



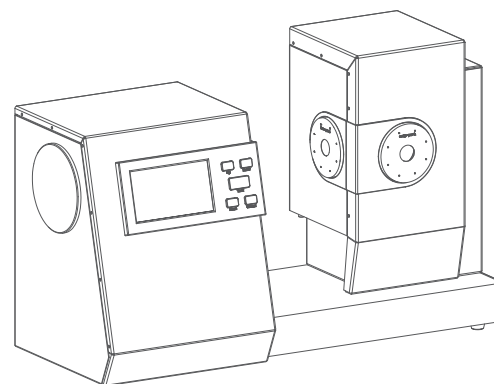
China's leading expert of color
and gloss analysis



Haze Meter

OPERATION MANUAL ▶

CS-700



Service hotline:+86 571 85888707

Address:No.166,Wenyuan North 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

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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.Carefully put the instrument on a flat surface.
- 2.This instrument is not moistureproof,please store the instrument in a dry area.
- 3.Large force, or sharp objects may damage the screen.
- 4.It is recommended to use the original power adapter which comes 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. In order to assure the test accuracy, please check white board before calibration.
- 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. Put the instrument on the sample tightly but do not press by force.
11. Instrument belongs to high precision instrument, please keep it well after usage.
12. Keep it in dry area.
- 13.Any future update on the manual, we are not obliged to notify you. If any questions, please contact us directly.

Haze Meter functions

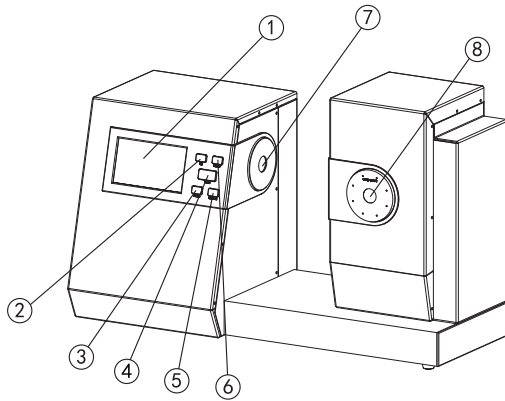
1. Haze meter conforms to standards: GB/T 2410, ASTM D 1003, ISO 13468 , ISO 14782 and GB/T 2410-2008,JJF 1303-2011.
2. Haze meter can provide haze and transmittance value under CIE-A, CIE-C and CIE-D65 light sources.
3. Haze meter contains compensation method which provides higher accuracy on test result.
4. Open sample measurement area to make it can measure samples at any sizes.
5. Haze meter adopts 5.0 inch TFT display screen for friendly interface.
6. Haze, color and transmittance analysis software to meet customer's

Haze Meter Technical Data

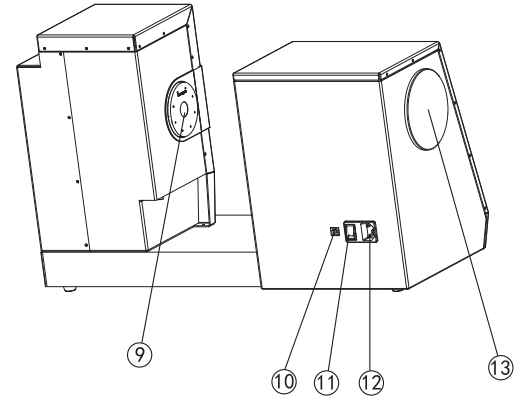
Light Source	CIE-A、 CIE-C、 CIE-D65
Standard	ASTM D1003/D1044, ISO13468/ISO14782, JIS K 7105, JIS K 7361,JIS K 7136,GB/T 2410-2008,JJF 1303-2011
Measurement parameter	HAZE, Transmittance (T)
Spectral Response	CIE Luminosity function Y/V (λ)
Wavelength	400-700nm
Wavelength Interval	10nm
Geometry	0/d
Measurement Area/Sample Port	16.5mm/21mm
Measurement Range	0-100%
Haze Resolution	0.01unit
Haze Repeatability	≤ 0.1 unit
Sample Size	Thickness ≤ 150 mm
Display	5 inch TFT LCD screen
Memory	20000 values
Interface	USB
Power	110-240V/50-60Hz

