在35℃下），无水气凝结
储藏温度	-20℃~45℃，相对湿度80%或更低（在35℃下），无水气凝结
体积	长X宽X高：310mmX215mmX540mm
重量	6kg
标配	PC管理软件（Haze QC）
选配	测量夹具、雾度标准片、定制口径板

外观结构介绍



① 显示屏
② 测试键
③ 出光口
④ 测试口
⑤ 电源开关
⑥ USB接口
⑦ 电源接口
⑧ 铭牌

测量流程图



程序界面介绍

A-1

程序基本操作方法：
电容触摸屏，点击选择“ 相应的功能模块 ”。

校准：用户在此界面可进行仪器校准。

测量：用户可以测量样品的总透过率和雾度参数，测量试样与标样之间的差异以及设置参数和所保存的测试记录等。

设置：用户可以对仪器测量条件的各项参数进行选择和设置。

数据浏览：在该页面中用户可以查看已保存的标样下的各项参数，并可对选择的样品进行查看试样、删除和编辑名称操作。

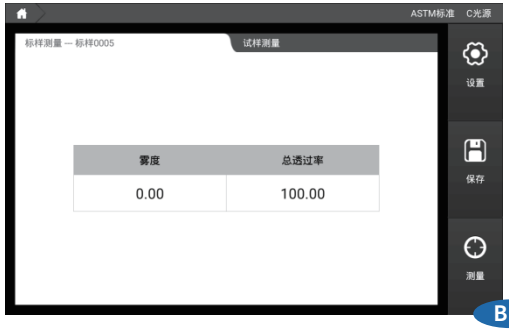
个人中心：在该页面中用户可以设置自己的账号信息。

关于：用户可以在此页面查看仪器版本以及厂家信息。

日志：用户可以在此界面查看自己的操作记录。

更新：联网可更新最新版本。

测量



B-1

B-1

标样测量

标样放置完成后，按屏幕上的“ 测量 ”，“ 嘀 ”声后完成测量，查看测量结果。测试结果的标题栏中，分别显示了标样名称和测试结果。当标样未保存时，标样名称一律显示为“ 标样xxx ”，当点击“ 保存 ”保存标样后，名称显示为保存之后的标样名。测试标准和参数可在测量前在“ 设置 ”中进行设置（参考设置章节说明）。

B-2

B-2

试样测量

在上面的标样测量完成并保存后，点击“ 试样测量 ”，即可进入该标样下的“ 试样测量 ”界面，点击“ 测量 ”进行测量，“ 滴 ”声后完成试样测量，查看测量结果。再次点击“ 测试 ”键可进行新的试样测量。与标样测量相同，试样测量在未保存时，在测量结果的标题栏中，第一列名称中的试样名称显示为“ 试样xxx ”，保存后则显示为保存后的名称。

