

YH series Haze Meter

OPERATION MANUAL

V1.0

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Safety Symbol

In order to avoid accidents caused by improper operation, the following symbols are used in this manual or on the instrument label.



This symbol instructs relative safety warnings or precautions. Read these instructions carefully to use this instrument safely and correctly.



This symbol is a description relating to the risk of electric shock. Read these instructions carefully to use this instrument safely and correctly.



This symbol is a description relating to fire danger. Read these instructions carefully to use this instrument safely and correctly.



Represents an operation that is prohibited. This operation must not be performed



Represents an instruction. The instruction must be strictly performed.



Represents an operation that is prohibited. Do not dismantle the instrument.



Represents an instruction. Make sure that the AC adapter is pulled out from the AC socket.

Cautions

- It is strictly prohibited to copy or copy all or part of this manual without authorization of the Company.
- Contents of this manual are subject to change without prior notice.
- When compiling this manual, we have made our best efforts to ensure the accuracy of its contents. If you have any questions or find any errors, please contact your reseller or our authorized repair agency.
- The company does not assume any responsibility for any consequences caused by improper use of the instrument.

Safety Norms

To ensure proper use of this instrument, please read carefully and strictly observe the following points.



Warning: Warning: Failure to comply with the following points may pose a danger to personal safety.



1. Do not use this instrument in a place where there are combustible or flammable gases (gasoline, etc.), otherwise it may cause fire.
2. Do not allow liquid or metal objects to enter the instrument, otherwise it may cause fire or electric shock. If a liquid or metal object enters the instrument, turn off the power immediately, unplug the AC adapter plug, and contact the nearest authorized maintenance institution.
3. Do not force, twist or pull the power cord of the AC adapter. Do not scrape or modify the power cord, or place heavy objects on the power cord, otherwise it may damage the power cord, and cause fire or electric shock.
4. Do not use wet hands to plug and unplug the AC adapter plug, otherwise it may cause electric shock.
5. Do not continue to use the instrument if it or AC adapter is damaged, smoking or smells, or it may cause fire. In this case, turn off the power immediately, unplug the AC adapter from the AC socket, and contact the nearest authorized service provider.
6. Do not measure directly at the face at the sample measurement port, as this may damage the eye.
7. Do not place the instrument on an unstable or inclined surface as this may cause the instrument to slip or tip over and cause injury.

	<ol style="list-style-type: none">1. Be sure to always use the standard or optional AC adapter and connect it to an AC socket with rated voltage and frequency. If you use other AC adapters that are not specified, you may damage the instrument, or you may cause fire or electric shock.2. Be careful not to get your hand stuck in the cavity of the instrument, otherwise it may get stuck and cause injury.
	<ol style="list-style-type: none">1. Do not disassemble or modify the instrument or AC adapter by yourself, otherwise it may cause fire or electric shock.
	<ol style="list-style-type: none">1. If the instrument is not used for a long time, please unplug the AC adapter from the AC socket. If there are dust or water stains on the AC adapter pins, clean them before use, otherwise they may cause fire or electric shock.2. When pulling the AC adapter plug from the AC socket, be sure to hold the plug itself at all times to avoid pulling the power cord, which may damage the power cord and cause fire or electric shock.

Operating Environment

- Please use the instrument at ambient temperature between 0°C and 40°C without condensation. Do not use it in areas with drastic temperature changes.
- Do not place the instrument in direct sunlight or near a heat source such as a furnace. In this case, the internal temperature of the instrument may be higher than the ambient temperature.
- Do not use the instrument in the environment with dust, cigarette or chemical gases, otherwise it may cause performance degradation and even system collapse.
- Do not use the instrument near devices that generate strong magnetic fields such as loudspeakers.

- The instrument and its standard AC adapter are designed for indoor use only. Do not use the equipment outside because rain or other factors may damage it.

Power

- Ensure that the power switch is set to "0" when the instrument is not in use.
- Be sure to always use the standard AC adapter and connect it to an AC socket with rated voltage and frequency.

Instruction

YH series Haze Meter is the independent development of the company with independent intellectual property rights of domestic Haze Meter, and the series divided into vertical and horizontal two models. According to the CIE standard transmission 0/D (parallel light illumination, diffuse reflection receiving) design, the instrument can easily realize ASTM D1003 non-compensation method, ISO 13468 compensation method, full transmittance, fog measurement. With high hardware configuration of the instrument, open measurement area, two types vertical and horizontal of instruments can be vertical measurement and horizontal measurement. It is widely used in glass processing, film processing, display screen processing, lens processing, liquid medicine analysis, food hygiene, plastic processing and other aspects.

Note:

1. This series of instruments can be divided into ASTM (without compensation port) and ISO (without compensation port) two types. The instruments with compensation test port can be set ASTM or ISO measurement, and the instruments without compensation test port cannot be ISO measurement;
2. ASTM and ISO modes have the same operation methods for other functions except for the difference in operation methods for black and white calibration and measurement (which will be explained in detail in Section 2.2 and Section 2.4 of this Manual).

Cautions

- 1) This instrument is a precision optical measuring instrument. During measurement, drastic changes in the external environment of the instrument should be avoided, such as the flashing of ambient light and rapid changes in temperature, etc.
- 2) During measurement, the instrument should be kept stable, the measured object should be placed on the measuring platform, and the test port should be aligned to avoid moving.
- 3) The instrument is not waterproof, can not be used in high humidity environment or water mist.
- 4) Keep the instrument clean and tidy, avoid water, dust and other liquid, powder or solid foreign matter entering the integrating sphere and the instrument, and avoid the impact and collision of the instrument.
- 5) After the instrument is used, power should be cut off, and the instrument and standard cover should be put into the instrument box, and stored in a dry and cool environment.
- 6) Users shall not make any unauthorized changes to the instrument. Any unauthorized changes may affect the accuracy of the instrument or even irreversibly damage the instrument.

1. Interface Description

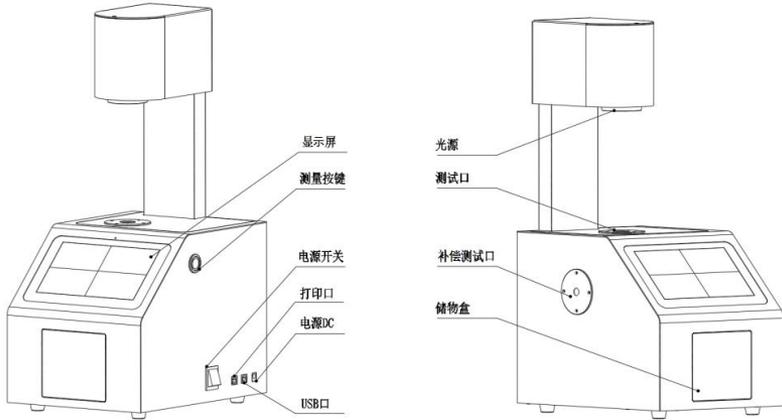


Figure 1 Vertical instrument key interface (compensation port)

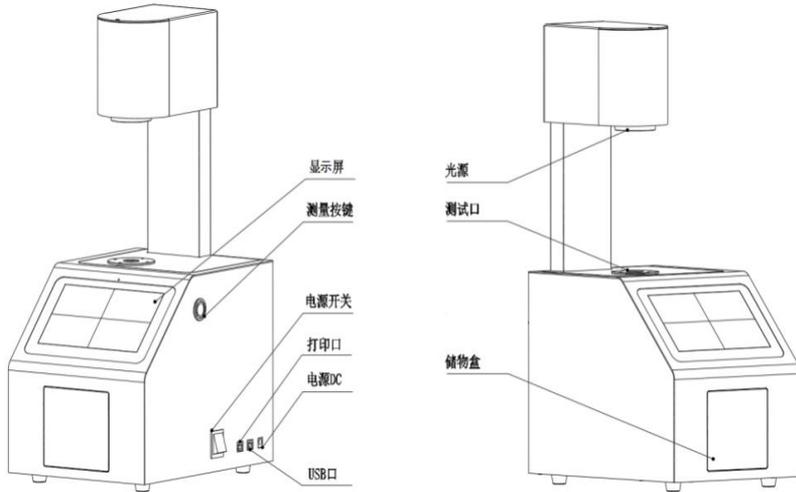


Figure 1-1 Vertical instrument key interface (without compensation port)

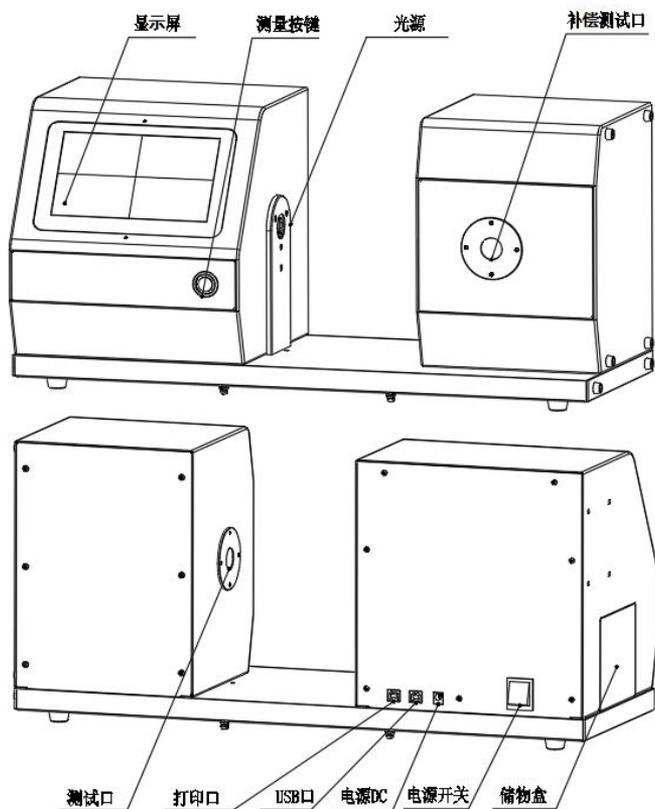


Figure 2 Horizontal Instrument Interface (Compensation Port)

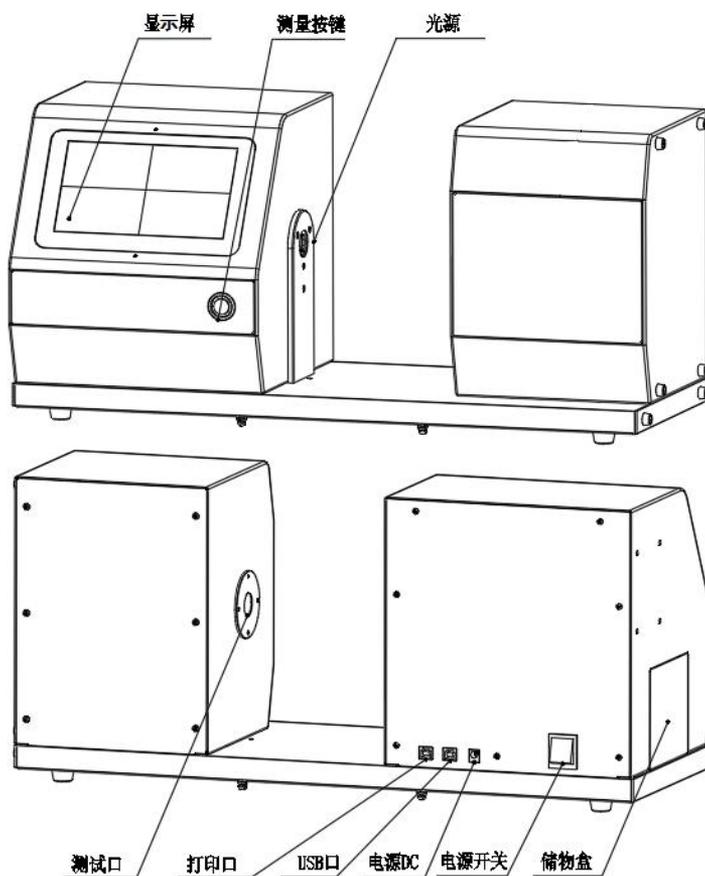


Figure 2-1 Horizontal instrument interface
(without compensation port)

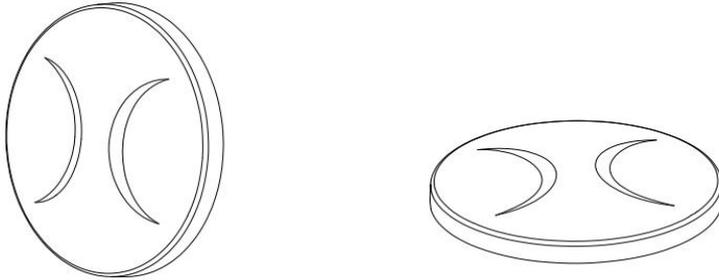


Figure 3 Calibration cover

Display: 7-inch TFT pure color TV touch screen; used to display measurement data and instrument operation navigation.

