Coating Thickness Gauge

Code: 86238

User Manual V1.23

Please read this manual carefully before using and reserve it for reference.

I. Product Introduction

The coating thickness gauge is professionally used for the measurement of the painting film thickness of car bodies. Generally, car bodies are made of metal materials, such as iron and aluminum, and non-metal materials, such as carbon fiber and plastics. The gauge can measure the painting film thickness on the ferrous and aluminum materials. Moreover, it can identify not only non-metal car bodies, but also the ferrous putty layer as well as the galvanized iron. With 3 colors of indicator lights, it makes the measurement results clear at a glance. The instrument also integrates Bluetooth function, which can use cell phone APP or WeChat mini program to record the paint thickness value of different parts of the car and the corresponding shell material, and can generate test reports and information plates to share with friends.

Product standards:

- *DIN EN ISO 2808 Paints and Varnishes - Determination of Film Thickness.*
- *JJG-818-2005 Verification Regulation of Magnetic and Eddy Current Measuring Instrument for Coating Thickness.*
- *GB/T 4956-2025 Non-Magnetic Coatings on Magnetic Substrates-Measurement of Coating Thickness - Magnetic Method.*
- *GB/T 4957-2025 Non-Conductive Coatings on Non-Magnetic Base Metals - Measurement of Coating Thickness - Eddy Current.*

II. Technical parameters

Probe tip	Ruby
Measurement principle	Fe: Hall effect / Al: Eddy current
Probe type	External cable probe
Measuring range	0.0-5000μm
Resolution	0.1μm/1μm/10μm
Accuracy	0-3000μm: ≤±(3%H+2μm), H is the standard value 3000-5000μm: ≤±(5%H+2μm), H is the standard value
Unit	μm / mil
Measuring interval	0.5 s
Minimum measuring area	Ø = 15mm
Minimum radius of curvature	Convex: 5mm / Concave: 25mm

Minimum substrate thickness	Fe:0.2mm / Al:0.05mm
Display	128×48 dot matrix LCD
Power supply	Rechargeable lithium battery 3.7V@1200mAh
Range of working temperature	-20℃-50℃
Storage temperature range	-20℃-60℃
Host size	101*62*28 mm
Probe size	64*15*11 mm
Weight (including battery)	105g
Data transfer	Bluetooth
Supply Voltage	DC5V
Operating Current	10mA
Operating Power Consumption	50mW

III. Product Features

1. No need for calibration, only zero adjustment is required.
2. Only one button for extremely simple operation.
3. Quick measurement, only 0.5s for one measurement.
4. With continuous measurement mode for fast slide detection.
5. The device can identify the ferrous putty as well as the galvanized iron substrate. It also features 3-color backlight display.
6. 3- color indicator light, make the measurement at a glance.
7. Built-in bluetooth, can use APP, WeChat small program, to achieve the whole car test data recording, and generate test reports.
8. Built-in rechargeable lithium battery, the instrument ultra-low power consumption, charging once to last more than 50 hours of use.
9. The wear resistance of the ruby probe ensures the long-term effective use of the device.
10. The iron and aluminum dual-purpose probe can automatically identify iron, aluminum and non-metal

substrates. And the device can quickly and automatically switch measurement mode.

11. It can measure the thickness of not only the non-magnetic coating on the magnetic metal substrate such as steel, but also of non-conductive coating on the non-magnetic metal substrate such as copper and aluminum.
12. Thanks to the advanced digital technology that processes the digital signal directly in the probe, the probe is not susceptible to interference and provides excellent measurement accuracy. Even the change of temperature will not affect the accuracy of measurement. Readings remain stable to ensure good repeatability throughout the measurement process.

IV. Operation

1. Power on/off

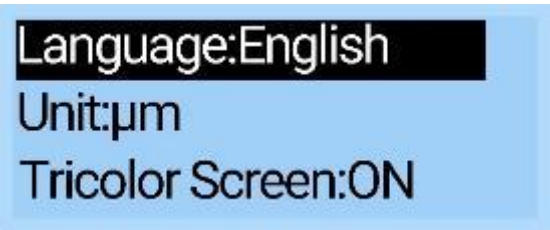
Power on:
Shortly press the button to turn on the device. After powering on, the device firstly displays firmware version and SN, and then enters the interface of the latest record.