Working Temperature	0~45℃, Relative humidity 80% or lower (35℃) no condensation
Storage Temperature	-25℃~55℃, Relative humidity 80% or lower (35℃) no condensation
Size	LxWxH: 598mmX247mmX366mm
Standard Accessory	PC software (Haze QC)
Optional	Measurement Fixture, Haze Standard Plate

Appearance and structure

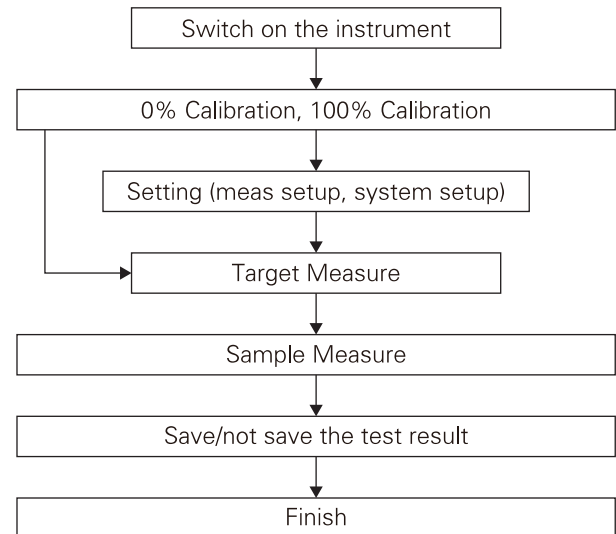


- ① Display Screen
- ② UP
- ③ DOWN
- ④ TEST
- ⑤ CANCEL
- ⑥ ENTER
- ⑦ Light Exit Aperture
- ⑧ Compensation Aperture



- ⑨ Test Aperture
- ⑩ USB
- ⑪ Switch on-off
- ⑫ Power Interface
- ⑬ Light source exchange port

Measurement flow chart



Interface Introduction

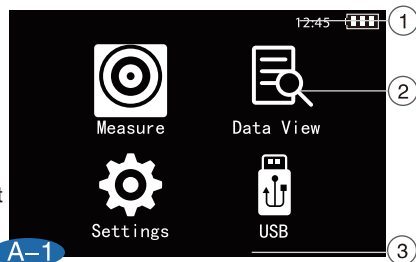
A-1

Main interface

① Title: Show the page function including time and standard.

② Working Area: Show the main function of submenu.

③ Condition area: display current conditions of the current page



Operation:

Press "up" or "down" to choose the function, press "Enter" to confirm your choice. Press "cancel" will go back to previous step.

Measure:

We can measure haze and transmittance. Compare the difference between target and sample. Save the test value.

Data View:

We can view the saved target value, sample value under the target, edit the sample name and delete the sample.

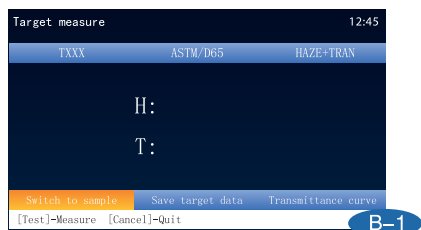
Setting :

We can set measurement parameters.

USB:

We can connect instrument with PC for data transfer and measure on PC.