Wake up/measurement button: in standby mode, press the measurement button to wake up the system; in working mode, press the measurement button to start the measurement.

The measurement button is surrounded by an annular LED indicator, and the LED indicator is green. Power on the instrument (power on the power adapter, switch toggle to "1"), the indicator light is on. The green light flashes during the measurement process and is always on when the measurement is completed.

Power supply 1/0 switch: switch toggle to "1", power on the instrument; switch toggle to "0", the instrument power off. By toggle the switch for the hard switch machine.

USB interface: USB interface is used to connect and communicate with PC, and more functions can be extended through PC color management software.

Print interface: Used to connect PRINT, can print the measurement data of the measurement sample.

Power DC port: power supply for the instrument through the power adapter, the power adapter input AC (AC 110V-240V), output DC 24V/3A.

Test port: This position is the place area for the sample to be measured. During measurement, the parallel light from the instrument light source transmits the sample to be measured, and then enters the integrating sphere through the test port. When black and white calibration, according to the prompt, the calibration cover should be attached to the test port or removed.

Compensation test port: the test port is used as light source compensation according to relevant standards. When black and white calibration and sample measurement, the calibration cover or sample under test should be attached to the compensation test port or removed according to the prompt.

Storage box: press the storage box panel to pop out the storage box for storing items.

Calibration cover: when black and white calibration is performed, the calibration cover shall be attached to the test port and compensation test port or removed according to the prompts; In standby state, cover the calibration cover to avoid dust fouling inside the instrument and protect the integrating ball.

Light source: full spectrum LED light source, calibration, measurement to provide lighting source, light through the transmission sample, into the integrating sphere.

2.Operation Instructions

2.1 Power on&off

Switch toggle 1/0 to "1", power on the instrument, the system started; Switch toggle 1/0 to "0", the instrument power off.

Under the power-on state (switch toggle 1/0 to "1"), if there is no operation for a long time, the instrument will automatically enter the sleep state. At this time, press the "wake up/measure button" or touch the screen to wake up the instrument and enter the working state. After starting the machine, enter the measurement interface directly, as shown in Figure 4.



Figure 4 Measurement Interface (Standard Measurement)

Note: Please cut off the power when the instrument is not in use for a long time.

2.2 Black and white calibration

Black calibration: that is, 0 bit calibration. During the calibration, the calibration cover should be used to block all the light from the instrument light source to the integrating sphere, and the instrument will collect the dark signal.

White calibration: that is, 100% calibration. Users can select the corresponding white calibration reference according to different types of transmission samples to be measured.

Under normal circumstances, if the sample to be tested is plastic, glass, transparent film and other samples can choose air as a white calibration reference.

If the sample to be tested is liquid, you can choose a colorimetric dish filled with deionized water or distilled water as a reference for white calibration;

If the sample to be tested is powder mounted on the colorimetric dish, the empty colorimetric dish can be selected as the reference for white calibration. Of course, users can also choose the standard solution that has been calibrated (such as potassium permanganate solution that has been calibrated transmittance) as a white calibration reference (calibration parameters should choose the corresponding calibration channel).

After correct black and white calibration, the instrument system will reset the time according to the validity period of black and white

calibration set by the user.

2.2.1 Reference Standard

There are two kinds of reference standards: ASTM (American Standard) and ISO. After switching between ASTM (American Standard) and ISO standards, the instrument needs to carry out black and white calibration again when the sample is measured. In the measurement interface, press (⌂) Enter the main menu, and click "Confirm" on the bottom of other screens (✓), return (←) Enter the main menu, as shown in Figure 5.



Figure 5 Main menu

Click "Reference Standard" in the main menu to enter the setting interface of reference standard. ASTM or ISO can be selected. Select "ASTM" and click OK (✓), the instrument into the ASTM (American Standard) measurement standard; Select "ISO" and click OK (✓), the instrument is switched to ISO measurement standard as shown in Figure 6 and Figure 7.

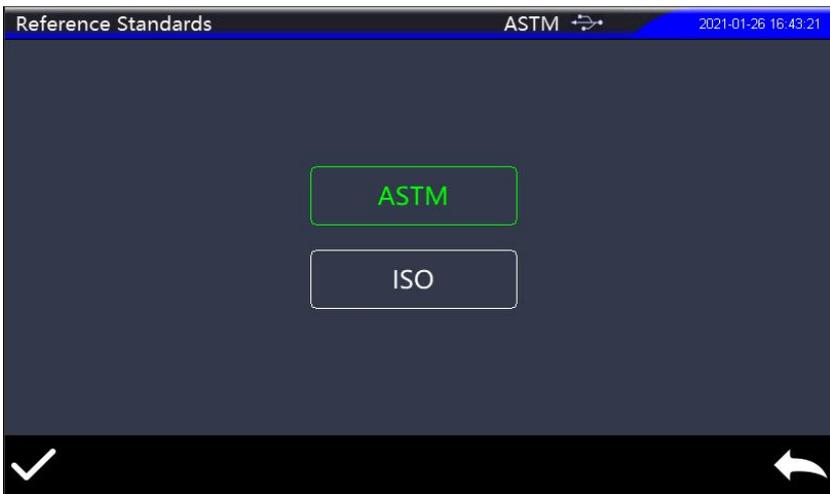


Figure 6 Select ASTM Standard (American Standard)

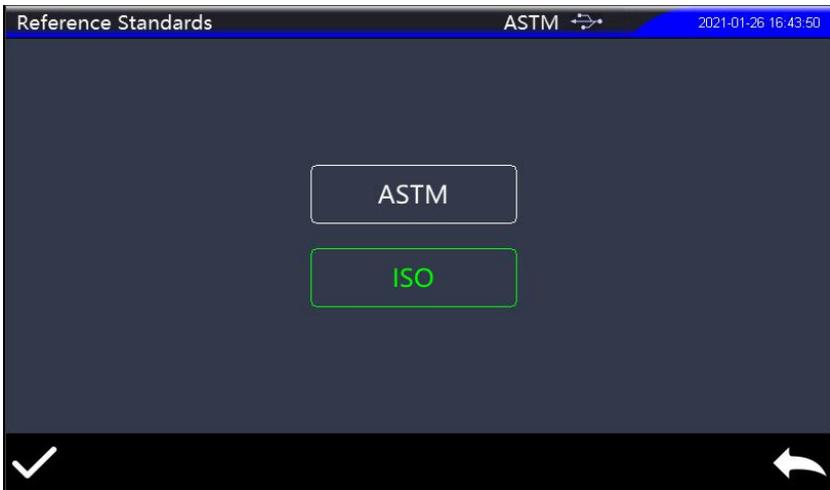


Figure 7 Select ISO Standard

2.2.2 Black-White calibration (ASTM)

When the instrument enters the ASTM (American Standard) measurement standard, click "Calibration" in the main menu to enter the calibration interface, as shown in Figure 8. Display in the interface whether the current calibration is valid and the remaining effective time.

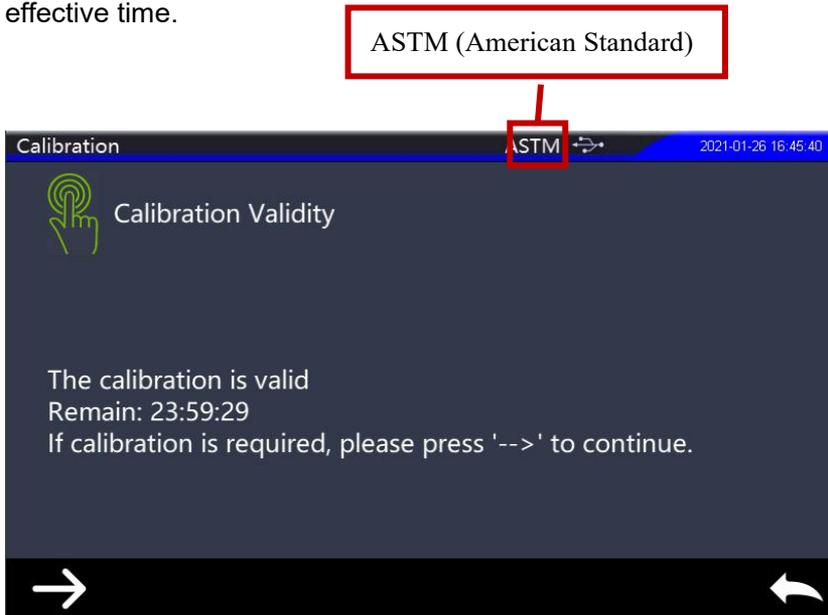


Figure 8 ASTM calibration interface

Click (→) to continue, and enter the black calibration interface in Figure 9. Clamp the calibration cover to the compensation test port and test port according to the prompts, and then click (→) or press the "measurement button" for black calibration. Users can also click to return (←) cancel calibration.

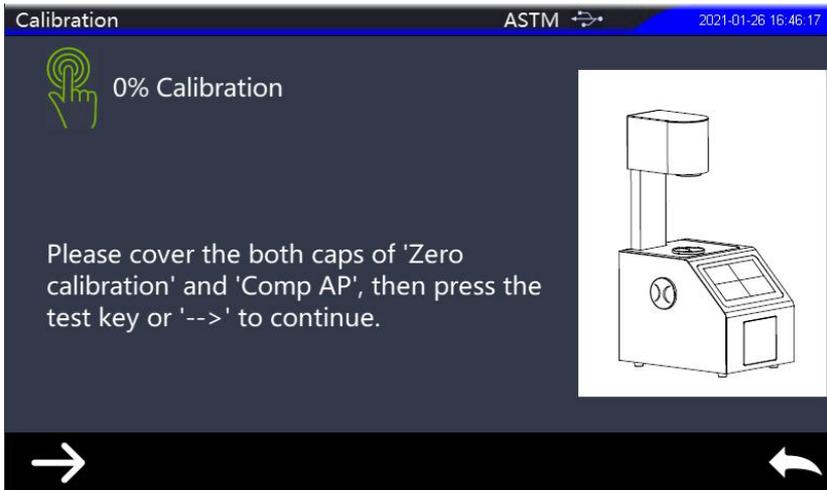


Figure 9 0% (Black) calibration

After the black calibration is completed, it will automatically jump to the white calibration interface, as shown in Figure 10. Remove the calibration cover of the test port according to the prompts, and then click (→) or press the "Measure button" for white calibration. Users can also click to return (←) Cancel calibration.

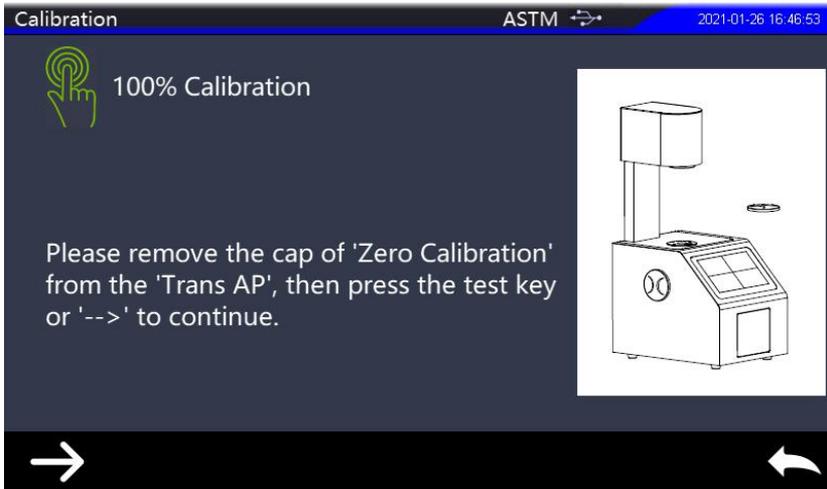


Figure 10 100% (White) calibration

After the calibration is completed, the instrument system prompts the completion of the calibration, as shown in Figure 11, and the time is reset according to the black and white calibration validity period set by the user. Users can click (→) to recalibration as needed, or click (←) to return to the main menu .

