Make Measurement more Easy

User Manual

WF30

Precision Colorimeter

Shenzhen Wave Optoelectronics Technology Co., Ltd.

Contents

Safety Instructions

In order for safe and proper use of the instrument, please read carefully and follow the instructions of the manual.

⚠ Use only original power adapter and original battery to avoid fault or damage of the instrument.

⚠ Upon long time no use, cut off external power and remove the battery to avoid damage to the instrument resulting from battery fluid overflow.

⚠ Do not use the instrument under the conditions with flammable and explosive gases, dusts or smokes to avoid accident.

⚠ Do not use the instrument under the conditions of strong magnetic field, rattling, dust and smoke to avoid unexpected data and performance failure.

⚠ The product is a precision instrument, do not disassemble it without permission, or it may be damaged and unrepairable.

Notes

1. Storage

● Upon long time no use, put the instrument into a packing box;

● Store the instrument in a cool and dry environment with a temperature at -10°C~50°C and relative humidity under 85%;

2. Use

● When using the instrument, the ambient temperature should be 0°C~40°C, relative humidity at 85%, without condensation;

● Do not use the instrument under the conditions of strong magnetic field, rattling, dust and smoke to avoid unexpected data and performance failure.

● Prevent foreign objects as liquid, powder or solid etc. from entering into the instrument to avoid unexpected measurement data.

Overview

The Colorimeter is a professional colorimeter designed and produced subject to the relevant standards of International Commission on Illumination (CIE) and national stands. Being with brand new imported key components, the instrument is well designed and features in precision, stability, easy handling, easy to learn and cost-effective.

The instrument applies to the color quality control, color difference control, color difference analysis, sampling testing and online testing for industries as textile, printing and dyeing, garments, shoes, leather, chemical, plastic, pigment, paint, ink, printing, metal, photography and toys etc., as well as to the auxiliary color matching during the processes as injection, inking, painting and spraying coating etc.