注：试样测量前请先设置容差。（参考容差设置）

校准

C-1

C-1

根据仪器界面提示，保持测试口对准空气，按下仪器右边侧面的按钮进行校准操作。

设置

D-1

D-1

设置：在该界面中，用户可以对仪器、容差、显示以及其他等选项进行设置。

仪器：在该界面下，用户可以对仪器的雾度测量标准、光源、系统进行设置。

雾度测量标准：用户可以在ASTM和ISO两种测量标准中自行选择。

光源：用户可以在CIE-A、CIE-C、CIE-D65三种光源条件中选择设置。

系统设置：用户可以设置屏幕背光亮度；设置语言（简体中文、英语）

恢复出厂设置：用户可以对仪器恢复出厂设置。

屏幕旋转：仪器拥有垂直测量和卧式测量两种测量状态，用户可以根据测量时仪器的状态对屏幕进行设置。

wifi设置：用户可以给仪器连接网络。

时区设置：用户可以根据所在区域进行设置。

D-2

D-2

容差设置：在容差设置页面，用户在本页面下通过修改数值，然后点击“ 应用 ”。

D-3

D-3

显示设置：用户可以在该界面选择测量时显示的测量参数。

D-4

D-4

其他

平均设置：用户可以在“ 单次测量 ”和“ 平均测量 ”中选择。

保存设置：用户可以选择保存方式——“ 手动保存 ”或“ 自动保存 ”。

命名规则：用户可以设置标样和试样的命名方式。

数据浏览

E-1

E-1

数据浏览：用户在测量界面测量得到的数据保存后，数据可以在数据浏览中查看。

个人中心

F-1

F-1

个人中心：用户可以在此页面设置个人账号信息。

关于

G-1

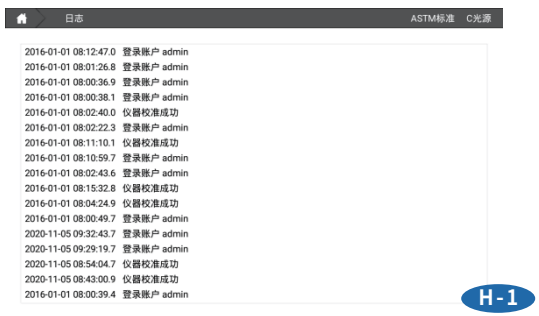
关于：用户可以在该页面看到仪器和生产厂家的相关信息。

更新

I-1

更新：用户可以连接网络，把仪器更新到最新版本。

日志



H-1

日志：用户可以在该页面查看使用仪器的操作记录。

参数介绍

雾度

漫散射会降低物体的成像质量。材料内部细小的颗粒或样品表面会引起散射，散射光会散射到不同的角度且每个角度的光密度都很小，这会导致对比度的降低，样品会形成如牛奶或云雾状的外观，这一现象称为雾度。根据ASTM D1003标准，雾度是超出2.5°散射的透射光所在全部透射光的百分比。

透明度评估条件

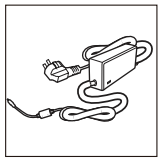
透明产品外观具有光泽、颜色和透明度等特性。透明度尤为重要，其评估条件为：透光率，雾度等。透过率是全部透射的光与入射光的比率。它会随材料表面对光的反射和吸收而降低。

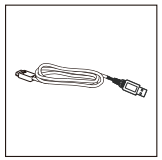
异常处理分析

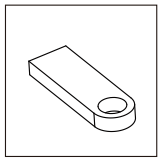
异常情况	分析	处理方法
1、仪器无法开机	电源连接可能异常	检查电源接口处是否接触良好，并插好电源
2、开机后不能进入主程序	开机校准过程可能异常	重新按照要求进行校准保证校准顺利通过
3、测量结果报错	容差设置可能异常	检查容差设置并调整
4、测试数值异常	1、样品与测量口贴合紧密与否 2、样品表面损伤是否较大	1、检查样品与测量口的贴合情况，保证紧密贴合 2、检查样品表面情况，保证样品是完好的对测量没有影响的

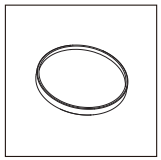
附件

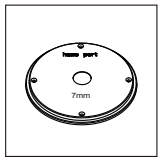
标配件


外部电源适配器


USB数据线

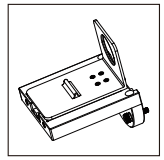

数据管理软件U盘

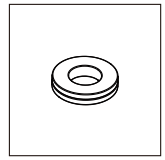

防尘盖

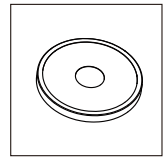


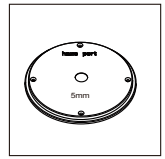
7mm口径板

选配件

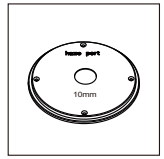

比色皿夹具


薄膜夹具


标准片



5mm口径板



10mm口径板

公司声明

- 本公司向用户承诺，我们生产的雾度计，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。
- 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。
- 本公司对由于因故障、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。
- 本产品中预置的所有作品之版权归本公司所有，受《中华人民共和国著作权法》保护。
- 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，内容会随时更新，恕不另行通知。