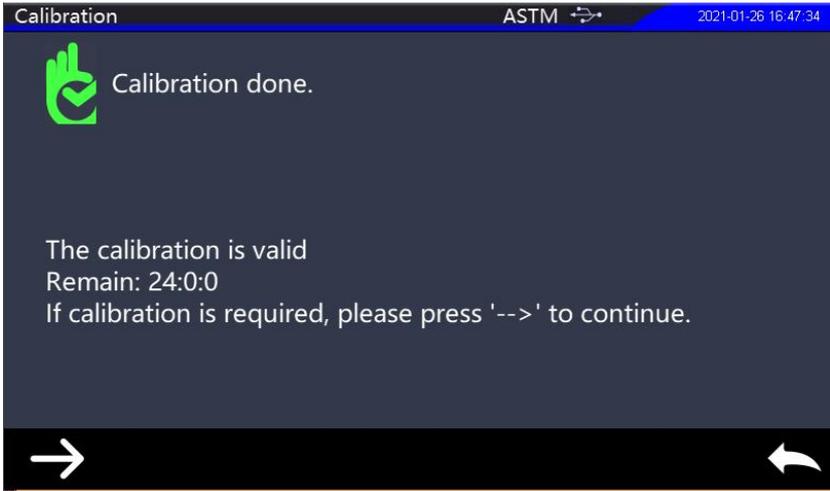


Figure 11 Calibration completed

2.2.3 Black and white calibration (ISO)

When the instrument selects the ISO measurement standard, click "Calibration" in the main menu to enter the calibration interface. In the interface, whether the current calibration is effective and the remaining effective time are displayed as shown in Figure 12.

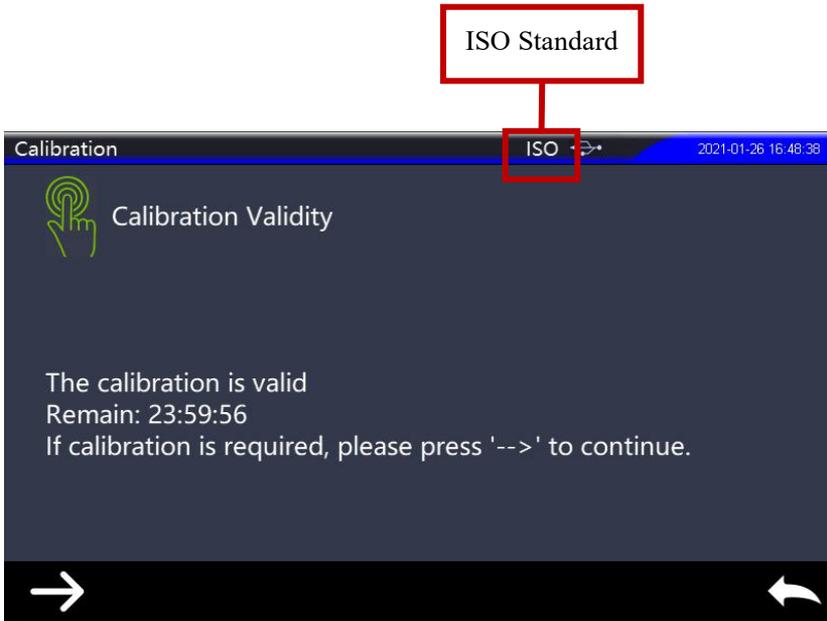


Figure 12 ISO Calibration Interface

Click (→) to continue operation. According to the prompts, keep the compensation test port open and place the calibration cover close to the test port. Click (→) or press the "Measurement Button" to perform black calibration on the instrument as shown in Figure 13.

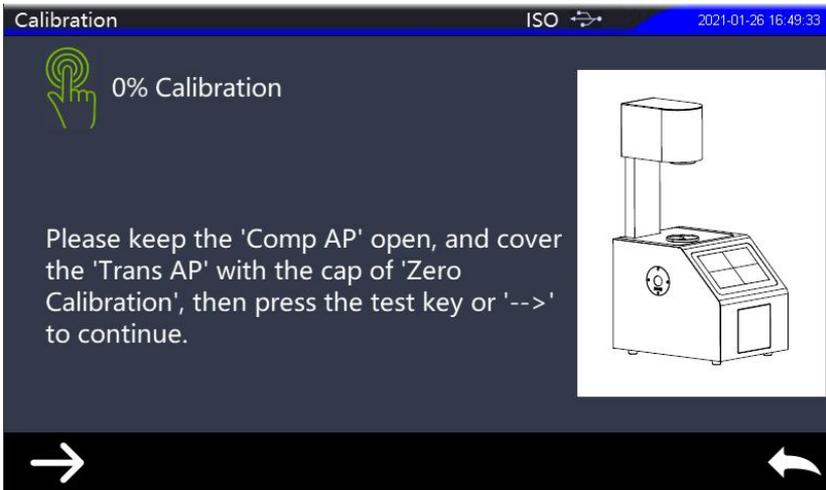


Figure 13 Black calibration

When the black calibration is completed, it will automatically jump to the white calibration interface, as shown in Figure 14. According to the prompts, remove the calibration cover of the test port, and then click (→) or press the "measurement button". The instrument will perform white calibration.

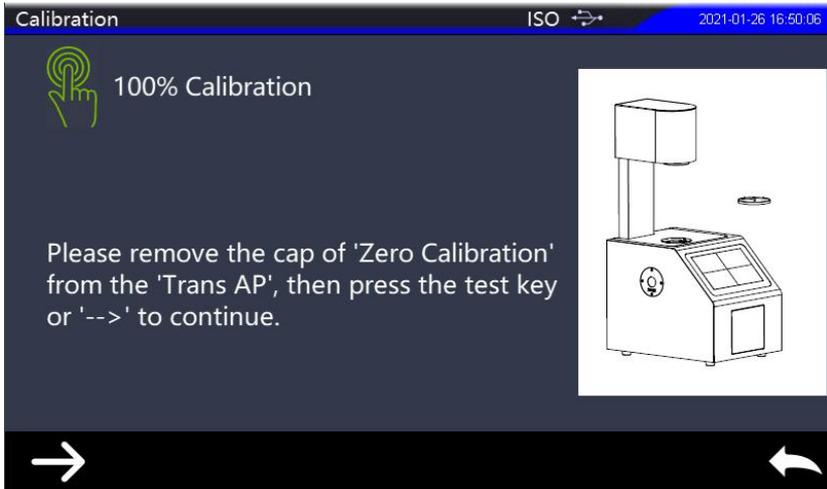


Figure 14 White calibration

After completion of calibration, the instrument system will prompt completion of calibration, as shown in Figure 15, And according to the user set the black and white calibration period of time. Users can click (→) to recalibration as needed, or click (←) to return to the main menu.

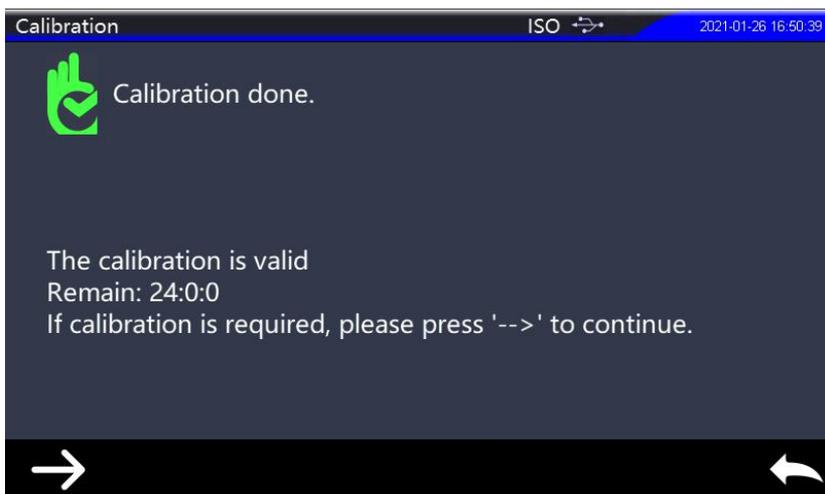


Figure 15 Calibration Completed

2.3 Measurement Interface

2.3.1 Standard measurement interface

From the main menu, press “Return” (↵) to enter the standard measurement interface. If you are not in the measurement interface, you can continuously click "Back" (⬅) several times and return to the measurement interface.

The upper part of the standard measurement interface is divided into working state area, which is used to display the current setting working state, including: interface name, ASTM and ISO switching state, USB connection state, system time, etc. The middle part is the data display area, showing the measurement data of the current standard; At the bottom is the operation key area. Click the corresponding operation key to realize the operation of the current data as shown in figure 16.

Standard name: the default name is an ordinal number starting with T0001. In the standard measurement interface, click the standard name to modify the name.

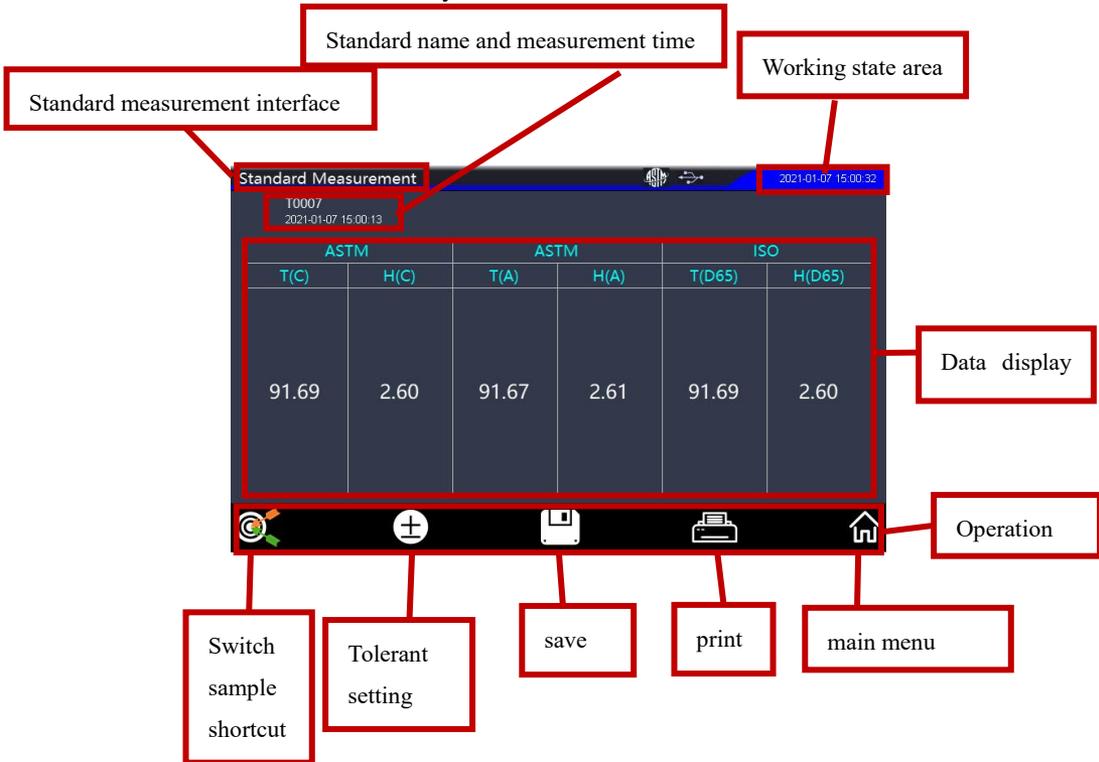


Figure 16 Standard measurement interface

2.3.2 Sample measurement interface

In the lower left corner of the standard measurement interface, click  Quickly switch to the sample measurement interface associated with the standard, as shown in Figure 17.