I. Structure

1.1 Appearance

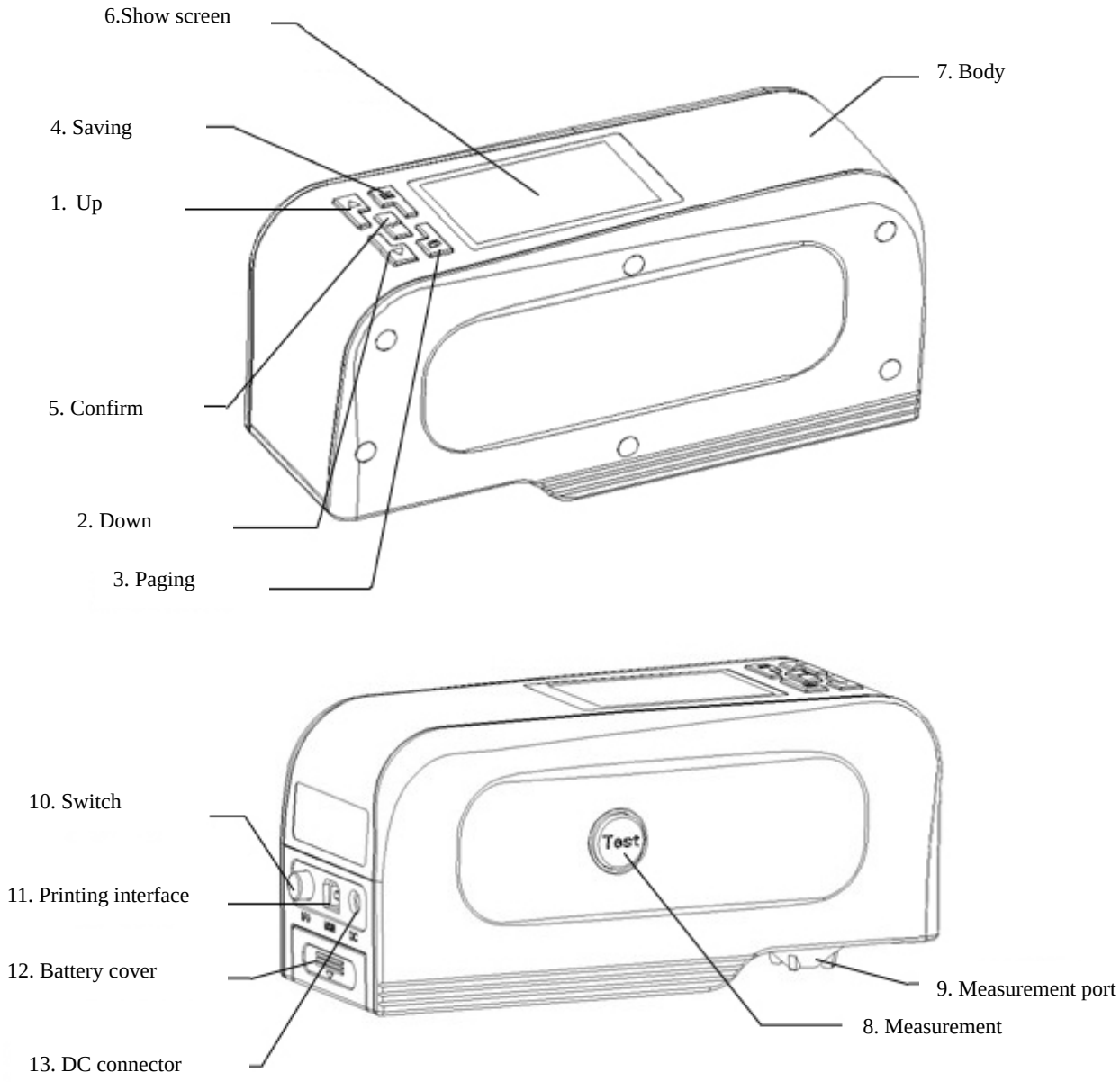

Figure 1. Instrument Appearance

1.2 Keys

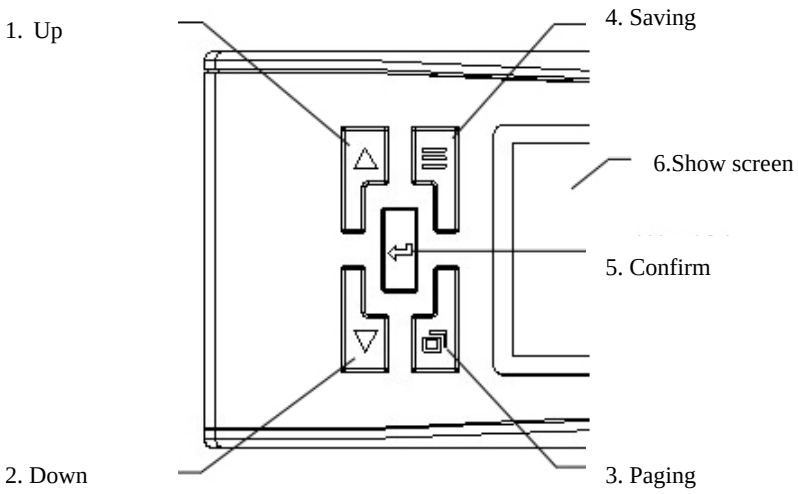

Figure 2. Bird's View

Up - move the position of the cursor in the screen; adjust the value of the activated items .

Down - move the position of the cursor in the screen; adjust the value of the activated items.

Paging - Switching between tabs.

Saving - Save settings.

Confirm - Confirm or activate selected items in the screen (a blue background of the item will be changed to a green background after activation); fast switching between "standard measurement" and "sample measurement".

Show screen - show measurement result etc.