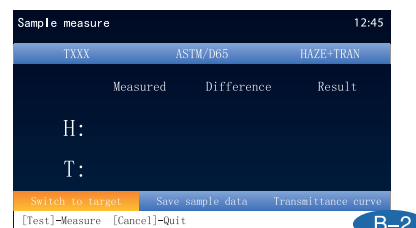
Measurement



B-1

Target Measurement

Put the sample on test aperture, press "test" then we can see the test result on screen. The test standard and parameters for the sample name and test result are shown in the title bar of the measurement results. When the sample is not saved, the name of the sample is displayed as "Txxx", after it is saved, sample name will appear. Test standard and parameters can be set in measure setup. (refer to the measure setup section)



B-2

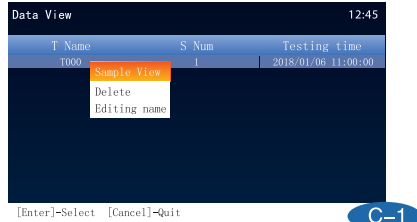
Sample Measurement

After the target measurement is completed and saved, press the "Measuring sample" button to enter the "Measuring Sample button" interface under the standard sample. After measurement, we can see the test result directly on screen. Press the "test" key again to make a new sample measurement. Same as target measurement, sample measurement is not saved, in the title bar of the test result, the sample name in the first column name appears as "Sxxx", and after saving, it appears as the saved name.

The sample can also be measured under the "Data viewing" interface. Select an existing target by "up" "down" and press "enter" to enter the selected sample. Then, under the "View Sample" page, press the "Enter" button to transfer the sample into the sample measurement interface and press "Test" key to measure. After measurement, we can review the test result. Press the "Test" button again to make a new sample measurement.

Note: Please set the tolerance before measuring the sample. (See Tolerance settings)

Data View



C-1

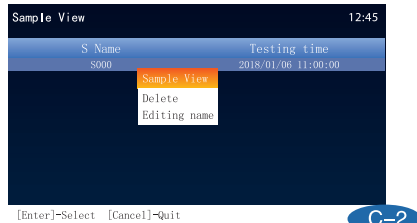
C-1

Press "up" or "down" to select the target to be viewed, press "enter", a pop-up window will come out, press "up" or "down", we can do sample view, delete and edit name of the target.

View Sample: Review all sample test records for selected target as standard sample

Delete: All sample test record under this target will be deleted.

Editing Name: Edit the name of the selected target



C-2

C-2

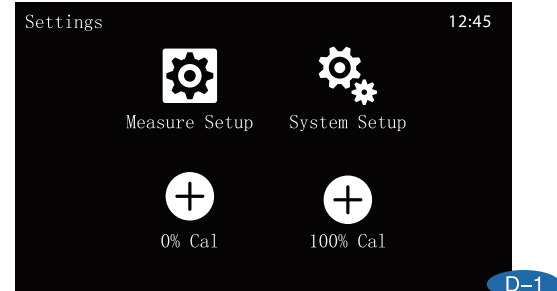
Press "up" or "down" to select the sample to be viewed, press "enter", a pop-up window will come out, press "up" or "down", we can do sample view, delete and edit name of the sample.

Sample View: View the test result of the sample.

Delete: All test results under this sample will be deleted.

Edit Name: Edit the name of the selected sample.

Settings



D-1

D-1

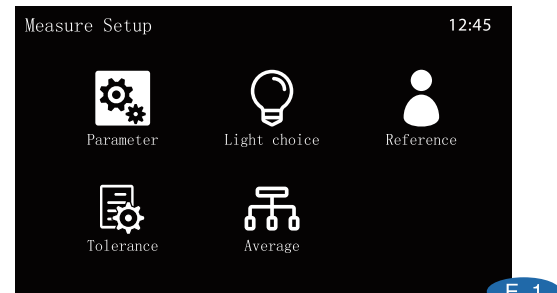
Measure Setup: User can set parameter, light source, reference, tolerance and average.

System Setup: User can set language, set time, power, reset all and version.

0% Cal: User can do 0% calibration for haze meter.