The upper part of the sample measurement interface is divided into

working state area, which is used to display the current setting working state, including: interface name, ASTM and ISO switching state, USB connection state, system time, etc. The middle part is the data display area. According to the current user's setting, the instrument displays the measurement data, the difference between the sample and the standard, and the measurement results prompt, etc. At the bottom is the operation key area. Click the corresponding operation key to realize the operation of the current data.

Sample name: During sample measurement, the instrument automatically generates sample name. The sample name associated with each standard is named with the serial number starting from S0001 by default. In the sample measurement interface, click the sample name to modify the name.

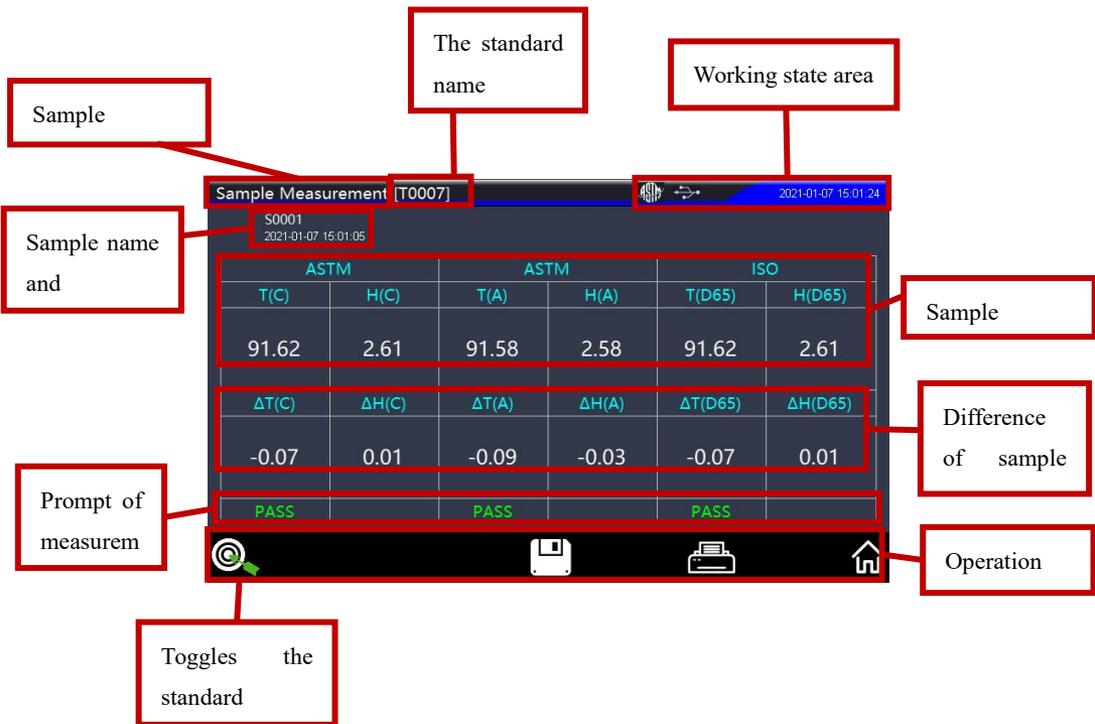


Figure 17 Sample Measurement Interface

2.4 Measurement

YH series Haze Meter is generally used to measure the fog and total transmittance of the sample and the target sample. It can be compared intuitively to determine the qualified and unqualified. Boot complete black and white calibration, you can be measured. If you are not in the measurement interface, you can continuously click "return" (↩) on the interface several times and return to the measurement interface.

ASTM (American Standard) or ISO two different measurement standards can be selected for sample measurement, and it is divided into average measurement and continuous measurement. The standard measurement and sample measurement all can do average measurement and continuous measurement.

2.4.1 Average Measurement (ASTM)

When the measured items are relatively large or relatively uneven, multi-point average value can be obtained by measuring several representative test points, and the calculated results can better represent the real situation of the tested samples. The instrument can realize the average measurement of 0~100 times for each group, and the average measurement times can be set for both samples and standards.

When ASTM (American Standard) measurement standard is selected, click "Measurement Mode" in the main menu to enter the interface for setting measurement mode, as shown in Figure 18. Click "Average Measurement" to set "Standard Measurement Number" and "Sample Measurement Number" as required, as shown in Figure 19.

If the number of measurements input is 1, the measurement is carried out in the conventional way; If it is greater than 1, the average measurement results will be generated when all the measurement times set are completed during the standard and sample measurement.

Note: Average measurement and continuous measurement cannot be turned on at the same time. Turning on one will automatically turn off the other.



Figure 18 Measure mode interface

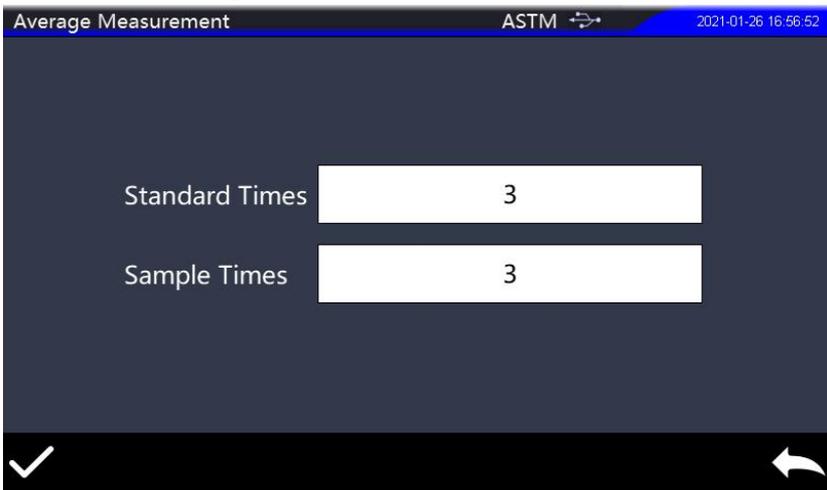


Figure 19 Average measurement settings

The measurement times of standards and samples have been set. Click OK (✓), the instrument enters the average measuring state. Continuously click to return (←) to enter the average measurement interface.

1) Standard average measurement:

When in the standard average measurement interface, the sample under test has been placed above the test port. At the same time, put the calibration cover close to the compensation test mouth, gently press the "measurement button", and the buzzer will emit a "hum" sound and the indicator light on the "measurement button" flashes to stop, representing the completion of the first measurement of the group, as shown in Figure 20. If multiple measurements are set, multiple measurements shall be made manually according to the number of measurements set until all measurements are completed. In the average measurement process of standard, the average measurement results will be automatically updated every time when the measurement is completed. After the measurement is completed, an average measurement result will be recorded.

Part of the ICONS on the measurement interface are described in detail below:

1. In the measurement interface, click , can quickly switch to the sample measurement interface, click , can quickly switch to the standard measurement interface;

2. In the standard measurement interface, click , to set standard tolerance. The setting method of standard tolerance is the same as the system tolerance. Please refer to Section 3.6.4. When standard tolerance setting is completed, it will automatically become the system tolerance;

Note: if the standard tolerance is not set, the system tolerance is used by default for the current standard tolerance.

3. During measurement, click  or switch the measurement interface, and the system will prompt you to complete the measurement first or stop the measurement before carrying out relevant operations;

4. During measurement, click  to end the current measurement or click  to delete the last measurement data;

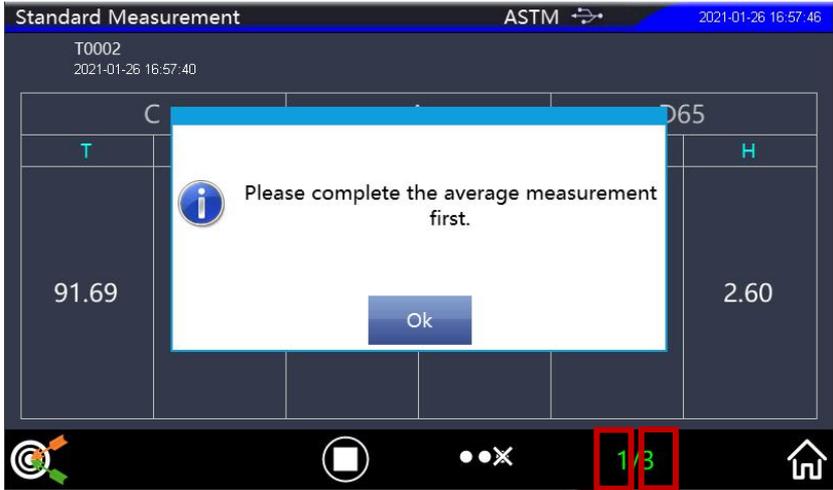
5. During the measurement process, display the current measurement number and the set measurement number. For example "1/3" in Figure 20, where 1 represents the current measurement number in the group, and 3 represents the set average measurement number (if continuous measurement, it represents the set continuous measurement number);

6. The measurement is completed, as shown in Figure 21. If the automatic storage function is enabled (please refer to Section 3.6.1 for the setting method of the automatic storage function), the average measurement results will be automatically stored in the

average measurement mode, and the results of each measurement will be automatically stored in the continuous measurement mode. If the automatic storage function is not enabled, the save button will appear below the measurement interface  (The interface with no automatic storage function is enabled, as shown in Figure 16). Click in the average measurement mode to store the average measurement result, and click in the continuous measurement mode to store only the last measurement result. After saving, the "Save" button will automatically change to "Delete" button ;

7. When the measurement is complete, click , when the instrument is connected to PRINT, if the current interface is the standard measurement interface, the current standard record and its associated sample record can be printed; If the current interface is the sample measurement interface, the current sample record can be printed. For the printing setting, please refer to Section 2.6.

8. When the measurement is complete, click , if the current interface is the standard measurement interface, the standard record and its associated sample record can be completely deleted; If the current interface is the sample measurement interface, this sample record can be completely deleted and the associated standard record can be retained.



Current number of measurements

The setting times of average measurement

Figure 20 Interface of average measurement completion of the first standard



Figure 21 Interface of average measurement completion of one group standard

2) Sample average measurement:

In the lower left corner of the average measurement interface of standard, click  Quickly switch to the sample average measurement interface associated with the standard. The average measurement method of sample is the same as that of standard.

In the process of average sample measurement, the average measurement results will be automatically updated every time the measurement is completed. If the function of prompt test results is enabled (for the method of prompt test results, please refer to Section 3.5), it will indicate whether the test is qualified, as shown in Figure 22. After the measurement, an average measurement result was recorded, as shown in Figure 23.

The measurement results indicate that if the difference value of the average measurement result of the sample minus the standard measurement result is within the tolerance range set, it is judged pass, otherwise, it is failure.

Sample Measurement [T0002] ASTM 2021-01-26 16:59:03

S0001
2021-01-26 16:59:00

C		A		D65	
T	H	T	H	T	H
91.62	2.61	91.58	2.58	91.62	2.61
ΔT	ΔH	ΔT	ΔH	ΔT	ΔH
-0.07	0.01	-0.09	-0.03	-0.07	0.01
		PASS		PASS	

1/3

Figure 22 Interface for average measurement completion of the first sample

C		A		D65	
T	H	T	H	T	H
91.62	2.61	91.58	2.58	91.62	2.61
ΔT	ΔH	ΔT	ΔH	ΔT	ΔH
-0.07	0.01	-0.09	-0.03	-0.07	0.01
		PASS		PASS	

Figure 23 Interface for average measurement completion of the one group sample

2.4.2 Continuous Measurement (ASTM)

When the measurement conditions are fixed and continuous measurement of samples is needed (such as the automatic operation process of the assembly line), continuous measurement mode can be used to reduce the operation steps and save measurement time.