Power off:
Long press the button to turn off the device. The device will automatically shut down after 3 minutes without operation.

2. Device setting

In the power off status, long press the button for 3s to enter the device setting interface. After that, if there is no operation for more than 20 s, the device will automatically shut down. Shortly press the button to select; and long press the button (3s - 5s) to confirm; and press the button more than 5s is to exit “Setting” and turn off the device, and the settings will be invalid.

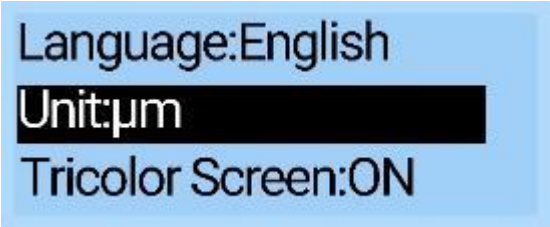
Language settings
The instrument is available in Chinese, English, Russian, Turkish、Ukrainian, German.
Setting method: In the main setting interface, short press power button to select "Language" option, long press the button for 3 seconds to confirm the selection, short press the button again to select the desired language, long press the button for 3 seconds to confirm the selection, and return to the main setting interface.



Setting interface

Unit setting

The device can be set to the metric or imperial unit, and the factory default is metric.
Setting method: In the main setting interface, shortly press the button to select “Unit”. Long press the button for 3s to confirm and then enter the unit selection interface. Shortly press the button to select your unit and long press the button for 3s to confirm and back to the main setting interface.

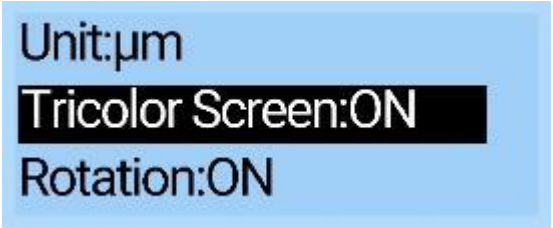


Main setting interface

Unit selection interface

Tricolor Screen Setting

The instrument can be set to enable or disable the three-color backlight of the screen. The default setting upon factory release is to have the three-color backlight enabled.
Setting method: On the settings main interface, press the button shortly to select 'Tricolor Screen.' Press and hold the button for 3 seconds to enter the selection interface. Then, press the button shortly to choose to turn it on or off. Hold the button for 3 seconds to confirm the selection and exit to the settings main interface.

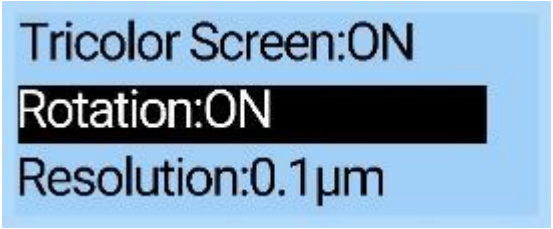


Main setting interface

Tricolor selection interface

Rotation Setting

The instrument can be set to enable or disable the screen rotation function. The default setting upon factory release is to have it enabled.
Rotation On: In measurement mode, the short button is for screen rotation without history record query function.
Rotation Off: In measurement mode, the short button is for history record query without screen rotation function.
Setting method: On the settings main interface, press the button shortly to select 'Rotation'. Press and hold the button for 3 seconds to enter the selection interface. Then, press the button shortly to choose to turn it on or off. Hold the button for 3 seconds to confirm the selection and exit to the settings main interface.



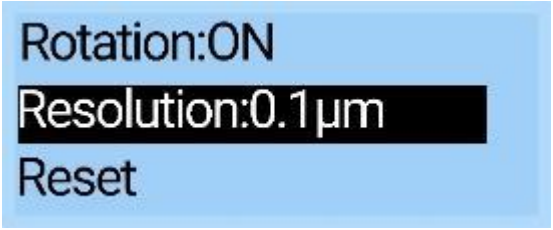
Main setting interface Rotation selection interface

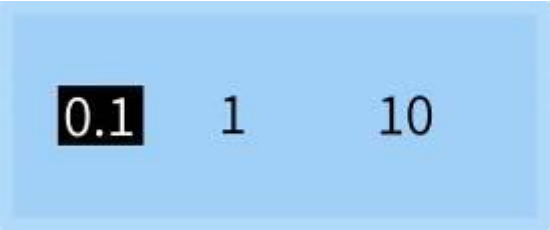
Resolution Setting

The instrument allows for resolution settings of 0.1μm, 1μm, and 10μm, and the factory default is 0.1um.