CHN Spec

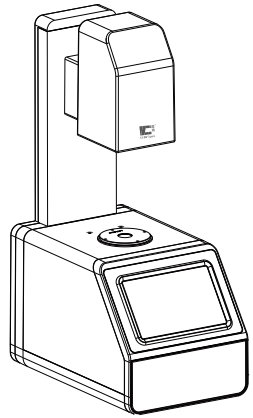
China's leading expert of color and gloss analysis

CHN Spec

Haze Meter

OPERATION MANUAL

TH-110



Service hotline:+86 571 85888707

Address:No.166,Wenyuan North 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. 2022.1

CATALOGUE

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Haze Meter Terms of use

1.Haze meter is designed for plastic, films, glass, LCD panel, touch screen and other transparent and semi-transparent materials haze and transmittance measurement.

2. Haze meter can be widely used in labs, factories or worksites, it can meet haze measurement requirement for all industries.

3. Warranty time is one year from the purchasing date. If your instrument need after-sales service, please bring it to local distributor or contact us on website: www.chnspec.com

4.To avoid damage on 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.

Haze Meter Notes

1.Dropping or collision is dangerous for this precision instrument . please put it on the relatively flat place to start your measurement.

2.Moisture or liquid splashing will damage the instrument. It is not damp proof.

3.Large force, or sharp objects may easily damage the glass screen .

4.Please use our original adapter if possible.

5.Do not use or store it in too hot or cold environment, neither wet nor sunlight shining places. Dangerous to use it under strong vibration. Please take care and avoid accidents.

6. Keep it away from strong magnetisms. It interfere the precision instrument.

7.Please keep the instrument steady; do not shake the instrument in usage

8.Please shut down the instrument after using

9.Please store the instrument in a dry place

10.You are not permitted to clean the interior of integrating sphere.

11.Please contact us if the instrument get a problem, don`t try to fix it yourself.

12.This instrument and its instructions are subject to further improvement or supplement without prior notice.

Haze Meter functions

1. Haze meter conforms to standards: GB/T 2410, ASTM D 1003, ISO 13468 , ISO 14782 and GB/T 2410-2008.

2. Haze meter can provide haze and transmittance value under CIE-A, CIE-C and CIE-D65 light sources.

3. Haze meter contains compensation method which provides higher accuracy on test result.

4. Open sample measurement area to make it can measure samples at any sizes.

5. Haze meter adopts 7.0 inch capacitive touch screen for friendly interface.

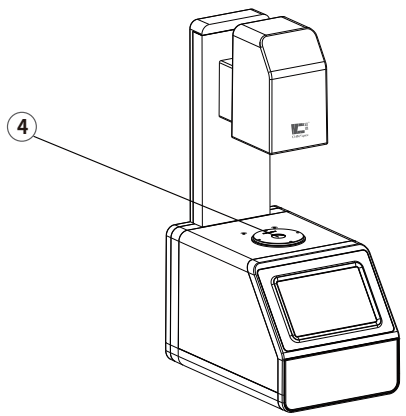
6. Haze and transmittance analysis software to meet customer's different. requirementrequirement on data analysis and management.

Haze Meter Technical Data

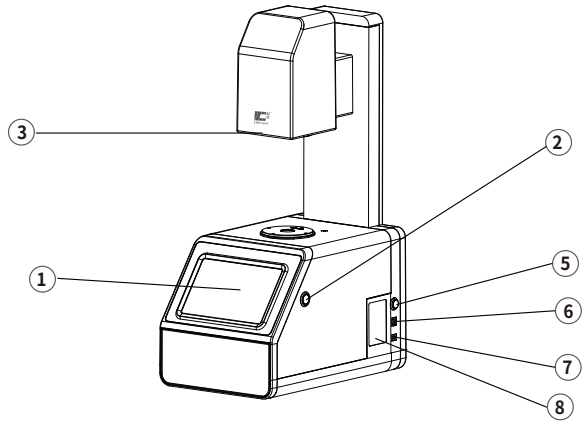
Light Source	CIE-A、CIE-C、CIE-D65
Standard	ASTM D1003/D1044,ISO 13468/ISO14782,JIS K 7105,JIS K 7361,JIS K 7136,GB/T 2410-08
Measurement parameter	ASTM and ISO (HAZE),Transmittance (T)
Spectral Response	CIE Luminosity function Y/V (λ)
Geometry	0/d
Measuring caliber	21mm,7mm
Measurement Range	0-100%
Resolution	0.01%
Repeatability	0.05
Sample Size	Thickness≤145mm
Screen	7 inch touch screen, Android system
Memory	Mass storage
Interface	USB
Power	DC12V/3A
Working Temperature	5~40℃，Relative humidity 80% or lower (35℃) no condensation