The instrument can achieve each group of continuous measurement of 0~10000 times, the measurement interval between 5~300 seconds, sample measurement and standard measurement can set the number of continuous measurement and the time of each measurement interval.

When ASTM (American Standard) measurement standard is

selected, click "Measurement Mode" in the main menu to enter the measurement mode setting interface, as shown in Figure 18. Click "Continuous Measurement" to enter the interface of continuous measurement setting. Users can set "standard measurement times" and "sample measurement times" as required, as well as measurement interval time, as shown in Figure 24. If the number of measurements input is 1, the measurement is carried out in the normal way; if it is greater than 1, when measuring standard and samples, it will automatically make another measurement according to the set interval time after each measurement until the set number of measurements is completed. After setting the measurement times and measurement interval of standards and samples, click OK (✓), the instrument enters the continuous measurement state. Continuously click to return (↶) to enter the continuous measurement interface.



Standard Times	5
Standard Interval	5
Sample Times	3
Sample Interval	5

Figure 24 Continuous Measurement Settings

1) Standard Continuous Measurement

In the continuous measurement interface of the standard, when the tested sample is placed above the test port and the calibration cover is pressed against the compensation test port, the buzzer will emit a "hum" sound. At the same time, the indicator light on the "measurement button" flashes to stop, which represents the completion of the first measurement of the group. If multiple measurements are set, the instrument will automatically make multiple measurements according to the set number of measurements and the interval time. Once the measurement is completed, a measurement result will be recorded (only when the automatic storage is turned on) until the set number of measurements are completed, and the results of each measurement will be recorded after the completion of the measurement. The continuous measurement interface of the standard is shown in Figure 25, Figure 26 and Figure 27.

Note: In the continuous measurement process, if the automatic storage function is not enabled, only the measurement results will be displayed after each measurement, instead of stored. When the measurement is completed, click "Save" and only the last measurement results will be stored.

During continuous measurement, click  Or press the "measurement button" to stop the measurement; After pausing, click  Or press the "measurement button" to continue the measurement. The other ICONS for continuous measurements are the same as the definition for average measurements, as illustrated at the top of Figure 20.



Figure 25 Interface for the continuous measurement completion of the first standard



Figure 26 Standard continuous measurement

C		A		D65	
T	H	T	H	T	H
91.69	2.60	91.67	2.61	91.69	2.60

Figure 27 Interface for continuous measurement completion of a group of standard

2) Sample Continuous Measurement

In the lower left corner of continuous measurement interface of standard, click  to quickly switch to the continuous sample measurement interface associated with the standard. The continuous measurement method of sample is the same as standard. The continuous measurement interface of samples is shown in Figure 28 and Figure 29.

During the sample continuous measurement, the measurement result will be recorded once each measurement is completed (only when the automatic storage is turned on), and it will prompt whether the sample is qualified (when the test result reminder function is turned on), until the sample continuous measurement is completed, and the measurement result of each sample is

recorded after the measurement is completed.

The measurement results indicate that if the difference value of the measurement result of each successive sample minus the standard measurement result is within the tolerance range set, it is judged to pass; otherwise, it is failure.

Sample Measurement [T0012] ASTM 2021-01-26 17:05:30

S0007
2021-01-26 17:05:26

C		A		D65	
T	H	T	H	T	H
91.62	2.61	91.58	2.58	91.62	2.61
ΔT	ΔH	ΔT	ΔH	ΔT	ΔH
-0.07	0.01	-0.09	-0.03	-0.07	0.01
		PASS		PASS	

1/3

Figure 28 Interface for the continuous measurement completion of the first sample

C		A		D65	
T	H	T	H	T	H
91.62	2.61	91.58	2.58	91.62	2.61
ΔT	ΔH	ΔT	ΔH	ΔT	ΔH
-0.07	0.01	-0.09	-0.03	-0.07	0.01
		PASS		PASS	

Figure 29 Interface for continuous measurement of a group of samples

2.4.3 Average Measurement (ISO)

When selecting ISO standard for standard measurement, the average measurement setup method is the same as ASTM (please refer to Section 2.4.1), but the measurement method is slightly different. For the difference between ISO and ASTM, please refer to Section 2.4.5.

2.4.4 Continuous Measurement (ISO)

When selecting ISO standard for standard measurement, the continuous measurement setup method is the same as ASTM (please refer to Section 2.4.2), but the measurement method is slightly different. For the difference between ISO and ASTM (see Section 2.4.5), please refer to Section 2.4.5.

2.4.5 Measurement Differences between ISO and ASTM standard

When ASTM (American Standard) measurement standard is selected, it only needs to put the tested sample under the test port for measurement; When selecting the ISO measurement standard, it is necessary to place the tested sample under the **compensation aperture (short for Comp AP)** for measurement first, and then place the tested sample under the test port for measurement. The following is a detailed description of the differences between ISO and ASTM (American Standard) measurement methods.

When selecting the ISO measurement standard, Instrument prompts that "Please put the sample above the 'Comp AP' then press 'OK' to continue." According to the prompts, first put the sample at the 'Comp AP' and the test aperture is open, and then click "OK" to start the measurement, as shown in Figure 30. After the tested sample measurement at the 'Comp AP' is completed, the instrument prompts "Please put the sample above the 'Trans AP' then press 'OK' to continue". According to the prompt, place the sample at the test aperture and the 'Comp AP' is open, then click 'OK' to start the measurement, as shown in Figure 31. When the sample in the 'Comp AP' and test port all measurement completed, it represents a sample measurement completed.

When selecting ISO measurement standards, each standard measurement, sample measurement, average measurement, and continuous measurement should be measured at the 'Comp AP'

and test port. Other measurement procedures are the same as those in ASTM.

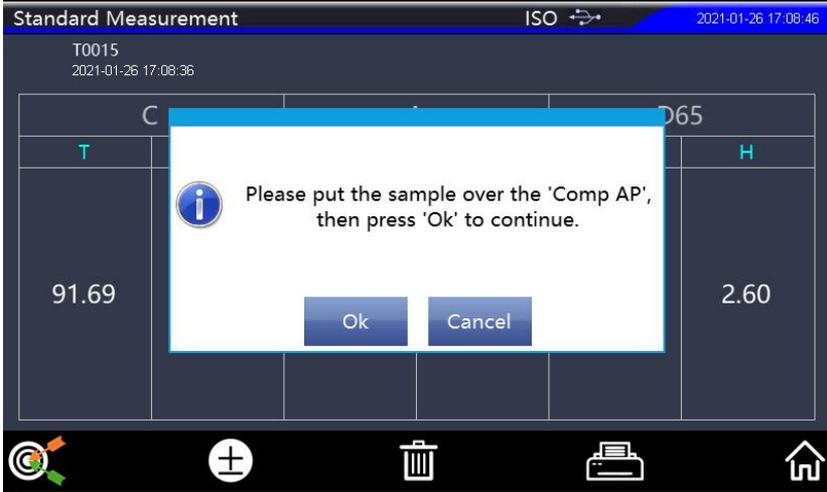


Figure 30 Prompt for placing sample in “Comp AP” under ISO measurement standard

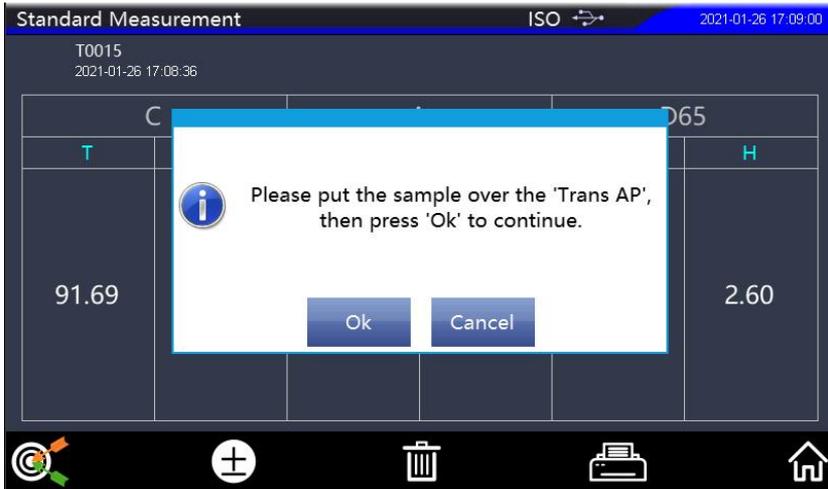


Figure 31 Prompt for placing sample in the aperture under ISO measurement standard

2.5 Communicate with PC

The PC software has powerful expansion function, which can realize more measurement data analysis. This series of instruments can be connected with the color management software on PC through USB data line for communication.

Install the color management software on the PC and use USB cable to connect the instrument with the PC. The software can automatically connect the instrument with the PC. After successful connection, the status bar of the instrument will display the USB connection icon.

2.6 Print

The micro printer is a optional accessory and should be purchased separately. The user can first measure the standard data, save the record that needs to be printed, connect the micro printer to the instrument through USB, find the record to be printed in the standard or sample record, click  is OK. You can also choose to print the record on the measurement completion screen.

3.Main Menu

In the measurement interface, press () Enter the main menu and click to return to () Enter the main menu, from the main menu can enter the sub-menu to achieve all the system function Settings.

3.1 Data Management

Click " Data Management" in the main menu interface to enter the Data Management interface, as shown in Figure 32. Data Management mainly realizes the view and operation of the measured records. The Data Management interface includes "Browse", "Search", "Input Standard" and "Delete".

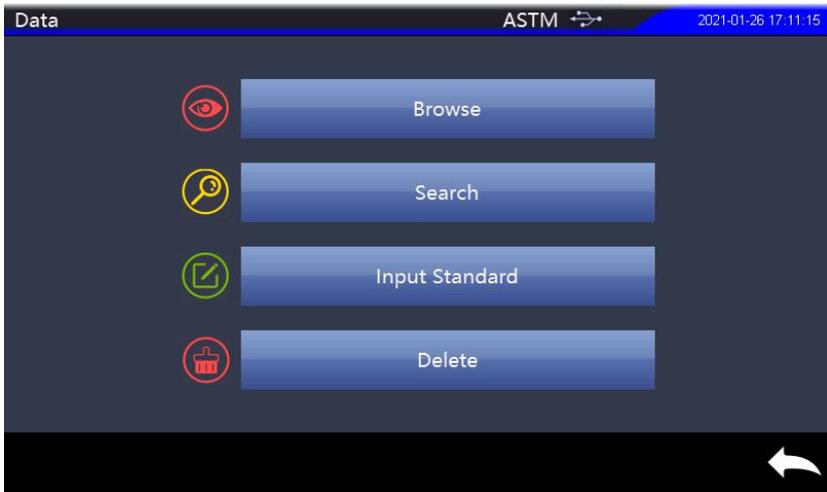


Figure 32 DATA MANAGEMENT interface

3.1.1 Browse

Click "Browse" in the DATA MANAGEMENT interface and jump to the "Browse" interface, as shown in Figure 33. Click on the "▼,▲" Button to page to view all the standards, tick the name before the , select the current standard record.

1) Select a standard record in the "Browse" interface, and the operation of "View Details", "Call out ", "View Samples", "Lock" and "Delete" can be carried out.

2) Select a standard record in the "Browse" interface, click "View Details", and the "Browse Standards" interface pops up to view the measurement record of the current standard, as shown in Figure34. In the "View Standard" interface, click"▼,▲"Button, you can view the measurement records of other standards, click the standard

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name, you can modify the standard name.