- 0.1μm Resolution: 0.1μm: (0μm – 999.9μm), 1μm: (1000μm – 5000μm).
- 1μm Resolution: 1μm: (0μm - 5000μm).
- 10μm Resolution: 10μm: (0μm - 5000μm).

Setting Method: On the main settings interface, press the button shortly to select 'Resolution.' Press and hold the button for 3 seconds to enter the selection interface. Then, press the button shortly to choose the desired resolution. Hold the button for 3 seconds to confirm the selection and exit to the settings main interface.

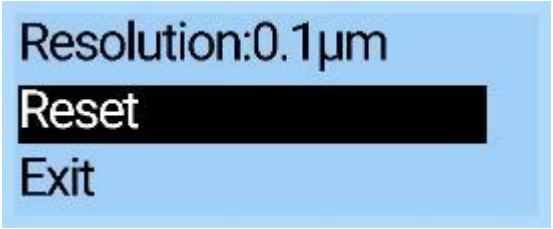




Main setting interface Resolution selection interface

Reset

Setting Method: On the main settings interface, press the button shortly to select ‘Reset’. Press and hold the button for 3 seconds to enter the selection interface. Then, press the button shortly to choose the ‘Yes’ or ‘No’. Hold the button for 3 seconds to confirm the selection and exit to the settings main interface.



Main setting interface Reset interface

After "Reset", the default parameters are as follows:

Item	Language	Unit	Tricolor Screen	Rotation	Resolution
Reset	No Reset	μm	ON	ON	0.1

Exit

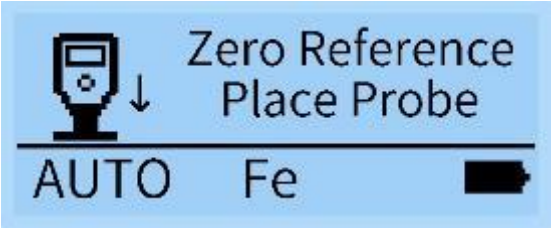
In the main setting interface, short press power button to select "Exit", long press the button for 3 seconds to confirm and enter the measurement interface

3. Zero adjustment

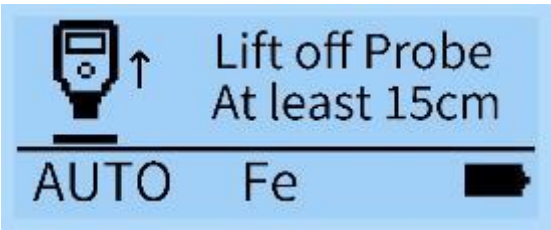
Zero-adjustment is suggested in the purpose of reducing measurement errors under circumstances as below: the device is used for the first time, the battery is replaced, the measurement material or environment temperature changes. Using iron-base and aluminum - base adjustment plates respectively to carry out zero adjustment. It is strongly recommended to use the same kind of uncoated or un-plated workpiece surface for zero adjustment because there may be differences in physical properties such as magnetism or conductivity between the tested material and the zero adjustment plate. If there is no uncoated or un-plated workpiece, you can use the attached aluminum or iron standard plate to complete one zero-adjustment. Choose the corresponding plate according to different materials to be measured.

1) When to measure the zero adjustment plate or uncoated or un-plated workpiece (substrate), the device will display a measurement value. (In the measurement, press the probe vertically against the central position of the zero adjustment plate or substrate. Keep the probe stable without tilting or shaking.)

2) Keep the probe still, and long press the button for 3s, the device will prompt: “Zero Reference, Place Probe” (as shown in the figure below).



3) After hearing the buzzer alert, the device will prompt: “Lift probe off at least 15cm” (as shown in the figure below). Then release the button, lift the probe and leave the zero adjustment plate or substrate for more than 15 cm.



4) After hearing the buzzer alert again, the LCD displays “0.0”, indicating that the zero adjustment is complete.

5) After that, place the testing film marked with the standard value on the zero adjustment plate, if the value is stable and consistent with that on the standard film (deviation: ±5μm), the device can be used normally.