Storage Temperature	-20℃~45℃，Relative humidity 80% or lower (35℃) no condensation
Size	LxWxH：310mmX215mmX540mm
Weight	6kg
Standard Accessory	PC management software(Haze QC)
Optional	Measurement Fixture, Haze Standard, Customize caliber board

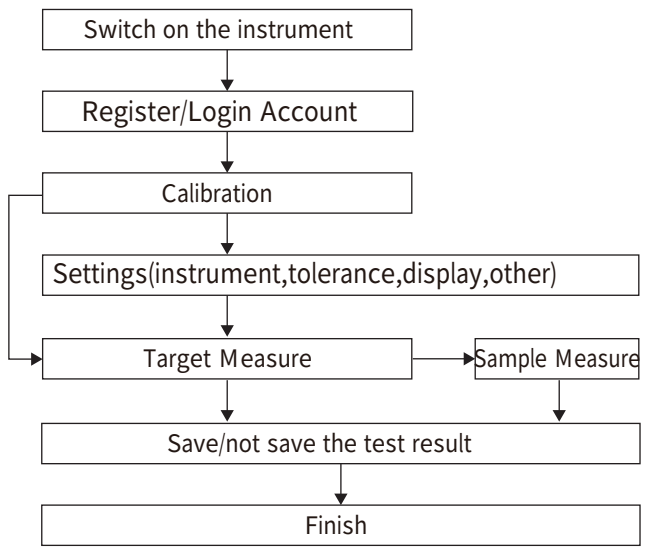
Appearance and structure



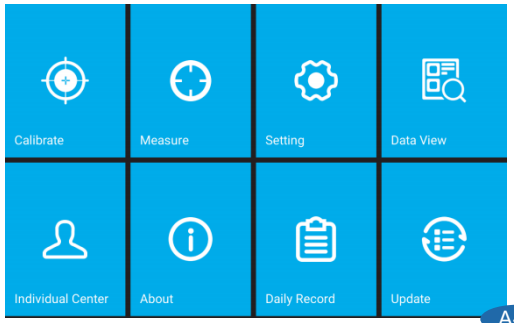
- Display Screen
- TEST
- Light Exit Aperture
- Test Aperture
- Switch on-off
- USB
- Power Interface
- ⑧ Nameplate



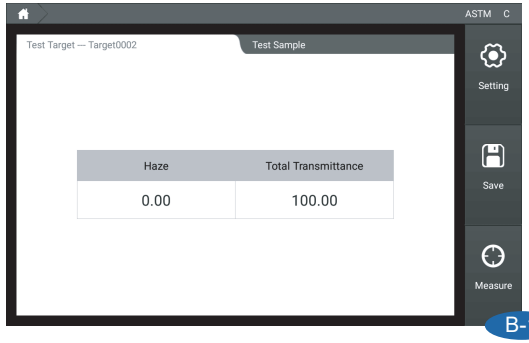
Measurement flow chart



Program interface introduction



A-1



B-1

A-1

Basic operation method of the program:
Capacitive touch screen, click to select "corresponding function module".

Calibration: The user can perform instrument calibration on this interface.

Measurement: The user can measure the total transmittance and haze parameters of the sample, measure the difference between the sample and the standard sample, and set the parameters and saved test records.