Select	Name	Date/Time	ASTM-T(C)	ASTM-H(C)	ASTM-T(A)	ASTM-H(A)	ISO-T(D65)	ISO-H(D65)
<input type="checkbox"/>	T0001	2021-1-26 16:52:38	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0002	2021-1-26 16:58:18	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0003	2021-1-26 17:1:1	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0004	2021-1-26 17:1:7	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0005	2021-1-26 17:1:13	91.69	2.60	91.67	2.61	91.69	2.60
<input checked="" type="checkbox"/>	T0006	2021-1-26 17:1:19	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0007	2021-1-26 17:1:25	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0008	2021-1-26 17:2:28	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0009	2021-1-26 17:3:14	91.69	2.60	91.67	2.61	91.69	2.60

Figure 33 Browse the standard interface

C		A		D65	
T	H	T	H	T	H
91.69	2.60	91.67	2.61	91.69	2.60

Figure 34 View the standard interface

3) In the "View Standard" interface as shown in Figure 34, click



to "Delete", "Replace", "Tolerance", "Print", "Cull out" and "lock" the currently selected standard as shown in Figure 35.

1. Click "Delete" or click "Delete Selected" in the "Browse" interface to delete the standard and the associated sample record;

2. Click "Replace" to replace the current standard with measuring a new standard.

3. Click "Tolerance" to set the tolerance of the standard and make tolerance judgment only on the measurement results of the sample associated with the standard. If the standard tolerance is not set, it is used by default system tolerance for the current standard.

4. Click "Print", the current standard data and associated sample data can be printed;

5. Click "Call out" or "Call out Selected" in the "Browse Standard" interface to change the standard record being viewed to the current standard, and the associated sample measurement interface will pop up, as shown in Figure 36.

6. Click "Lock", or click "Lock Selected" in the interface of "Browse Standard", and the standard will be locked. If the standard is locked, operations such as name modification, tolerance setting, replacement and deletion of the standard cannot be conducted. After the standard is locked, you can choose to unlock it.

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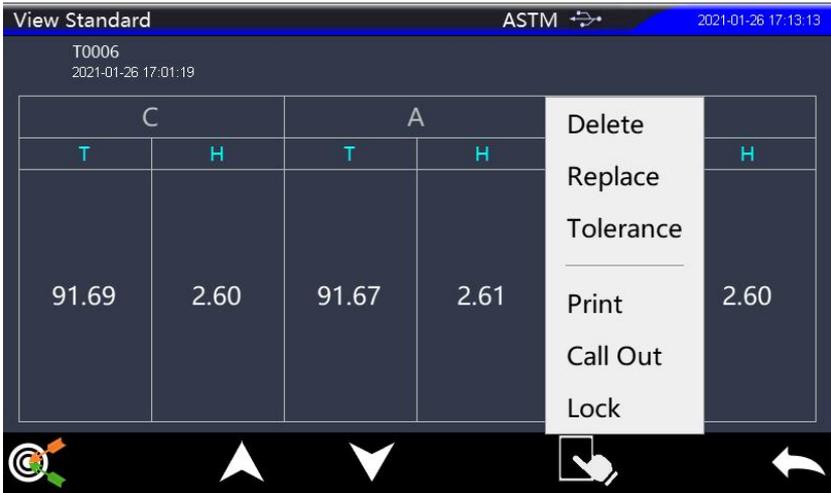


Figure 35 View Standard Interface

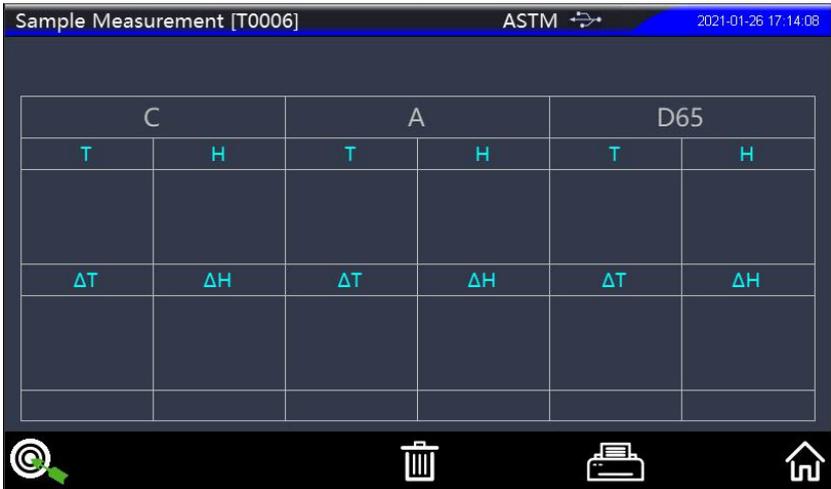


Figure 36 Change the standard record being viewed to the current standard

4) Select a standard in the "Browse Standard" interface and click "View Sample". If there is an associated sample record under the current standard, the sample record associated with this standard will be listed on the pop-up browsing sample interface, as shown in Figure 37; If there is no associated sample record under the current standard, it is indicated that "the selected standard has no associated sample", as shown in Figure 38.

1. In the "Browse Samples" interface, as shown in Figure 37, select a sample record and click "View Details" to view the measurement record of the sample. Click ", 

"Button to view the measurement records of other samples associated with the standard. Click the sample name to modify the name, or delete and print the current sample data (if connected to a printer), as shown in Figure 39;

2. In the "Browse Samples" interface, as shown in Figure 37, select one or more sample records and click "Delete Selected" to delete the selected sample records, but the standard records associated with the sample will not be deleted;

3. In the "Browse Samples" interface, as shown in Figure 37, click "Diff-value" to quickly switch to the "Absolute Value" recording interface.

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Browse Samples			ASTM				2021-01-26 17:17:26	
Select	Name	Date/Time	ASTM-T(C)	ASTM-H(C)	ASTM-T(A)	ASTM-H(A)	ISO-T(D65)	ISO-H(D65)
<input type="checkbox"/>	S0001	2021-1-26 16:55:23	91.62	2.61	91.58	2.58	91.62	2.61
<input type="checkbox"/>	S0002	2021-1-26 17:16:41	91.62	2.61	91.58	2.58	91.62	2.61
<input type="checkbox"/>	S0003	2021-1-26 17:16:43	91.62	2.61	91.58	2.58	91.62	2.61
<input type="checkbox"/>	S0004	2021-1-26 17:16:45	91.62	2.61	91.58	2.58	91.62	2.61
<input type="checkbox"/>	S0005	2021-1-26 17:16:46	91.62	2.61	91.58	2.58	91.62	2.61
<input type="checkbox"/>	S0006	2021-1-26 17:16:47	91.62	2.61	91.58	2.58	91.62	2.61
View Details			Delete			Diff-value		
Total: 6, Page: 1/1								

Figure 37 Browse Samples interface

Browse Standards			ASTM				2021-01-26 17:18:02	
Select	Name	Date/Time	ASTM-T(C)	ASTM-H(C)	ASTM-T(A)	ASTM-H(A)	ISO-T(D65)	ISO-H(D65)
<input type="checkbox"/>	T0001	2021-1-26 16:52:38	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0002	2021-1-26 17:18:02	91.69	2.60	91.67	2.61	91.69	2.60
<input checked="" type="checkbox"/>	T0003	2021-1-26 17:18:02	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0004	2021-1-26 17:18:02	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0005	2021-1-26 17:18:02	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0006	2021-1-26 17:18:02	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0007	2021-1-26 17:18:02	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0008	2021-1-26 17:18:02	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0009	2021-1-26 17:3:14	91.69	2.60	91.67	2.61	91.69	2.60
View Details			Call Out			View Samples		
Lock			Delete					
Total: 18, Page: 1/2								

Figure 38 There is no sample record associated with the current standard

C		A		D65	
T	H	T	H	T	H
91.62	2.61	91.58	2.58	91.62	2.61
ΔT	ΔH	ΔT	ΔH	ΔT	ΔH
-0.07	0.01	-0.09	-0.03		0.01
		PASS			

Figure 39 View sample details

5) When multiple standard records are selected in the "Browse standard" interface, "Lock Selected" and "Delete Selected" operations can be carried out, as shown in Figure 40, Figure 41 and Figure 42.

1. Click "Lock Selected", and the selected standard will be locked. After the standard is locked, operations such as name modification, tolerance setting, replacement and deletion of standard cannot be carried out. After the standard is locked, you can choose to unlock the lock;
2. Click "Delete Selected" to delete the selected standard and its associated sample record.

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Browse Standards			ASTM ↔				2021-01-26 17:19:42	
Select	Name	Date/Time	ASTM-T(C)	ASTM-H(C)	ASTM-T(A)	ASTM-H(A)	ISO-T(D65)	ISO-H(D65)
<input type="checkbox"/>	T0001	2021-1-26 16:52:38	91.69	2.60	91.67	2.61	91.69	2.60
<input checked="" type="checkbox"/>	T0002	2021-1-26 16:58:18	91.69	2.60	91.67	2.61	91.69	2.60
<input checked="" type="checkbox"/>	T0003	2021-1-26 17:1:1	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0004	2021-1-26 17:1:7	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0005	2021-1-26 17:1:13	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0006	2021-1-26 17:1:19	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0007	2021-1-26 17:1:25	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0008	2021-1-26 17:2:28	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0009	2021-1-26 17:3:14	91.69	2.60	91.67	2.61	91.69	2.60

View Details
Call Out
View Samples
Lock
Delete

Total: 18, Page: 1/2

Figure 40 Browse Standard

Browse Standards			ASTM ↔				2021-01-26 17:20:34	
Select	Name	Date/Time	ASTM-T(C)	ASTM-H(C)	ASTM-T(A)	ASTM-H(A)	ISO-T(D65)	ISO-H(D65)
<input type="checkbox"/>	T0001	2021-1-26 16:52:38	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0002	2021-1-26 16:58:18	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0003	2021-1-26 17:1:1	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0004	2021-1-26 17:1:7	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0005	2021-1-26 17:1:13	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0006	2021-1-26 17:1:19	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0007	2021-1-26 17:1:25	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0008	2021-1-26 17:2:28	91.69	2.60	91.67	2.61	91.69	2.60
<input type="checkbox"/>	T0009	2021-1-26 17:3:14	91.69	2.60	91.67	2.61	91.69	2.60

View Details
Call Out
View Samples
Lock
Delete

Total: 18, Page: 1/2

Figure 41 Standard locked state

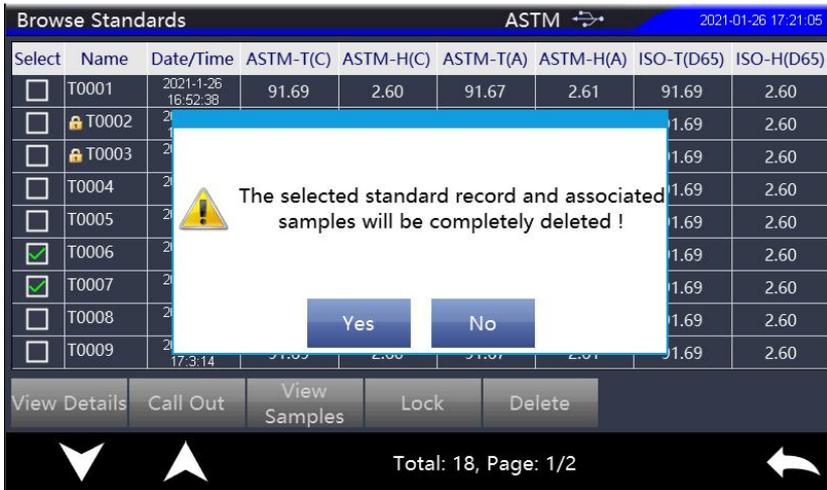


Figure 42 Prompt for deleting multiple standard records

3.1.2 Search

Click "Search" in the DATA MANAGEMENT interface to enter the search record interface.

1) Click the "Name" column, to enter the text in the "Name" column of the standard or part of the sample name to be searched, click "OK", and then select "Search Standard" or "Search Sample" to find out that the name contains the standard or sample record of the name to be searched as shown in Figures 43 and 44;

2) Enter all the characters in the name of the standard or sample to be searched in the "Name" column, tick "Full Name Match", and then click "Search Standard" or "Search Sample" to find the standard or sample record whose name is exactly the same as the name searched;

3) Tick the "specified date", to select a day, or a period of date, to find a day, or a period of date within the standard or sample records. You can also click (←) return Cancel the search.