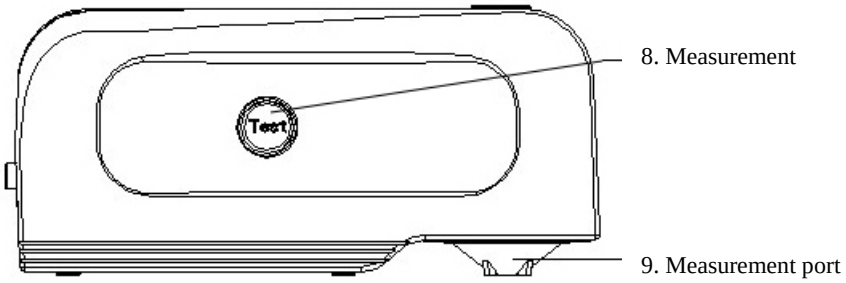

Figure 3. Back View

Measurement - Measuring

Measurement port - Optical channel for measuring.

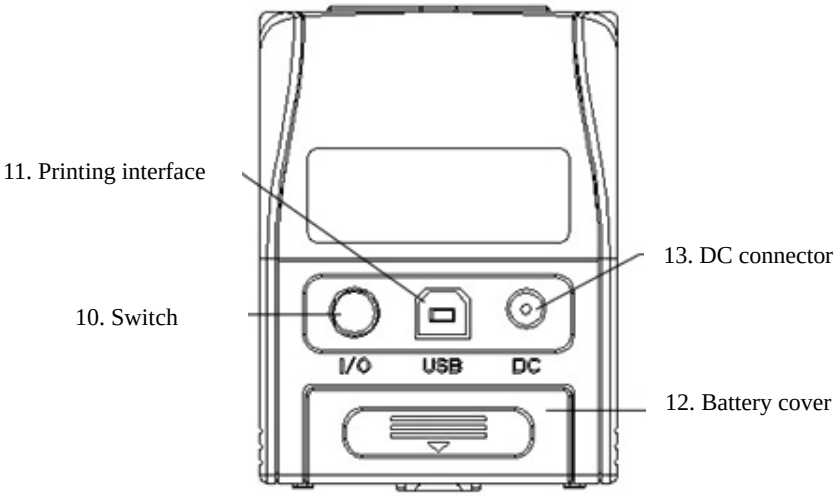

Figure 4. Right View

Switch - In (I) or Out (O) of the instrument.

Printing interface - connect to the printer to print the measuring data.

Battery cover - cover for the special lithium battery compartment DC connector - dedicated power adapter connector.

1.3 Power

The Colorimeter is powered by dedicated power adapter or special lithium batteries, the use of other facilities for power supply may damage the Colorimeter.

Ensure that the Switch is on Out (O) before connecting to the power adapter or mounting the battery.

1.3.1 Battery

1. First check and confirm if the Switch is on Out (O), then following the arrow direction as shown on Figure 5, take out the battery cover by pressing down.