Setting: The user can select and set various parameters of the instrument measurement conditions.

Data browsing: In this page, the user can view the parameters under the saved standard sample, and can view the sample, delete and edit the name of the selected sample.

Personal Center: Users can set their own account information on this page.

About: Users can view the instrument version and manufacturer information on this page.

Log: Users can view their own operation records on this interface.

B-1

Measurement Setup

After the standard sample is placed, press "Measure" on the screen, and the measurement will be completed after a beep sound to view the measurement result. The title bar of the test result shows the standard sample name and test result respectively. When the standard sample is not saved, the standard

B-2

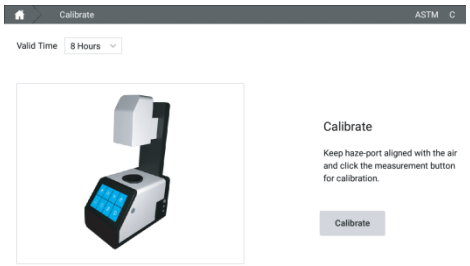
measuring

B-2

Sample measurement

After the above standard sample measurement is completed and saved, click "Sample Measurement" to enter the "Sample Measurement" interface under the standard sample, click "Measure" to perform measurement, and complete the sample measurement after the beep. View the measurement results. Click the "Test" button again to perform a new sample measurement. Same as the standard sample measurement, when the sample measurement is not saved, in the title bar of the measurement result, the sample name in the first column of names is displayed as "sample xxx", and after saving, it is displayed as the saved name.

calibration

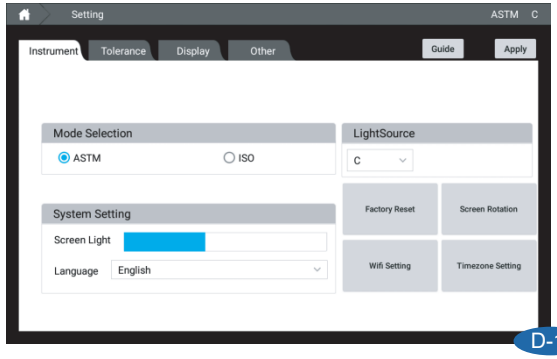


C-1

C-1

According to the prompt of the instrument interface, keep the test port aligned with the air, and press the button on the right side of the instrument to perform the calibration operation.

Setting



D-1

D-1

Settings: In this interface, the user can set the instrument, tolerance, display, and other options.

Instrument: In this interface, the user can set the haze measurement standard, light source, and system of the instrument.

Haze measurement standard: Users can choose between ASTM and ISO two measurement standards.

Light source: Users can choose and set among three light source conditions: CIE-A, CIE-C, and CIE-D65.

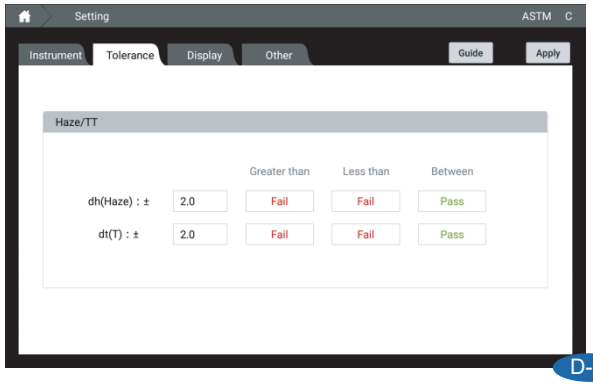
System settings: the user can set the screen backlight brightness; set the language (Simplified Chinese, English)

Restore factory settings: The user can restore the factory settings to the instrument.

Screen rotation: The instrument has two measurement states: vertical measurement and horizontal measurement. The user can set the screen according to the state of the instrument during measurement.

wifi setting: the user can connect the instrument to the network.