100% Cal: User can do 100% calibration for haze meter

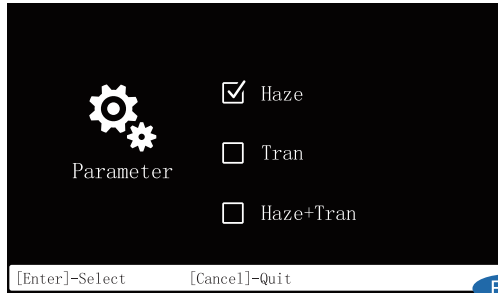
Measure Setup



E-1

E-1

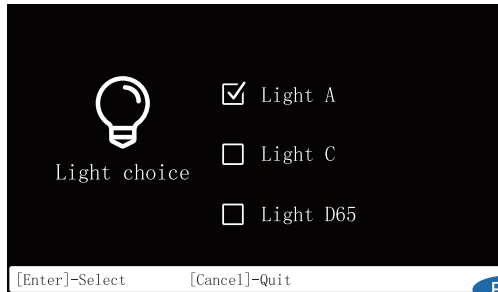
Press "up" or "down" to select setting, and press "enter" to enter into the interface.



E-2

E-2

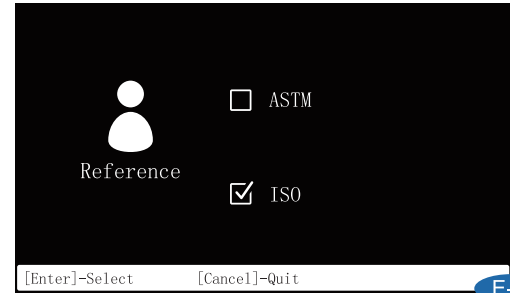
Press "up" or "down" to select parameter, and press "enter". Press "up" or "down" to select parameter to display, press "enter" to confirm the choice.



E-3

E-3

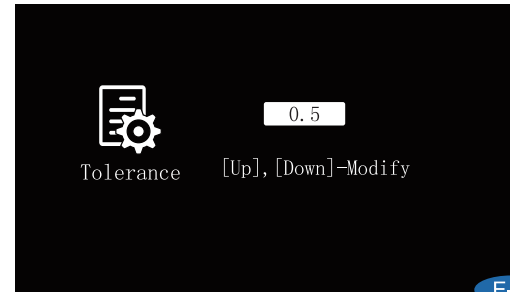
Light Choice: Choose Light choice by pressing "up" or "down", press "enter" to confirm. User can select the light source by pressing "up" or "down", press "enter" to confirm your choice.



E-4

E-4

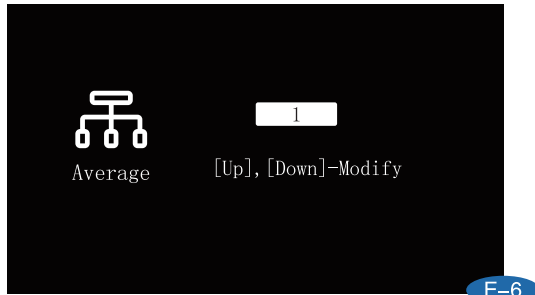
Reference: Choose reference by pressing "up" or "down", press "enter" to confirm. User can select the measurement standards ASTM or ISO. When you select the standard, the test is performed according to the standard. Calibration is required after the standard is changed.



E-5

E-5

or "down", press "enter" to confirm. User can select the light source by pressing "up" or "down", press "enter" to confirm your choice.



E-6

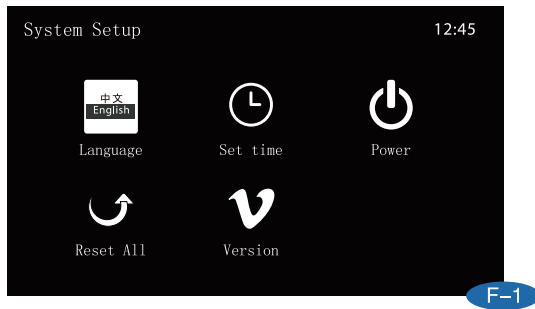
Average: Choose average by pressing "up" or "down", press "enter" to confirm. User can modify the average value by press "up" or "down", press "enter" to confirm it.