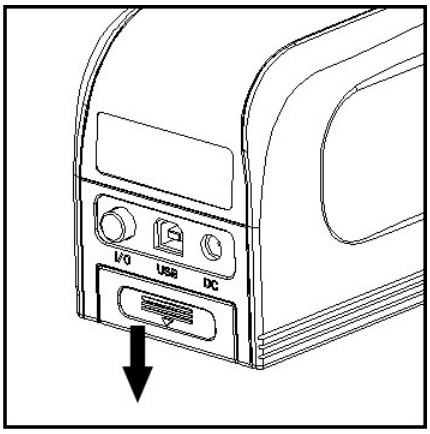

Figure 5. Remove the battery cover

2. Mount the battery into the compartment as shown in Figure 6, pay attention to the front and back of the battery.

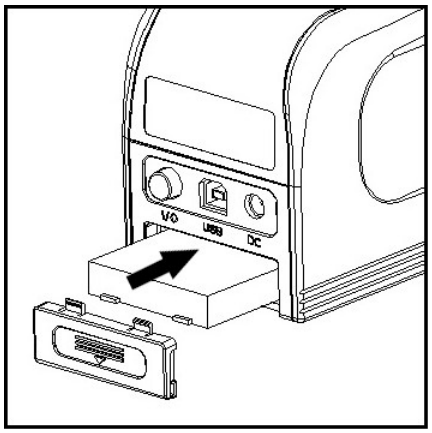

Figure 6. Mounting the battery

3. Follow the directions on Figure 7, press up to mount the battery into the compartment.

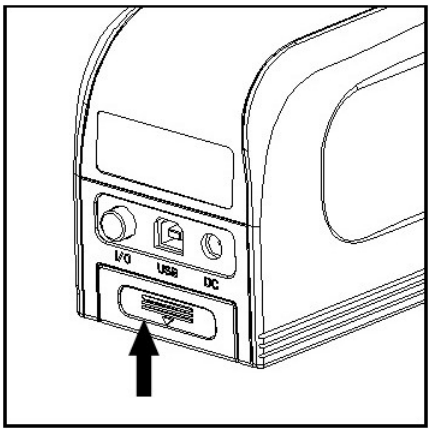

Figure 7. Mounting the battery cover

1.3.2 Power Adapter

1. First check and confirm if the Switch is on Out (O),

2. Plug the input cable of the power adapter as shown on Figure 8 into the DC connector.

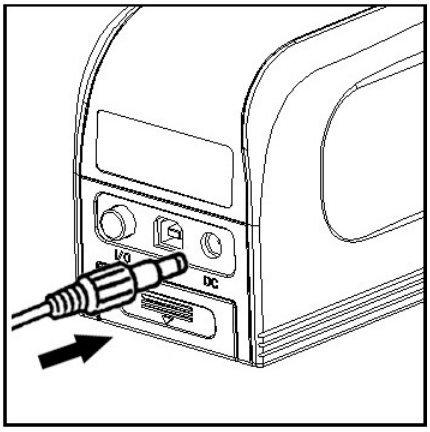

Figure 8. Power Adapter connection

II. Interface

2.1 Layout

There are three parts of the Colorimeter interface as shown on Figure 9, Page on top, Form on middle and Information on bottom.

