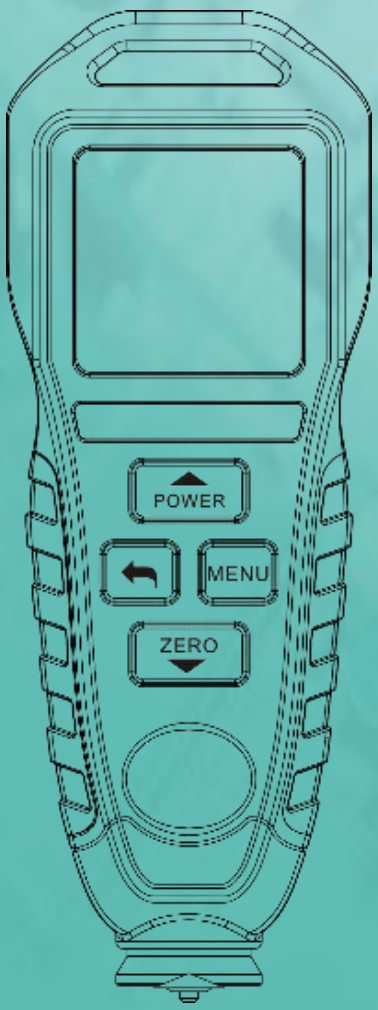
Coating Thickness Gauge
User Manual



Preface

- Dear users
- Hello! Thank you for purchasing the coating thickness gauge of our company. In order to use this product correctly, please read this manual carefully, especially the part about "precautions".
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- If you have read this manual, it is recommended that you store it together with the coating thickness gauge, so that you can refer to it at any time in the future.
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- Statement
-
- The company guarantees that the product will be free from any defects in materials and workmanship within one year from the date of purchase. This guarantee does not apply to damage caused by accident, negligence, misuse, modification, pollution and abnormal operation or handling. The distributor has no right to give any other guarantee in the name of the company. If you need warranty service during the warranty period, please contact the dealer you purchased to obtain the product return authorization information; Then send the product to the dealer with a description of the problem.

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1.Summary

This product is a high-performance composite coating thickness gauge which integrates Fe and NFE measurements. The product has the characteristics of high precision, stable and reliable performance, no damage measurement and so on.

It also has the functions of single point, multi-point average algorithm and rapid judgment of industrial products. It is a necessary instrument for automobile manufacturing, sales, evaluation, metal processing, painting, inspection and other industries. It can be widely used in manufacturing, metal processing, aerospace, shipping, automotive, scientific research, quality inspection and other industries and fields.

The product is based on the principle of electromagnetic induction and eddy current measurement. The principle of electromagnetic induction measurement is to measure the coating thickness by using the magnetic flux flowing into the ferromagnetic substrate from the sensor. The instrument display symbol is Fe.

The principle of electromagnetic eddy current measurement is to measure the coating thickness by using the eddy current of non-magnetic metal substrate (such as aluminum) formed by AC magnetic field. The instrument display symbol is NFE.

2. Product features

（1）The measurement method is in accordance with GB / T 4956 magnetic method for measuring the thickness of non-magnetic coating on magnetic metal substrate.

（2） The measurement method conforms to GB / T 4957 eddy current method for measuring the thickness of non-conductive coating on non-magnetic metal substrate.

（3）The thickness of non-magnetic coating on magnetic metal substrate and non-conductive coating on non-magnetic metal substrate can be measured by magnetic and eddy current methods.

（4） Automatic identification of iron matrix or non-iron matrix.

（5） The sensor adopts gem embedding technology, which has the characteristics of precision, wear resistance and stability.

（6）In order to correct the sensor system error and ensure the accuracy of instrument measurement, the instrument can be calibrated.

（7）Display the color of the measured value to indicate whether the current measured value exceeds the limit value. The measured value of main display is white, indicating that it is within the measurement limit; If the main display measurement value is red, it means that it is lower or higher than the limit range.

