

Operating conditions: Temperature: 0~40 ℃

Humidity: < 85%RH

Power supply: 3.7V lithium battery

Size: 140x45x75 mm

Whiteness and Brightness

RWB-206

When you buy this instrument, it marks a step forward in the field of precision measurement. The watch is a computer-centered test tool that, if properly operated, is robust enough to last for many years. Please read this carefully before use Keep the instructions in an easily accessible place.

1. Uses and characteristics

* The whiteness meter is mainly used to directly measure the whiteness value of objects or powders with flat surfaces.

* Can be widely used in textile printing and dyeing, paint, chemical building materials, paper and cardboard, plastic products, white cement, ceramics, enamel, talc, starch, flour, salt, detergent, cosmetics and other substances whiteness measurement.

* It is composed of light source, optical system, detection system, data processing and display system. The whiteness calculation formula of this instrument is blue light whiteness R457.

* Define the whiteness value of an ideal surface with a diffuse reflectance ratio of 1 across the visible spectral range as 100, and the whiteness of a black surface with a spectral reflectance factor of 0 as 0.

* Diffuse reflection is the reflection of light projected on a rough surface in all directions. When a beam of parallel incident light is emitted to the rough surface, the surface will reflect the light in all directions, so although the incoming rays are parallel to each other, because the normal direction of each point is inconsistent, causing the reflected light to reflect irregularly in different directions, this reflection is called "diffuse reflection" or "diffuse. Shoot".

* Through strict testing and debugging, the instrument conforms to JJG 512-2002 whiteness meter verification regulations, Comply with GB3978, GB3979, GB7973, GB7974, ISO2470, GB8904.2, QB1840, GB2913, GB13025.2, GB1543, ISO2471, GB10339, GB5950, GB12911, GB2409 and other standards.

* USB, RS-232C data line output and PC connection, data collection.

* There is also a Bluetooth Bluetooth data output option.

2. How it works

The light source of the instrument uses 457nm long-life LED, which meets the light source requirements stipulated in JJG 512-2002 national metrology verification regulations.

The measurement and reception of the instrument adopts the photoelectric effect principle. The diffuse radiance energy value received by the photocell is amplified by a high-precision automatic zero-stabilizing operational amplifier, then input to the calibration circuit for energy value calibration, and then the whiteness value of the sample is directly displayed by a digital display.

3. Precautions

This instrument is a measuring instrument, it is strictly prohibited to disassemble it at will, please read the instructions carefully before use.

* The working environment should be free from corrosive gases and vibration can be

exposed to dust, to avoid artificially affecting its nominal value.

* No strong light and magnetic field interference around.

* The surrounding air should be dry, no dust and other floating matter.

* The instrument is out of service for a long time and must be charged once every 3 months.

* Keep the measuring sensor clean and clean, do not touch the optical original with your hand, so as not to affect the spectral characteristics.

4. Specifications

Measuring range: Whiteness: 0~100 (blue light)
Reflectance: 0~100 (green light)
Resolution: 0.1
According to test conditions: 45/0
Light source: LED whiteness: 457 nm
Reflectivity: 550nm
Whiteness formula: Blue whiteness WB=R457
Measuring hole: 18x11mm rectangle
Zero drift: ≤0.1
Indicating stability: ≤0.5
Measurement repeatability: ≤1

Operating conditions: Temperature: 0~40 ℃
Humidity: < 85%RH
Power supply: 3.7V lithium battery
Size: 140x45x75 mm
Weight: 305 g (including battery)

Standard accessories:

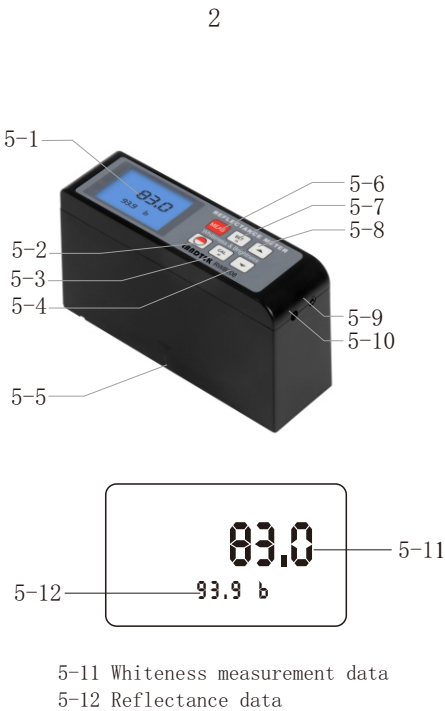
Host machine
Standard plate
Optical cleaning cotton cloth
Portable case
Instruction manual

Optional accessories:

Constant pressure powder shaper
USB, RS232C communication cable and software
Bluetooth adapter and software

5. Panel description

5-1 Display screen	5-7 Calibration value
5-2 Power button	setting key
5-3 CAL Calibration key	5-8 ▲ Add keys
5-4 ▼ minus key	5-9 RS232 ports
5-5 Bottom sensor	5-10 DC ports
5-6 Measurement keys	



6. Measurement procedures

6.1 Usage Notice
6.1.1 Before using the instrument, you must read this manual carefully and strictly follow the prescribed working conditions and use methods.