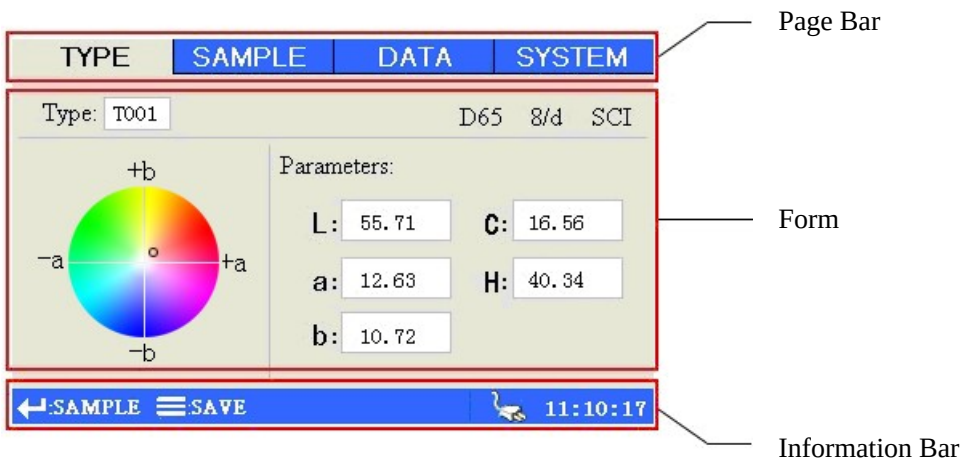

Figure 9. Layout

2.2 Page Details

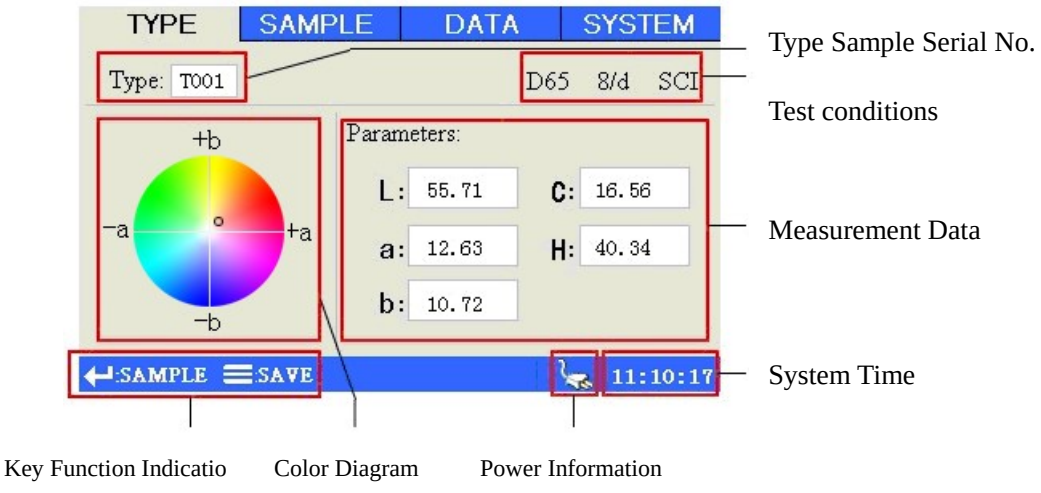

Figure 10. Type Sample Measurement Page Details

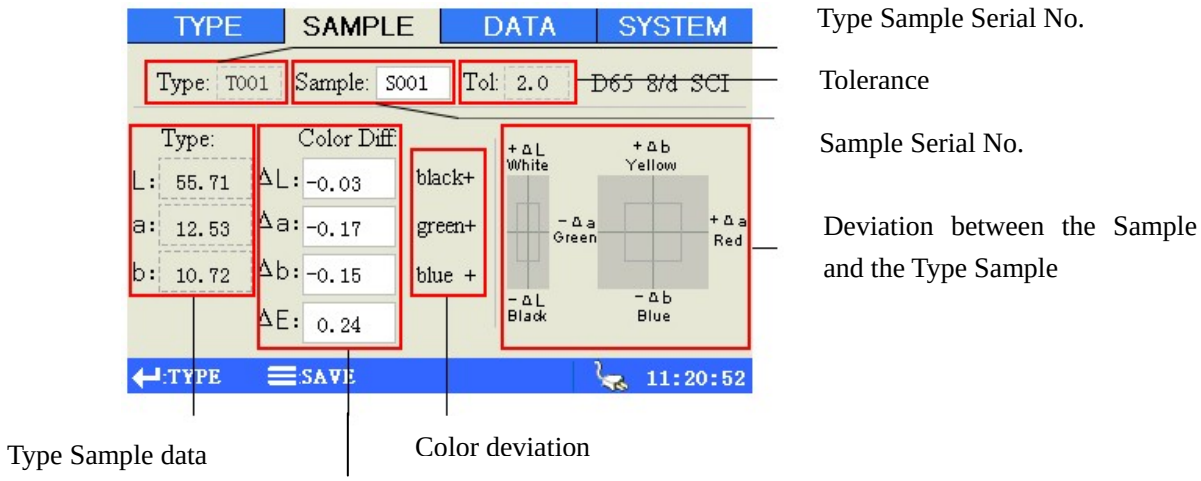

Figure 11. Sample Measurement Page Details

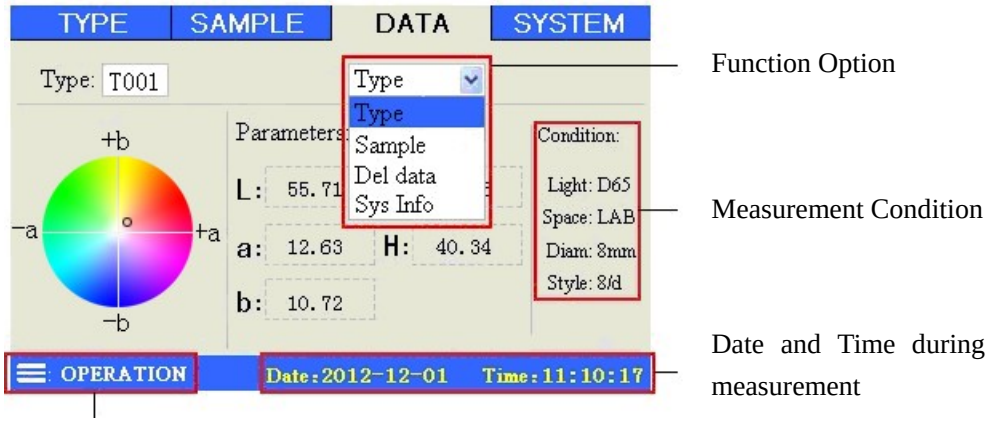

Figure 12. Check out Information Page Details

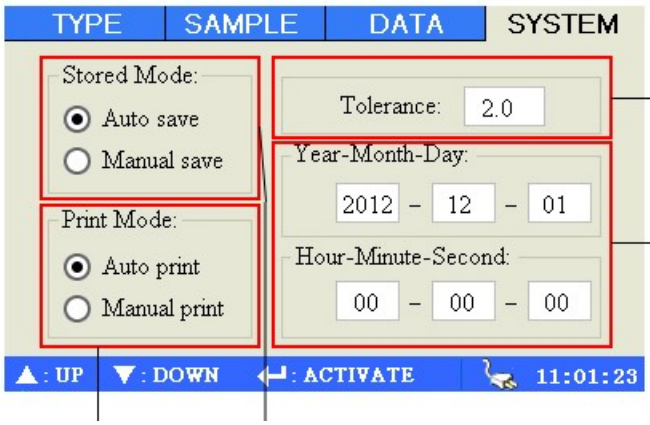

Figure 13. System Setting Page Details

III. Operation

3.1 Turn on

Before turning on the instrument, check if the external power has been connected or the battery has been mounted, ensuring a power supply to the instrument, then start the instrument, the screen will show starting Logo.

After the completion of boot interface, instrument into the self-test program, ensure the normal working of the instrument.

3.2 Color Difference Measurement

There are two steps for the color difference measurement which are "Type Sample Measurement" and "Sample Measurement".