（8）The measurement can be prompted with sound or silence.

（9）The screen display angle can be adjusted, which is convenient for users to read the measured values from different angles.
(10), it can save 100 groups of data.

3. Accessary check

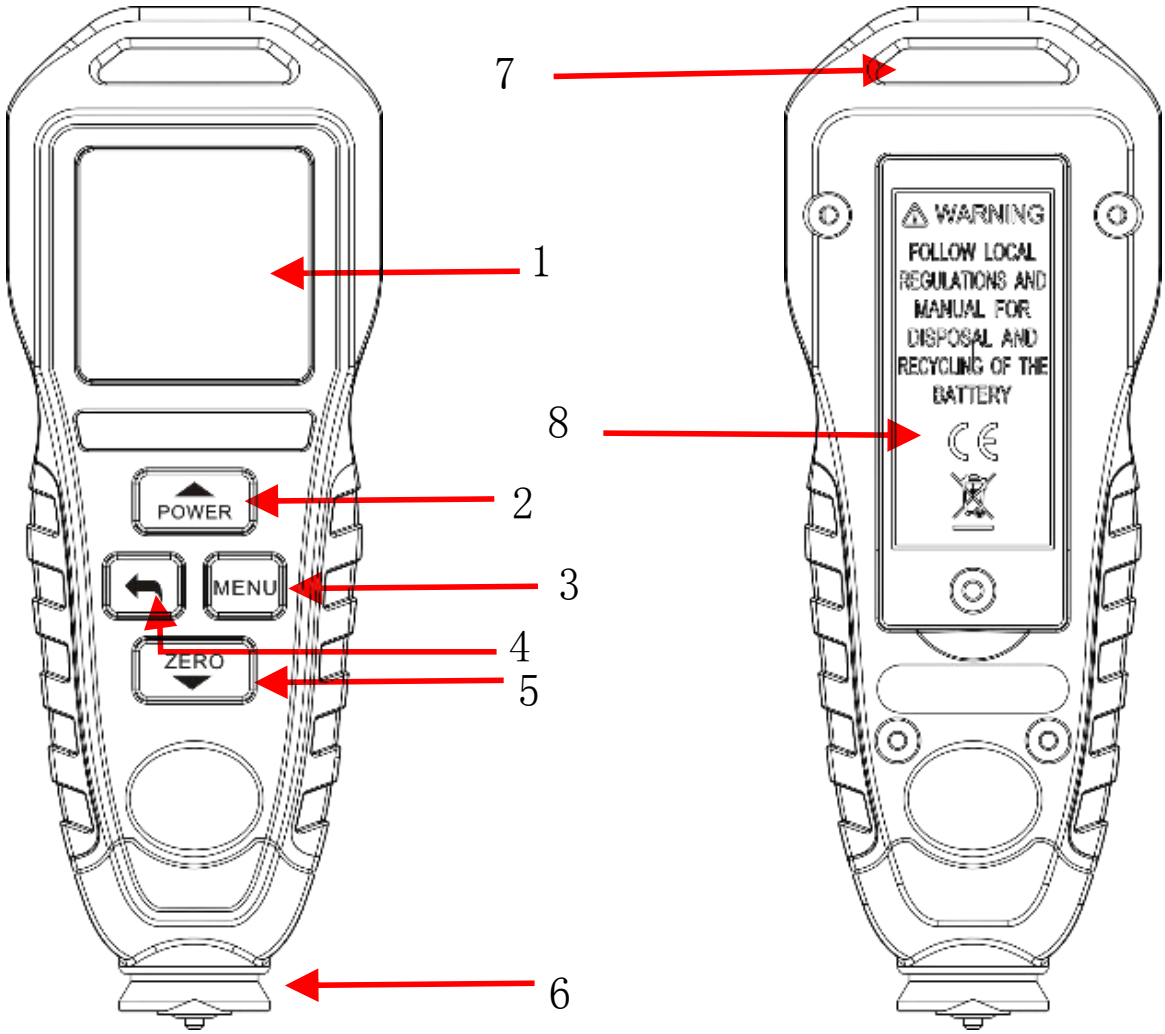
Open packing box, take out the product and check all the following accessories:
Main meter.
User manual: 1
Standard film thick plate: 1 set (5 pieces in total)
Ferrous substrate：1 piece
Non-ferrous substrate：1 piece
Warranty card：1
Sensor protective cover: one (use to cover on the probe)