F-2

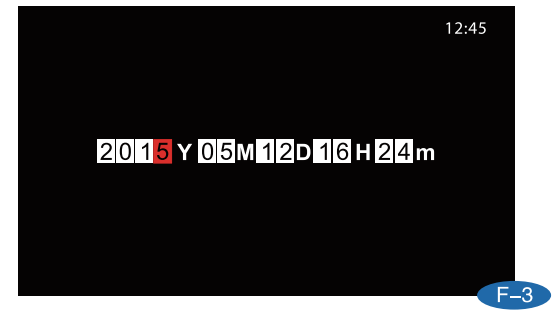
Language: Instrument support two languages English and Chinese. User can choose language by pressing "up" or "down", press "enter" to confirm.

System Setup



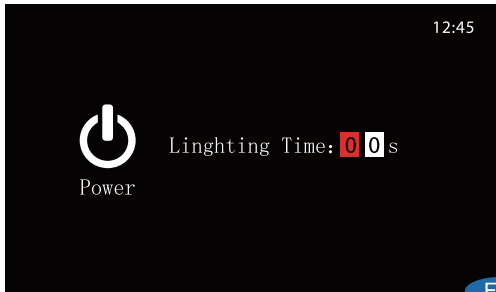
F-1

Press "up" or "down" to select the system setup, press "enter" to enter into the system setup page. User can set language, time, power, reset all and view instrument version.



F-3

Set time: User can set the instrument time such as year, month, date, hour and minute. Press "up" or "down" we can change the value, press "cancel", we can choose save or exit.



F-4

F-4

Power:User can set the instrument lighting time. Press "up" or "down", we can setting the lighting time. Press"cancel" to save or exit.

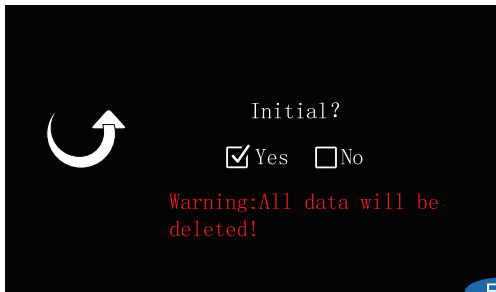


F-6

F-6

Version:User can see instrument mode,serial number and instrument version.

0% Calibration



F-5

F-5

Reset all: If user do reset all, all saved data will be deleted and setting will revert to default settings.

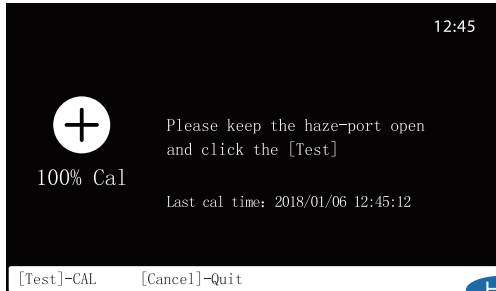


G-1

G-1

Put 0% calibration tile on test aperture,press "test" for 0% calibration.

100% Calibration



H-1

Take off the 0% calibration tile and make sure nothing is in the measurement aperture, press "test" for 100% calibration.

USB



I-1

On the main page, select USB by press "up" or "down", press "enter" to enter into USB page. When the USB cable it not plugged or not well contact with USB interface,above figure will show on instrument. Plug the USB cable or reconnect with the USB interface.



I-2

When the USB cable access to the USB interface, the normal connection as shown above.