1. The Type Sample measurement gets the standard color parameters of a Type Sample;

2. The Sample measurement gets the parameters of the sample needed to be measured, while calculates the color difference data between the Sample and the Type Sample.

3.2.1 Type Sample Measurement

As shown on Figure 15, the Type Sample measurement can be

performed to get the color parameters of a Type Sample. The color parameters measured will be shown on the measurement page.

In the upper right corner of the page to display the test current conditions, including light sources, lighting and light mode.

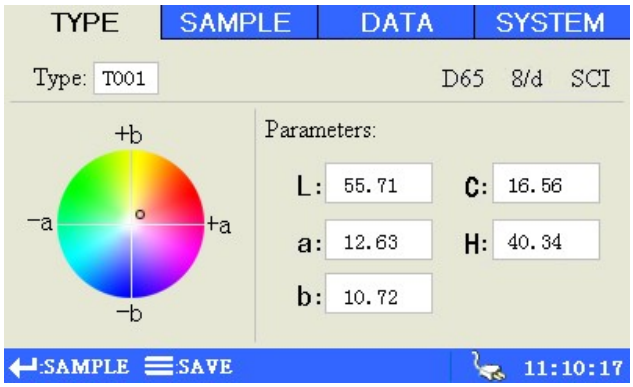

Figure 15. Type Sample Measurement Page

3.2.2 Sample Measurement

After completing the Type Sample measurement, if it is required to measure the color difference between the Type Sample and the Sample, press "Paging" to switch the screen to "Sample Measurement" page as shown on Figure 16, the color difference parameter measured will be shown on the measurement page.