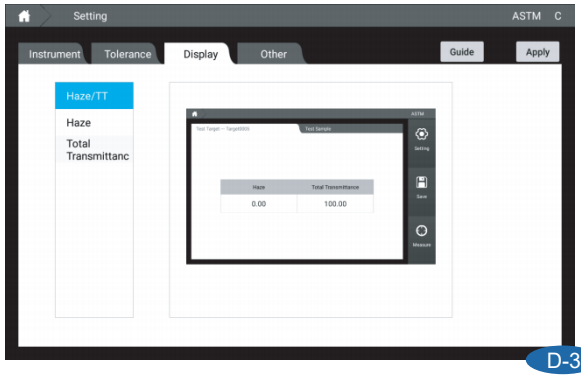
Time zone setting: The user can set according to the region.



D-2

D-2

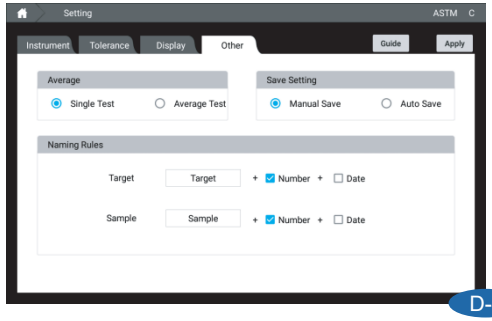
Tolerance setting: On the tolerance setting page, the user can modify the value on this page, and then click "Apply".



D-3

D-3

Display settings: The user can select the measurement parameters displayed during measurement on this interface.



D-4

D-4

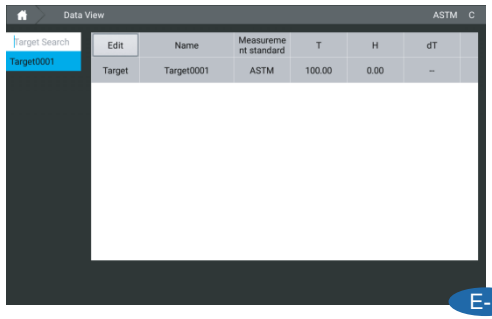
other

Average setting: the user can choose between "single measurement" and "average measurement".

Save settings: The user can choose the save method-"Manual save" or "Auto save".

Naming rules: The user can set the naming method of standard samples and samples.

Data view

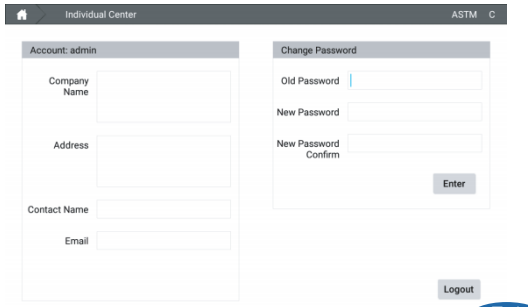


E-1

E-1

Data browsing: After saving the data measured by the user in the measurement interface, the data can be viewed in the data browsing.

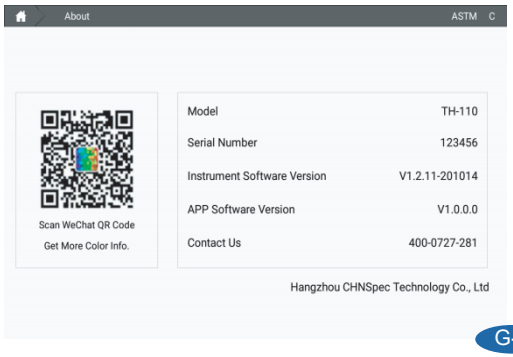
Personal center



F-1

Personal Center: Users can set personal account information on this page.

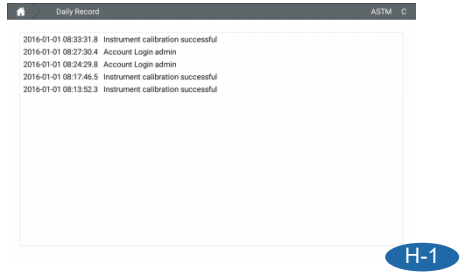
about



G-1

About: Users can see the relevant information of the instrument and manufacturer on this page.