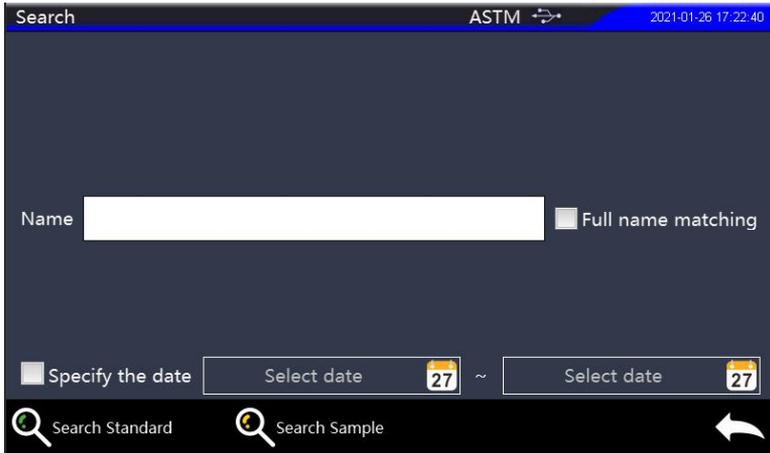


Figure 43 Search record interface



Figure 44 Search record name input box

3.1.3 Input Standard

Click "Input Standard" on the DATA MANAGEMENT interface to enter the Input Standard interface, as shown in Figure 45. Enter the standard name and related parameters. When the input is complete, click OK (✓), the standard is stored in the standard record list. The standard record can be viewed through the "Browse" of the DATA MANAGEMENT interface. Please refer to Section 3.1.1 for more detail.

Note: if the standard tolerance is not set, the system tolerance is used by default for the current standard tolerance.



Figure 45 Input Standard interface

3.1.4 Delete

Click "Delete" on the DATA MANAGEMENT interface to enter the delete record interface. All samples and standards can be deleted, or samples and standards can be deleted by time, as shown in

Figure 46. Click the corresponding option to enter the delete prompt and warning interface. Click "Yes" on the warning interface to delete all corresponding records; If you do not want to delete, you can click "No" as shown in Figure 47.

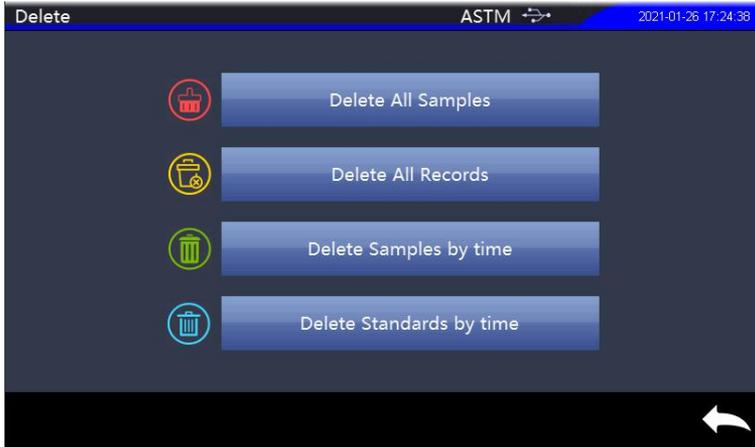


Figure 46 Delete record interface

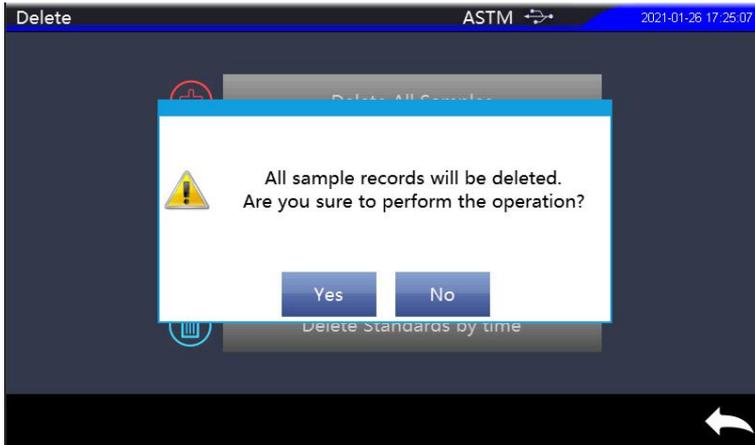


Figure 47 Prompt for deleting all sample records

3.2 Calibration

Black and white calibration as the measurement benchmark, must be accurate, otherwise it will affect the validity of the measurement data. This series of instruments requires black and white calibration in the following situations:

- 1) When there is a large difference between the black and white calibration environment and the current sample measurement environment (such as sharp temperature fluctuations), it is necessary to timely conduct black and white calibration of the instrument;
- 2) The instrument has exceeded the validity period of calibration, so it is necessary to do a black and white calibration again when the sample is measured;
- 3) After switching between ASTM (American Standard) and ISO standards, the instrument needs to be calibrated in black and white when the sample is measured. Please refer to Section 2.2 for the method of black and white calibration.

3.3 Reference Standard

There are two kinds of reference standards: ASTM (American Standard) and ISO. After switching between ASTM (American Standard) and ISO for this series of instruments, the instrument needs to re-calibrate black and white when conducting sample measurement. Please refer to Section 2.2.1 for detail.

3.4 Measurement Mode

Average measurement and continuous measurement can be set in the measurement mode. Please refer to Section 2.4 for detail.

3.5 Display Setting

Click "Display Settings" on the main menu interface to enter the Display Settings interface, as shown in Figure 48.

When the "Test Result" is turned on, in the sample measurement, the difference value of the sample measurement result minus the standard measurement result is given. If it is within the tolerance range set, it will show green word pass or it will show red word fail.

This series of instruments can be set as horizontal screen or vertical screen.

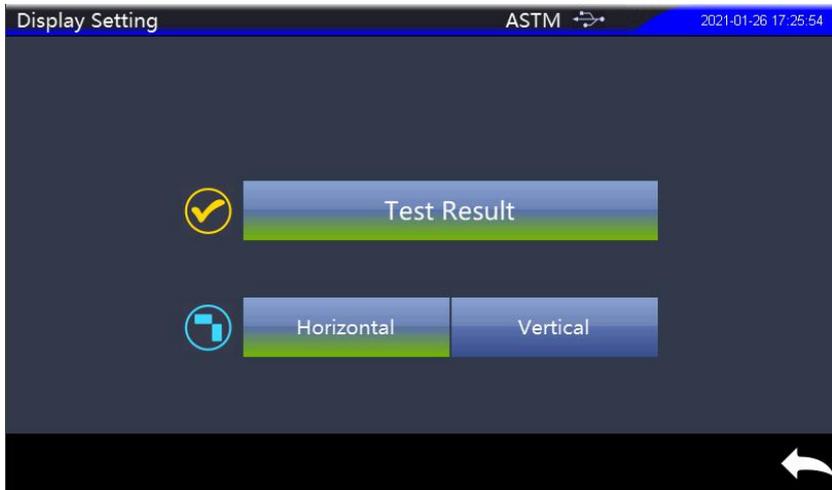


Figure 48 Display Setting Interface

3.6 System Setting

Click "System Setting" in the main menu to enter the interface of System Setting, as shown in Figures 49, 50 and 51.

System Setting include "Auto Save", "Auto Print", "Beep", "Set System Tolerance", "Control Method", "Calibration Validity", "Language Setting", "Date/Time", "Backlight", "Restore Factory Setting" and "About Instrument", etc.



Figure 49 System setting interface



Figure 50 System setting interface



Figure 51 System setting interface

3.6.1 Auto Save

When the Auto Save function is turned on, every time sample measurement results will be automatically stored in the instrument. Otherwise, the measurement record will not be automatically saved after finishing the sample measurement, and it needs to manually save it.

3.6.2 Auto Print

When the Auto Print function is turned on, the sample will be automatically printed after each measurement. Otherwise, the sample will not be automatically printed after finishing sample measurement, and you need to manually click "Print". Open "Auto Print" in "System Setting" interface and connect to the printer before printing. Please refer to Section 2.6 for detail.

3.6.3 Beep

The beep switch controls whether the prompt sound is sounded during the measurement. When the beep function is open, a beep voice will be sounded for each measurement, otherwise, there will be no beep voice during measurement.

3.6.4 Set System Tolerance

Tolerance is for the standard. The standard tolerance will affect the instrument to determine the sample measurement results. The system tolerance is the default tolerance assigned to the standard by the instrument. If the standard tolerance is not set, the system tolerance is used by default.

Click "Set System Tolerance" on the system setting interface to enter the tolerance setting interface, as shown in Figures 52 and 53. In this interface, you can select and edit the tolerance range of "Trans" and "haze". Click the corresponding tolerance value to enter the corresponding value setting interface. After setting, click OK (✓), that is the standard tolerance. If you click to return (↶) Cancel the setting and exit the tolerance setting interface.

Note: Only the currently selected type of tolerance will take effect when the tolerance is used to determine the sample measurement result.



Figure 52 Setup interface of transmittance tolerance



Figure 53 Interface for setting haze tolerance

Transmittance tolerance setting: use transmittance to judge the sample measurement results when selected.

Haze tolerance setting: when selected, use the haze to judge the sample measurement results.

Transmittance tolerance Settings, left ΔT for setting the prototype tolerance limit, the right ΔT for setting the prototype tolerance limit, the right side of the tolerance limit must be greater than the tolerance limit;

In the haze tolerance setting, ΔH is set in the same way as ΔT .

When doing sample measurement, according to the set tolerance type and range, the difference that sample measurement results

minus the standard measurement results will show the result. If within the set tolerance range, it is pass, otherwise, it is fail (when the test result function is turned on).

3.6.5 Control Method

When the instrument communicates with the PC software, the user can set the specific measurement control mode according to needs. Click "Control Method" on the system setting interface to open the measurement control interface (as shown in Figure 54), select the corresponding method, and then click OK (✓).

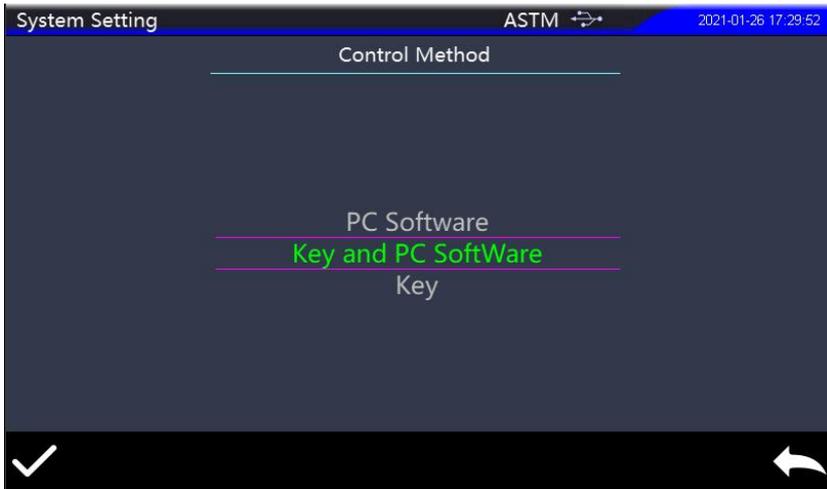


Figure 54 Control Method

PC software: When this mode is selected, instrument measurement can only be triggered into data test by the measurement button of the PC software, and the data can be uploaded to the PC software.

Key | PC software: If choose this mode, customers can complete

the sample test, and the data upload through the instrument test button or PC software measurement button. This mode is the default selection mode of the instrument.

Key: When this mode is selected, instrument measurement can only be triggered into data test by the measurement button of the instrument, and the data can be uploaded to the PC software.

Note: The measurement control method is only effective when the instrument is connected to the PC software. In the case of unconnected, the measurement button can only be used at all times.

3.6.6 Calibration Validity

Black and white calibration as the data measurement benchmark, must be accurate, otherwise it will affect the validity of the test data. When there is a large difference between the black and white calibration environment and the current sample test environment (such as temperature fluctuations), it is necessary to timely conduct black and white calibration of the instrument; When the instrument exceeds the set calibration validity period, and after switching between ASTM (American Standard) and ISO standards, it is necessary to do a black and white calibration again when the sample measurement is carried out.