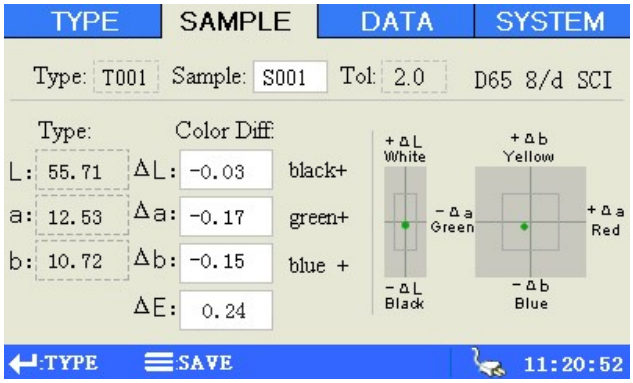

Figure 16. Sample Measurement Page

Meanwhile, color bias will be shown on the right of the page to provide an intuitive color difference analysis.

3.3. Check out Information

3.3.1 Type Sample Record

Press "Paging" to jump to "Check out Information" page as shown on Figure 17 to check the saved data and to select from the drop down menu by "Confirm" as well as "Up" and "Down" keys, if required.

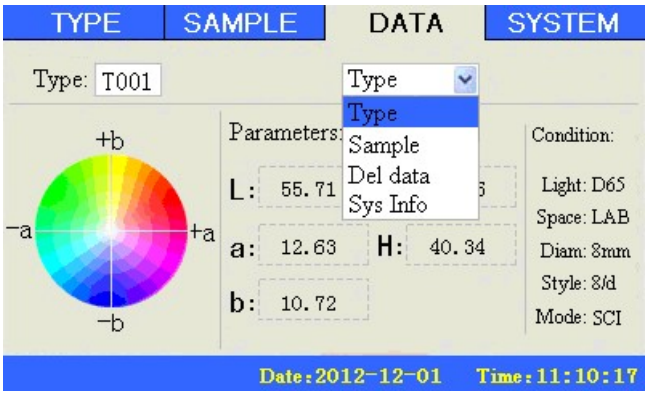

Figure 17. Check out Information Page

In the current page, press "save" button can be activated in Figure 17 dialog box, choose "sample into" or "standard delete" operation.

图 17 Selecting operation

3.3.2 Sample Record

After selecting the Type Sample to be checked, select "Sample Record" option to switch the screen to the Sample record page of the Type Sample as shown on Figure 18, then select Sample record by "Confirm" as well as "Up" and "Down" keys to check out the color difference records of each Sample.

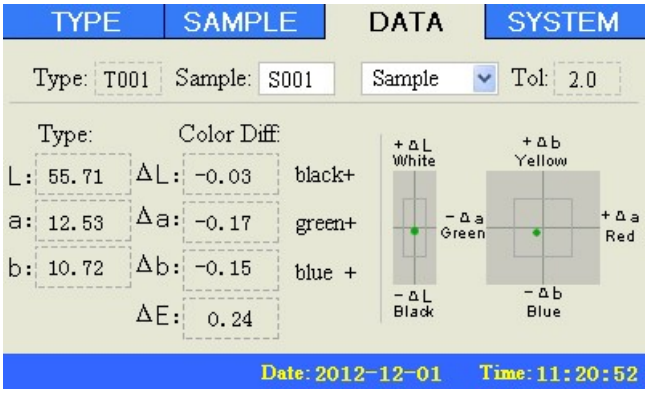

Figure 18. Check out Information Page

Figure 3.4. System Setting

Press "Paging" to switch the screen to "System Setting" page as shown on Figure 19 to set the data saving ways as well as light mode, tolerance, the system date and time during the measurement.