Note: Due to the roughness of, and dust, scratches, etc. on the workpiece surface, after zero adjustment, the device may not necessarily display 0μm when measuring the same position again. The operation of the device must be correct and skilled; otherwise it will cause the instability of the measurement value.

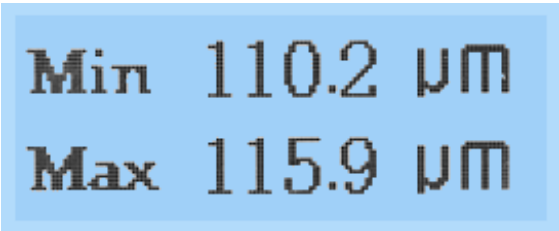
4. Measurement

- Single measurement

1) Hold the non-slip groove with your fingers.
2) Press the probe against the tested object surface vertically. Keep the probe stable, do not tilt or shake. Measurement value will appear on the display with buzzer alerts and indicator light.
3) To continue the measurement, you can lift off the probe away from the object to be measured, and then follow step 2) again.
4) When the device identifies the ferrous putty, it will turn on the red backlight. The buzzer alerts for two times. And the interface of the device will prompt: “Ferrous putty”.
5) When the device identifies the galvanized iron, the substrate is displayed as “FeZn”.

- Continuous Measurement

1) Hold the non-slip groove with your fingers.
2) Press the probe against the tested object surface vertically. Keep the probe stable, do not tilt or shake. Measurement value will appear on the display with buzzer alerts and indicator light.
3) Continue to press and hold the probe for 2S, the instrument enters the continuous measurement mode, 0.5S to measure a data, you can slide the probe to measure different positions of the measured object.
4) When the probe is lifted, the continuous measurement mode ends and the instrument displays the maximum and minimum values under continuous measurement.



- Different color backlight according to the measured thickness:

White backlight: The measured paint thickness is <170um;
Yellow backlight: The measured paint thickness is between 170um - 350um;
Red backlight: The measured paint thickness is >350um.

5. View measurement records

In measurement mode, shortly press the button to view historical data. The device can store up to 9 groups of data. If 9 groups are exceeded, it will automatically delete the oldest recorded value. Record No. 1 is the latest measurement value. And in the power off status, recorded values will not lose.

V. Bluetooth communication

The instrument has built-in Bluetooth communication module, which can use mobile APP and WeChat Mini Program.

1. Mobile APP Installation Requirements and Methods

Use the mobile browser scan the QR code on the instrument download and install the CTGauge App. After the installation is complete, the “CTgauge” icon will appear as shown below.

2. How to connect the device

1) Open the APP. If there is no bound Bluetooth device, then enter the Bluetooth setting interface. Click "Start Searching", prompt "Searching for device... " and list the available Bluetooth devices that are searched; click the "Stop Searching" button to stop searching for Bluetooth devices. Selecting gauge serial number will bind the selected gauge (prompt: each gauge has a unique serial number).After the connection is successful, it will automatically enter into the main measurement interface and Bluetooth icon will be displayed at the bottom right of the gauge screen.

2) If the APP has a bound Bluetooth device, automatically search and connect the bound Bluetooth device. When the connection is successful, it will automatically enter the “Measure” interface.

3. WeChat Mini Program Download

Scan the cover QR code with mobile WeChat to download the WeChat mini program.

VI. Attentions

1. The device must be zero adjusted respectively with the iron-base and aluminum-base zero adjustment plates. Otherwise, there may be abnormal identifications of the ferrous putty and galvanized iron substrate.

2. Some car bodies may be misjudged as iron-zinc car bodies due to the base material.
3. Please ensure that the paint surface of the car body is clean. Dust, dirt and other foreign objects on the surface will affect the measurement accuracy.
4. When the device displays “Low Battery”, it should be charged in time.
5. If the instrument is not used for more than half a year, it needs to be charged regularly to prevent the battery from being damaged by excessive discharge

VII. Packaging details

S/N	Item	Quantity	Unit
1	Coating thickness gauge	1	set
2	Fe zero adjustment plate	1	pcs
3	Al zero adjustment plate	1	pcs
4	Standard film	1	pcs
5	User manual	1	pcs

VIII. Services

1. The gauge has one-year warranty. If the gauge works abnormally, please send the whole gauge to our company for maintenance.
2. Provide users with spare parts and lifelong maintenance services.
3. Provide the users with the gauge calibration service.
4. Free technical support for long term.