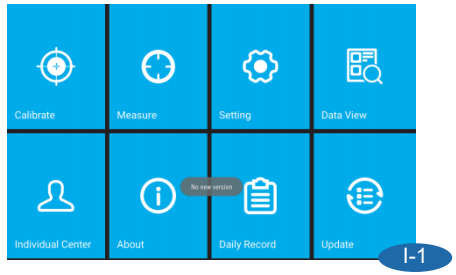
Log



H-1

Log: The user can view the operation record of the instrument on this page.

Update



I-1

Update: Users can connect to the network and update the instrument to the latest version.

Parameter introduction

Haze

Diffuse scattering reduces the image quality of the object. Small particles inside the material or sample surfaces cause scattering, and scattered light is scattered to different angles and the optical density at each angle is small. It causes a decrease in contrast and the sample forms a milky or cloud-like appearance, this phenomenon is known as haze.

Conditions for the assessment of transparency

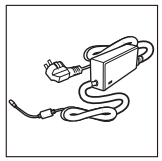
Transparent product appearance has the characteristics of gloss, color and transparency. Transparency is particularly important, and its evaluation conditions are: transmittance, haze and so on. The ratio of light to incident light when the transparency rate is all projected. It will decrease as the surface of the material reflects and absorbs light. According to the ASTM D1003 the percentage of light that when passing through that deviates from the incident beam by greater than 2.5 degrees on average is defined as haze.

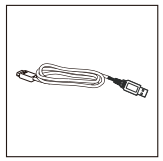
Trouble Shooting

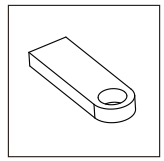
Trouble Shooting	Analysis	How to solve?
1.1.Instrument does not power on	Power connection may be abnormal	Check the Power interface for good contact and plug in the power supply
2.No access to main interface after start	The power-on calibration process may be abnormal	Re-calibrate as required
3.Error in measure-ment results	Tolerance settings may be abnormal	Check tolerance settings and adjust
4.Test result is not correct	1.The sample is close to the test port or not 2.Whether the sample surface is with scratches	1.Check the sample and test port fit to ensure close fitting 2.Check the sample surface condition to ensure that the sample is at good condition and has no effect on the measurement

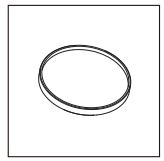
Accessories

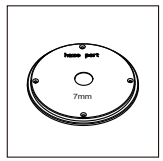
Standard Accessories


Power Adapter


USB Cable

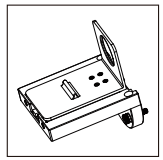

Software U disk

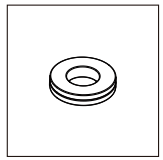

Dust cover

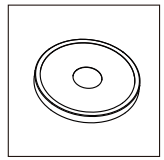


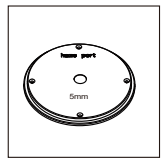
7mm Aperture

Optional Accessories

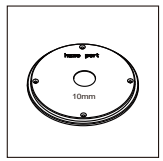

Cuvette Fixture


Film Fixture


Haze Standard



5mm Aperture



10mm Aperture

Company statement

1.Our company commits to our customers 1 year warranty period for our Haze Meter from the date of the purchase, and our company shall be responsible to provide free maintenance for non-human caused malfunctions under normal usage. For malfunctions that are out of warranty period or caused by human factors, the company shall provide maintenance, and materials and repair shall be chargeable.

2.The company is not liable for any loss or claim arising from the use of this product by the third party.

3.The company is not liable for any damage caused by loss of data due to failure, maintenance or power off. To prevent the loss of the data, be sure to back up all your data.

4.The copyright of all products belongs to the company and is protected by copyright law of the People's Republic of China.

5.Our company's sale of this product does not represent the transfer or grant of any rights related to the copyright of the works to the user.

6.The product specifications and information mentioned in this specification are for reference only and will be updated at any time without prior notice.