4. Precautions

(1). Please calibrate the product before using. Please refer to the specific operation in "calibration settings" section of the manual.
(2). When the product is turned on, the initialization self-test will be carried out. And then please do not put the product sensor close to any metal object, otherwise it will not be able to be used. And it needs to be used after it is turned on again without metal proximity sensor ring.
(3). Please keep the sensor clean and intact to avoid dust, oil and other factors affecting the measurement accuracy.
(4). Please do not use or store the product in places like high temperature, high humidity, inflammable, explosive and strong electromagnetic interference, so as to prevent the measurement of the instrument from being affected or damaged.
(5) .Maintenance: please use soft cloth and neutral detergent to clean the shell. Do not use abrasive and solvent to prevent the shell from being corroded and damaging the product.
(6). Do not disassemble and refit the product without permission to avoid damaging the product.

(7). When the display screen shows the low power warning interface, replace the battery in time, and take out the battery if don’t use it for a long time.
(8). The battery is ordinary AAA alkaline battery. Remember don’t charge the battery.
(9). The standard diaphragm is a high-precision accessory, which is related to the accuracy of the meter. It needs to be properly preserved to prevent its surface from scratch, corrosion, bending, deformation, etc.
(10). The metal substrate is a precision accessory. The precision accessory of the meter needs to be properly preserved to prevent its surface from scratch, rust, oxidation, deformation, etc.
(11). If there is an error when using the meter, please conduct the calibration again according to the calibration steps.

5.Product functions instruction



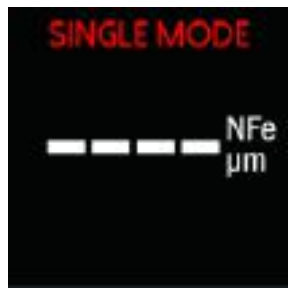
1. Display screen
2. Power/Up button
3. Menu/Enter button
4. Back/Record button
5. Clear/Down button
6. Sensor test probe
7. Hang rope hole
8. Battery compartment

6. Using instruction

(1) Single point test:

a. Short press 

button to turn it on, it will calibrate automatically, it will enter into single point test mode by default , check the following picture:



b. Now, the single point mode measurement can be carried out, and the meter can automatically judge whether the measured is Fe or NFE substrate, and the displayed unit is μm by default. check the following picture:

Attention:

a) If you need to change the display unit to mil, you can enter "system settings" - "unit" setting change (please refer to the introduction of unit settings later for the change operation steps).

b) When the measured value is lower or higher than the limit value, the data displayed on the screen will be displayed in red, as showing in the following picture:

c) In the single point measurement mode, the speed of jumping from the previous measurement point to the next measurement point should not be too fast to avoid misjudgment.

d) During the measurement, 3-5 points are selected on the surface of the object to be measured, each point is measured 5 times, and the

average value of 5 times is taken as the value of the point.

c. In single point test mode, short press  button, the pattern  will show in the top right corner of the screen, the test values will save in  of the meter.

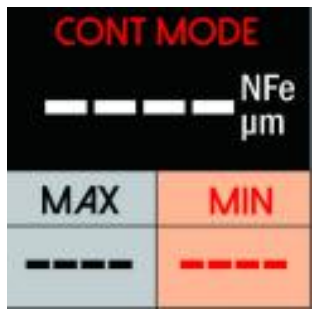
Attention:

a) The number of data that can be stored in the instrument is 100 groups. If the recorded data exceeds 100 groups, the screen will pop up the warning interface that the storage is full. At this time, it will prompt that the stored data needs to be cleared and the storage space can be released before the measurement data can be stored.