Figure 55 Calibration Period interface

The "Calibration Validity" in the system setting manages the timeliness of black and white calibration, as shown in Figure 55.

Click "Calibration Validity" in the system setting interface to enter the selection interface of calibration validity. You can select "4 hours", "8 hours", "24 hours" and "Power on Calibration".

If 4 hours is selected, the validity period of the instrument's black and white calibration will expire after each 4 hours of calibration. If it expires, you can only view the data but cannot complete the measurement. After the black and white calibration, the calibration validity will start the timing again.

If 8 hours is selected, the validity period of the instrument's black and white calibration will expire after 8 hours of each calibration. If

it expires, you can only view the data but cannot complete the measurement. After the black and white calibration, the calibration validity will start the timing again.

If 24 hours is selected, the instrument's black and white calibration validity period will expire after each calibration 24 hours. If it expires, you can only view the data but cannot complete the measurement. After doing the black and white calibration again, the calibration validity will start the timing again.

If you choose power on calibration, the instrument's black and white calibration period will expire at each start up. If it expires, you can only view the data but can not complete the measurement. After the black and white calibration, the calibration validity will start the timing again.

When the black and white calibration expires, press the "measurement button" in the measurement interface will pop up a prompt, and it can't do normal measurement. After redoing black and white calibration, it can be measured.

3.6.7 Language Settings

The language used to set up the instrument interface. In the system setting interface, click "Language Settings", and then select the corresponding language confirmation (✓) as shown in figure 56.



Figure 56 Language setting interface

3.6.8 Date/Time

When the instrument leaves the factory, it is usually synchronized with the local time of the manufacturer. The user can also set the time of the instrument according to the actual situation. Click "Date/Time" in the system setting interface to enter the setting interface of year, month, day, hour, minute and second. Select date and time. After setting, click OK (✓) to save the Settings and click Return (↶) to unsave as shown in figure 57.

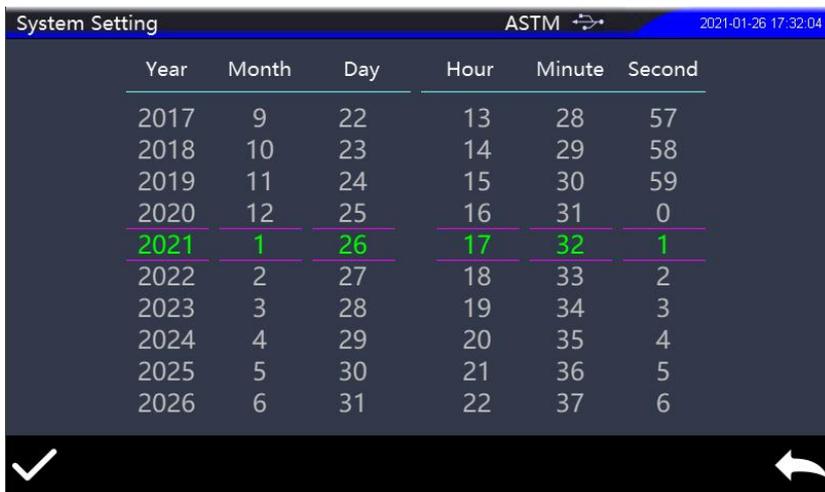


Figure 57 Date/time setting interface

3.6.9 Backlight Settings

Click "Backlight Settings" in the System Setting. interface to enter the backlight Settings selection interface. You can select screen brightness and backlight time, as shown in Figure 58.

To adjust the brightness of the screen, move the brightness regulator left and right in the Brightness Settings bar.

Backlight time is divided into: "constant light", "1 minute", "5 minutes", "10 minutes" and "30 minutes". If you select constant light, it will not automatically break the screen when there is no operation. If set to "1 minute", the instrument will be timed from the last operation, and the screen will rest after 1 minute and enter the power-saving mode. The setting items of "5 minutes", "10 minutes" and "30 minutes" have the same meaning as above.

The instrument can be lit up by pressing the "measurement button" or touching the screen during the rest time. The default screen backlight time of the instrument is "5 minutes", which puts it in power-saving mode.

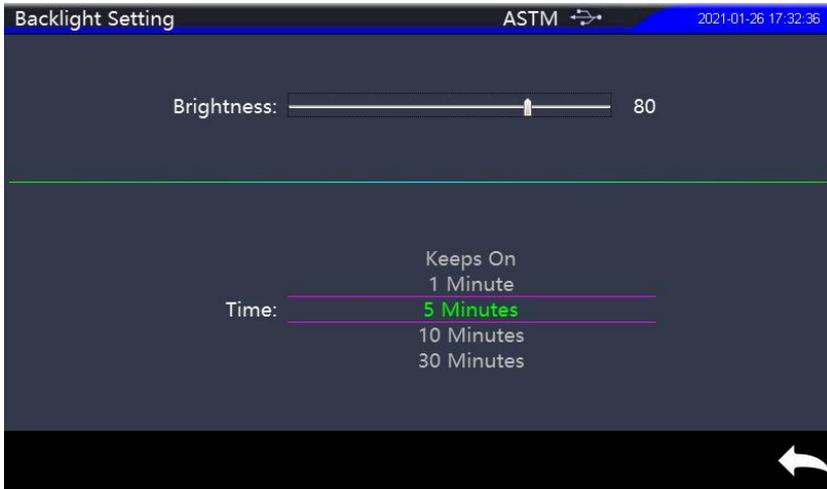


Figure 58 Screen backlight setting interface

3.6.10 Restore factory Settings

Click "Restore Factory Settings" in the system setting interface to enter the interface shown in Figure 59, and click OK (✓) The instrument clears all measurement records and user Settings, and returns to the factory state. Click Return (↩) to cancel this operation.

Note: This operation instrument will clear all data and user Settings, and restore to the factory setting state, all data can not be recovered, please be careful.

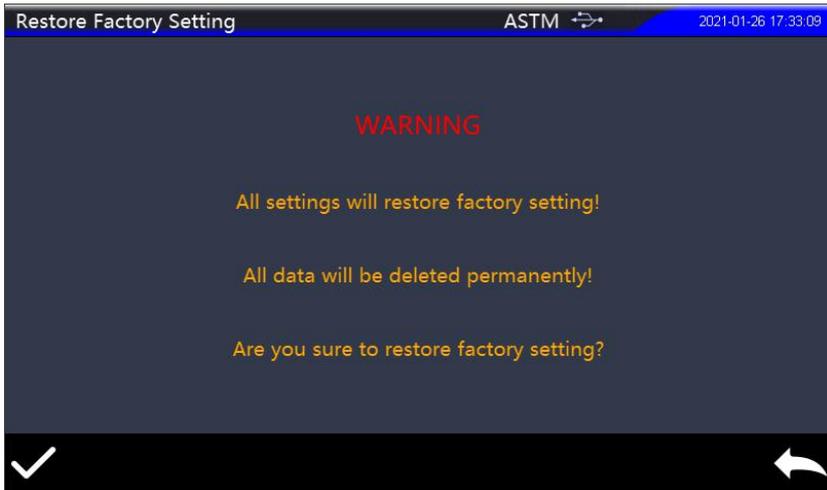


Figure 59 Restore factory Settings interface

3.6.11 About Instrument

Display instrument model, SN number and current software and hardware version number.

4. Daily Maintenance

1) This instrument is a precision optical instrument. Please keep and use the instrument properly and avoid using and storing the instrument in the environment of humidity, strong electromagnetic interference, strong light and heavy dust. It is recommended to use and store the instrument in a standard laboratory environment (temperature 20~25 ° C, 1 standard atmosphere, humidity 30~70%RH).

2) Standard plates (fog sheets, etc.) are precision optical

components. They should be properly kept and used to avoid hitting the working face with sharp objects, soiling the working face with dirt, and exposing the standard plates to the sun under strong light. Regularly use a cloth dipped in alcohol to clean the working surface of the standard board, and timely dispose of the dust on the working surface.

3) In order to ensure the validity of the measurement data, it is recommended to go to the manufacturer or qualified metrological research institute for metrological inspection one year from the date of purchase of the haze meter.

4) The instrument is powered by external power adapter. Please use the original power adapter. At the same time, the power should be used in a standard way to avoid frequent unplugging of the power, protect the performance of power and extend the service life of power.

5) Please do not disassemble and install the instrument without consent. If you have any problems, please contact the relevant after-sales staff. Tearing off the easy-to-tear label will affect the after-sales maintenance service of the instrument.

5. Technical Parameters

5.1 Product Features

- 1) High hardware configuration: 7-inch TFT pure color TV touch screen; Up to more than 20,000 storage capacity.
- 2) High optical resolution, dual optical path, accurate CIE 1931/2 visual response (error ~ 3%); High life span full spectrum LED;
- 3) A variety of measuring diameter: conventional caliber Φ 20 mm, Φ 15 mm, Φ 8 mm, Φ 4 mm diameter can be customized.
- 4) Temperature monitoring and compensation, built-in temperature sensor, monitoring and compensation of the test environment, to ensure more accurate measurement results;
- 5) Independent light source detector, always monitor the change of light source, to ensure the reliable light source;
- 6) A variety of measurement modes to meet the needs of more customers;
- 7) A variety of accessories, fixture (optional), suitable for more working conditions;
- 8) The PC color management software has a powerful extension function.

5.2 Technical Specifications

Product Model	YH serie shaze meter (compensating port/no compensating port)
Optical Geometry	Transmittance :0/D(Parallel light illumination, diffuse viewing) Conforms to:ASTM D1003/1044,ISO 14782 , GB/T 2410,JJF 1303-2011 , CIE 15.2 , GB/T 3978,ASTM E308 , JIS K7105 , JIS K7361 , JIS K 7136
Character	The instrument can easily achieve ASTM D1003 non-compensation method, full light transmittance,haze test. Open measuring area for vertical and horizontal testing. In glass processing, plastic processing, film, screen processing, packaging and other industries are widely used in transmittance,haze detection.
Integrating Sphere Size	Φ154mm
Light Source	400nm to 700nm, combined LED light
Specular Component	/
Sensor	The PD array detector satisfies CIE V(λ) ² degree visual response
Wavelength Range	/
Wavelength Interval	/
Semiband Width	/
Transmittance measurement range	0~100%

YH series Haze Meter instruction manual

Measuring Aperture	Φ20mm/Φ15mm/Φ8mm/Φ4mm(Select a single aperture)
Sample Size	Thickness < 170mm
Color Space	/
Color Difference Formula	/
Other Colorimetric Index	Haze(ASTM D1003/1044,ISO13468),Transmittance T(ISO),Transmittance T(ASTM)
Observer Angle	2°
Illuminant	D65,A,C
Displayed Data	PASS/FAIL Result
Measuring Time	About1.5s
Haze resolution	0.01unit
Haze repeatability	Φ20mm,within 0.1 (After preheating and calibration of the instrument, standard deviation values of standard haze tablets with a test haze of about 40 for 30 times were taken at intervals of 5s.)
Inter-instrument Error	Φ20mm,with 0.4 (After the instrument is preheated and calibrated, the standard deviation between the standard haze tablet and the reference value is tested at an interval of 5s.)
Dimension	L*W*H=290X211X511mm
Weight	About7.6kg
Power	AC 24V, 3A Power adapter power supply
Illuminant Life Span	5 years, more than 3 million times measurements
Display	7-inch TFT color LCD, Capacitive Touch Screen

YH series Haze Meter instruction manual

Data Port	USB & Print serial port
Data Storage	Standard 1000 pcs,sample 20000 pcs
Language	Simplified Chinese,Traditional Chinese,English
Operating Environment	0~40℃ (32~104°F)
Storage Environment	-20~50℃ (-4~122°F)
Standard Accessory	Power Adapter, User Guide,Quality Management Software (download from the official website),USB cable,0% calibration box,Aperture.
Optional Accessory	Micro-printer,Test fixture, standard haze sheet, foot switch
Note:	The specifications are subject to change without notice.