Parameter introduction

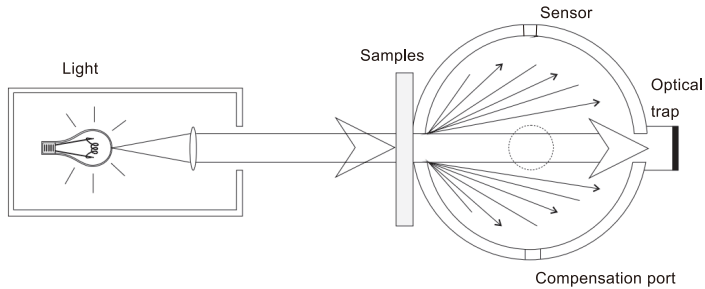
Haze

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

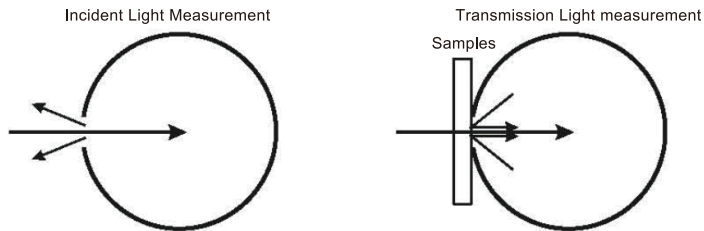
Transparent product appearance has the characteristics of gloss, color and transparency. Transparency is particularly important, and its evaluation conditions are: transmittance, haze and so on. The ratio of light to incident light when the transparency rate is all projected. It will decrease as the 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.

Measuring principle

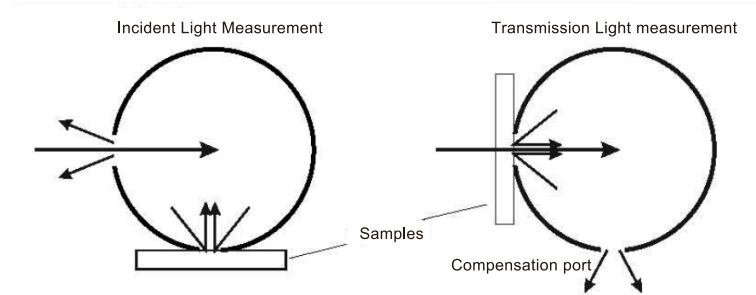


When a beam of parallel light hits the sample and enters the integrating sphere, it is scattered on the sphere inner white coating, the total transmittance is measured when the optical trap outlet on the sphere is closed. When the optical trap is opened, haze will be measured.

Compensation method



The above picture is not using the compensation method to measure the transmission rate, in two times measurement, because the integral sphere's area is different, causes the integral sphere efficiency are different, thus has the certain influence to the measurement result accuracy.



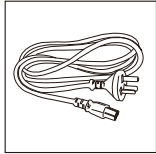
The above picture is used to measure the transmission rate by the compensation method, a compensating port is added to the integral sphere, the first measurement sample is placed at the compensation port, the second measurement sample is placed at the measuring port, while the compensation port is in the open state, the integral sphere area of the two measuring process is identical, the integral sphere is consistent, so that the measurement result is more accurate.

Error Handle

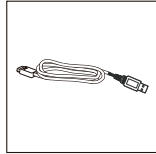
Error	Analysis	How to solve?
1.The instrument does not start.	Power connection may be abnormal	Check the Power interface for good contact and plug in the power supply.
2.No access to main interface after start.	The power-on calibration process may be abnormal	Re-calibrate as required
3.Error in measurement 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

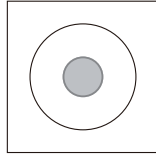
Standard Accessories



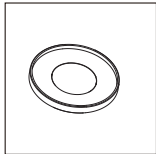
Power Adapter



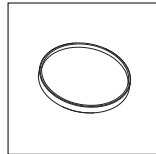
USB Cable



PC Software CD

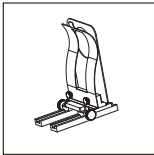


Compensation Port Cover

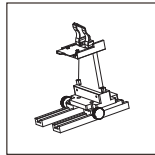


0% Calibration Cover

Select Accessories



Film Sample Fixture



Liquid Sample Fixture

Company statement

- 1.Our company commits to our customers 1 year warranty period for our Haze Meter series products 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 critical data, be sure to back up all your data.
- 4.The copyright of all products preset in this product 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.