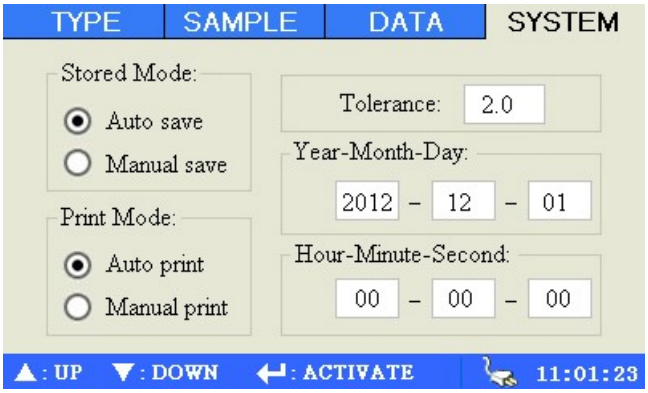

Figure 19. System Setting Page

3.4.1 Auto Save

As shown on Figure 19, there are two ways for saving which are "Auto Save" and "Manual Save".

When setting to Auto Save, system will auto save each time measurement data of the Type Sample or the Sample. If the saving records of the Type Sample or the Sample are full, the measurement data will not be saved and will pop up a window as shown on Figure 20 to prompt if the storage should be cleared.

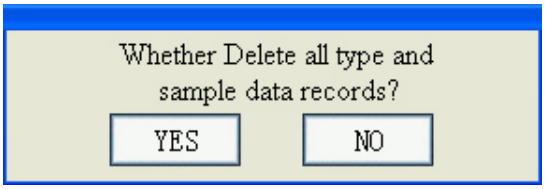

Figure 20. Pop up Window

3.4.2 Manual Save

When setting to Manual Save, system will not auto save data, it is required, after finishing measuring, to press "Save" for manually saving the data and will pop up a prompt box as shown on

Figure 21.

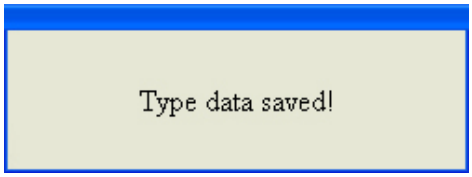

Figure 21. Prompt Box

3.4.3 SCI/SCE

The way SCI is a measurement, including specular objects reflect light.

The SCE is a measurement, not including specular objects reflect light.

3.4.4 Tolerance set

Tolerance set for judging standard setting, judge the color instrument to measure value Δ E is qualified.

3.4.5 Date and Time

Set the system date and time on the System Setting page as shown on Figure 19, adjust system date and time by "Confirm" as well as "Up" and "Down" keys.

IV. Product Specification

Model	WF30
Display Mode	CIE LAB
Color Difference fomula	△E*ab
Illumination condition	CIE Recommendation: 8/d
Light Source	LED Blue Excitation
Sensor	Photodiode Array
Measurement caliber	Φ8mm
Measurement condition	Observer: CIE 10* Standard Observer Light Source: D65
Measurement range	L: 0 to 100
Repetition	△E<0.05 (take the deviation average after 30 times measuring the whiteboard
Table difference	△E<0.2
Measurement interval	0.5 second
Battery	5000 times
Lifetime bulb	5 years more than 1.6 million measurements
Display	TFT true color 2.8 inch @(16:9)
Connector	Type B - USB RS-232 Baud rate 115200bps
Working temperature	0°C~40°C (32°F~104°F)
Storage temperature	-20°C~50°C (-4°F~122°F)
Humidity	Relative humidity less than 85%, without condensation
Weight	700g
Measurement	199x68x90 mm
Package measurement	390x220x340 mm
Standard accessories	Power Adapter Lithium Battery User Manual
Optional accessories	Micro Printer

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