（2）Continuous mode test

a. In “SINGLE MODE”, press 

button to quick switch into “CONT MODE”.

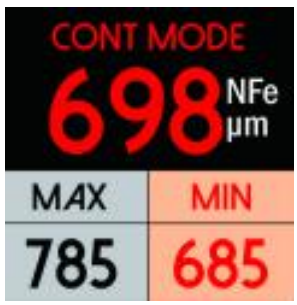


b. At this time, the continuous measurement mode can be carried out, and the meter can automatically judge whether the measured substrate is Fe or NFE substrate. At the same time, the maximum and minimum values of the measurement can be displayed, and the displayed unit is the default μm. As shown in the following figure:

Attention:

a) **If you need to change the display unit to mil, you can enter the system settings change (see the introduction of unit settings later for the change operation steps).**

b) **When the measured value is lower or higher than the limit value, the data displayed on the screen will be displayed in red, as shown in the following figure .**

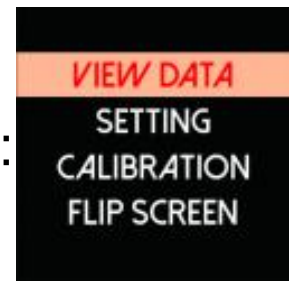


c. In single point test mode, short press  button, the pattern  will show in the top right corner of the screen, the test values will save in  of the meter.

Attention:

a) **The number of data that can be stored in the instrument is 100 groups. If the recorded data exceeds 100 groups, the screen will pop up the warning interface that the storage is full. At this time, it will prompt that the stored data needs to be cleared and the storage space can be released before the measurement data can be stored.**

(3) Menu setting and check



Short press MENU to enter in menu page: Press POWER or ZERO button to jump into the mode what you want, then press MENU button to enter into selection page , press button turn back to previous menu.

a. Check data, delete data

In menu page: 

, press MENU button to enter into checking data page: 

,press POWER or ZERO button to enter into selection page and choose what you want , then press MENU button to functions, press ↩ to go back to previous menu.

Attention: to view the recorded data, the data information will be called out only when the recorded measurement data is stored in the recorded measurement mode.

b. System setting:

In the menu interface : 

, press the POWER or ZERO jump to the "system settings" option 

Then press MENU button to enter into system setting menu 

, press POWER or ZERO to jump to the selection page, then press MENU to enter into selection menu, press ↩ to go back to previous menu.

c. limit setting

In the interface 

, press MENU button to enter the limit setting menu , press the MENU button to jump to the limit setting page;

Press the POWER or ZERO to adjust to the value to be set;

After setting, press MENU to confirm and return to the previous menu.

Attention:

a) limit setting range are in 0~1250μm (0~49.2mil).

b) Upper limit must be bigger than lower limit , or it will be failed.

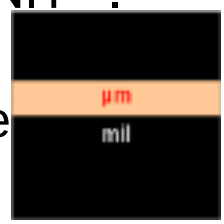
d. Unit setting

In 

page, press POWER or ZERO to

enter into 

page and choose ‘UNIT’.

Press MENU to enter into unit choose page 

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Press POWER or ZERO to choose unit, press MENU to confirm and go back to previous menu.

e. Voice setting

In this 

page, press POWER or ZERO

to jump to “VOICE” selection; press MENU button to enter into voice setting page to turn it on/off.

Press POWER or ZERO to turn on/off the voice and

then press MENU to confirm and go back to previous menu.

f. Language setting

In this 

page, press POWER or ZERO to

enter into ‘LANGUAGE’ selection 

; press

MENU button to set language 

;

press 

or 

to choose language, then press 

to confirm and go back to the previous menu.

g. Calibration setting

In this 

page, press 

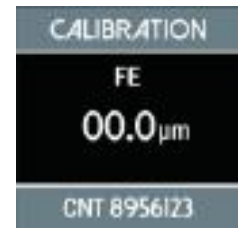
or 

button to enter into “CALIBRATION MODE” 

Then press 

to enter into calibration mode , press 

to go on as the prompt on the screen.