6.1.2 The standard board is used for calibration and calibration when the instrument is working, and the surface must be kept clean, not exposed to dust, and avoid artificial shadow Ring its nominal value.

6.1.3 Keep the optical parts of the instrument clean, do not rub with hands, such as optical parts have dust, use the ear wash ball to blow the surface dust or wipe with mirror paper, such as optical parts have oil, mold, etc., use the absorbent cotton ball dipped in anhydrous alcohol to wipe the surface of the parts.

6.1.4 Wipe the measuring port with a clean optical cleaning cotton cloth before starting the machine to avoid contaminating the test sample.

6.1.5 The surface of the tested sample shall be uniform and flat, and the consistency of the vertical and horizontal directions of the tested sample shall be maintained during

repeated testing. For the test of non-flat and uniform samples (such as powder, particles, fibers, etc.), the sampling method is shown in sample preparation.

6.2 Sample Production

6.2.1 If there is an "uneven" phenomenon that cannot be improved on the measuring surface of the sample, or there is a difference between horizontal and longitudinal markings, the sample can be measured at different positions or angles, and the average value of the measured whiteness is taken to represent the whiteness of the sample.

6.2.2 For paper, cloth and various fiber fabrics, overlapping several layers of samples shall be taken to make them opaque until (for paper, several pieces of 50x70 mm samples shall be taken to make them opaque until the whiteness value of the sample is unchanged by increasing the number of pieces of the sample).

6.2.3 For powder or fine granular samples, the sample should be stored in a powder container and the surface of the sample should be flattened with a clean and polished glass plate. Because different test

conditions will bring different test results. Therefore, in order to establish the whiteness value relationship between similar samples, the sampling method of test samples must be unified. Including weight, particle size and compaction method, so that the samples have similar density and surface smoothness. If higher measurement accuracy is required, constant-pressure powder formers should be selected.

6.2.4 For fibrous articles, such as cotton, chemical fiber, wool, silk, etc., after finishing, combing into a longitudinal surface, and then placed in the self-made sample box for testing, the sampling method (including the number) should be unified, and it is appropriate to make several samples to measure the average value.

6.3 Measurement and calibration

6.3.1 The instrument has been calibrated and adjusted before delivery, and can be used normally (when there is an error in the measuring standard board of the instrument, follow 6.3.3 operation). No need to preheat after starting, can be measured directly. Press the power button to turn on the device, place the instrument flat on the sample during measurement, completely fit on

the sample surface, and display the whiteness and reflectivity at the same time after measuring by the Meas key.

6.3.2 Setting the calibration value of the instrument, hold down the SET setting key for 3 seconds, the standard whiteness value of the display screen flashes, and then press the Add or subtract key to modify the standard whiteness value. After the modification is completed, press the SET setting key again to convert to the reflectivity value. The same method is used to modify the reflectivity value, and press the power key to exit after modification, that is, the modification is complete (while the calibration data is automatically saved).

6.3.3 Calibration is required after the instrument has been used for a period of time. At this time, just place the standard board on the horizontal table, lay the instrument flat on the standard board, stick to the standard board, press and hold the CAL calibration button for about 3 seconds, and the word CAL will be displayed on the screen, and the calibration is completed. Measurements can continue.

7. Transfer the measurement data to the computer

7.1 USB, RS232 online operation

7.1.1 When the instrument is equipped with RS232 software and related accessories, the measurement data can be transmitted to the computer.

7.1.2 Insert the RS232 software CD-ROM into the computer drive and install the software.

7.1.3 Connect the instrument to the computer via USB, RS232 cable

7.1.4 Send data once for every measurement, Sync to the computer. Users can be based on the actual You need to export the desired file format.

7.1.5 For online measurement, see Software Demo.exe in the CD-ROM.

7.2 Bluetooth Online Operations
When the instrument is equipped with Bluetooth online module and its adapter, the measurement data can also be transmitted to the computer. For details about Bluetooth online operations, see the Bluetooth Adapter Operation Guide.

8. Maintenance

8.1 Standard Board

Random work standard board, should be regularly sent to the unit of measurement or industry test center station for approval, it is recommended that once every six months. If it is contaminated, it should be checked and re-calibrated in time after cleaning.

8.2 Light Source Lens

It is strictly forbidden to touch with hands, so as not to leave sweat traces and affect the spectral transmittance. After a long period of use, the absorbent cotton is dipped in anhydrous alcohol, held with tweezers, carefully wipe the lens surface, and then wipe it clean with dry absorbent cotton.