In the page of calibration mode 

, now enter into zero point calibration mode:

Put the iron substrate on the flat place of table, press the meter sensor hard on the substrate directly and keep press for 3-5 seconds, then press 

to confirm when the value is stable, when heard “Di” , it means the calibration completed.

Attention: no sound prompt if set turning off the voice.

Meantime, the page will automatically jump to next calibration point 

.

Now put the 50 μm diaphragm on the iron substrate. Then hard press the meter sensor on the standard diaphragm.

Then press MENU to confirm.

Attention: If the value of the supplied diaphragm is not exactly in the integer, adjust the value to be consistent with the value of the diaphragm by pressing POWER or ZERO , and then press MENU for calibration confirmation.

Then calibrate 100μm，250μm，500μm，1000μm，1250μm (this point is calibrated by putting 250 μm+1000 μ M diaphragm for calibration at the same time).

Attention:

1. When the calibration step jumps to the interface

, directly pick up the meter and press MENU to confirm; When press MENU confirms the calibration of this

step, the calibration of Fe material will pop up, and whether the user needs to calibrate the non-ferrous substrate (NFE) material. If it is necessary , press the to

continue, and the operation method is the same as the calibration procedure of the iron substrate;

2. If no need calibration, press MENU to turn off, then turn it on again to test;

3. In the calibration, if a point test is over and jumped to next one testing , long press POWER to POWER

go back to the last point to test it again if it is wrong.

4. After the calibration of the last calibration point is

completed, when the interface

pops up, if

you want to return to other calibration, you can long press the POWER to adjust to the first calibration point before,

and then select the point you want to recalibrate again. If you long press the 

directly in this Interface, it will turn off. After turning off, if you want to recalibrate the wrong calibration point, you need to perform the operation steps again according to the above calibration method.

h. screen flip setting

In order to make it convenient for users to read from different angles during operation, the meter has the function of screen flipping.

In the menu interface 

, press 

or 

to jump to the "flip screen" option 

,

and press 

to operate the required flip direction.

Then press  to exit to the measurement interface.

7. Replace battery

a. Before or during the use of the product, the low battery prompt interface will pop up on the screen. At this time, use a suitable screwdriver, turn the screw in counterclockwise, open the battery cover, and install two new AAA batteries according to the indication in the battery compartment.

b. After the battery is installed, always cover the battery cover and tighten the screw in clockwise.

8. Electrical Specifications

Functions	Range	Resolution	Error range
FE substrate test(FE) No-FE substrate test(NFE)	0~99.9 μm	0.1 μm	±(3%+1)μm
	100~1250 μm	1 μm	
	0-4.99mil	0.01mil	±(3%+0.04)mil
	5.0~49.2mil	0.1mil	
Features			
Auto recognition	sensor auto recognition substrate type		
Screen	1.44inch TFT LCD		
Minimum radius of curvature of convex surface	5mm		
Minimum radius of concave curvature	50mm		
Minimum measured area diameter	20mm		
Test mode	Signgle mode/continue mode		
Unit	um/mil（1mil=25.4μm）		
Data hold	Auto hold the last testing value		
Backlight	Keep bright in power on situation		
Voice prompt	testing,warning with prompt voice		
Data save	100 group		
Screen flip	Manual setting（0°/90°/180°/270° 4 directions）		
Low power prompt	Pop up to prompt low power		
APO	auto power off without operation in 3 minuetes		
Power type	2*1.5V AAA Alkaline battery		
Work enviorment	Hight<2000m，-10~50℃，≤80%RH		
Save enviorment	-20~60℃，≤75%RH		
Product size	140*40*27mm		
Product weight	About 80g		