

Coating Thickness Tester User Manual



Please read this manual before switching the unit on.
Important safety information inside

Contents	Page
1. General Information	4
1-1. Application	5
1-2. Description of the Gauge.....	5
1-3. Supply Schedule.....	5
1-4. Probe.....	5
1-5. Specifications.....	6
1-6. Front View.....	7
1-7. LCD Display.....	7
2. Ready to start.....	8
2-1. Power Supply.....	8
2-2. Replacing the Battery.....	8
2-3. Menu System and Basic Settings.....	8
3. Settings.....	9
3-1. Unit Setting.....	9
3-2. Backlight Setting.....	9
3-3. Auto Power Off.....	10
3-4. Turn on/off Bluetooth.....	10
3-5. Adjust gray scale (contrast).....	11
4. System Information.....	11
4-1. System version number and gauge serial number display.....	11
4-2. Data View.....	11
5. Calibration and Measurement.....	12
6. Zero-point calibration of Fe or Non-Fe	12
7. Delete Fe or Non-Fe Zero-point.....	12
8. Delete Functions.....	13
9. Trouble Shooting.....	13

1. General Information

The coating thickness gauges work either on the magnetic induction principle or on the eddy current principle, depending on the type of probe used. You can select the type of probe via MENU system, or it will work automatically.

Features

- Measured Coatings: Non-magnetic coatings (e.g. paint, zinc) on steel; Insulating coatings (e.g. paint, anodizing coatings) on non-ferrous metals
- Operating with MENU easily
- Memory for 2500 readings
- Delete single readings and all group readings easily
- Error indication
- Data transferred to PC via Bluetooth for analysis
- Disable Auto-Power-off function via MENU setting

1-1. Application

- This compact and handy gauge is designed for non-destructive, fast and precise coating thickness measurements. The principal applications lie in the field of corrosion protection. It is ideal for manufacturers and their customers, for offices and specialist advisers, for paint shops and electroplaters, for the chemical, automobile, shipbuilding and aircraft industries and for light and heavy engineering.
- The coating thickness gauge is suitable for laboratory, workshop and outdoor use.
- The probe can work on both principles, magnetic induction and on the eddy current principle. One probe only is required for coating measurement both on ferrous and non-ferrous metal substrates. It is adaptable to specific tasks: i.e. they can be used on special geometries or on materials with special properties.

1-2. Description of the Gauge

- For measurement on steel substrates, the gauge works on the magnetic induction principle, for measurement on non-ferrous metal substrates, it works on the eddy current principle.
- Measured values and user information are shown on LCD. The display with backlight ensures easy reading of screen data in dark conditions.

1-3. Supply Schedule

Gauge with two AAA 1.5V batteries, plastics carrying case, operating instructions (English), steel and aluminum substrate, and standard flake for calibration.

1-4. Probe

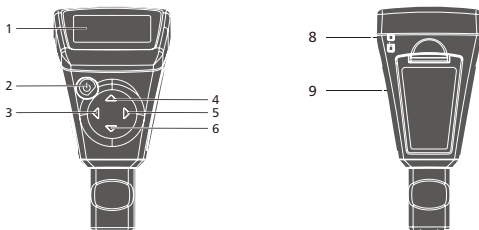
The Probe systems are spring-mounted in the probe sleeve. This ensures safe and stable positioning of the probe and constant contact pressure.

A V-groove in the sleeve of the probes facilitates reliable readings on small cylindrical parts. The hemispherical tip of the probe is made of hard and durable material. Hold the probe by the spring mounted sleeve and put on measuring object.

1-5. Specifications

Sensor probe	F	N
Working principle	Magnetic induction	Eddy current principle
Measuring range	0~2000 μ m	0~2000 μ m
	0~78.7mils	0~78.7mils
Guaranteed tolerance (of reading)	0 ~ 1000 μ m ($\pm 2\% \pm 2\mu$ m)	0 ~ 1000 μ m ($\pm 2\% \pm 2\mu$ m)
	1000~ 2000 μ m ($\pm 3.5\%$)	1000~ 2000 μ m ($\pm 3.5\%$)
	0~39.3mils ($\pm 2\% \pm 0.08$ mils)	0~39.3mils ($\pm 2\% \pm 0.08$ mils)
	39.3~78.7mils (± 3.5)	39.3~78.7mils (± 3.5)
Precision	0~100 μ m (0.1 μ m)	0~100 μ m (0.1 μ m)
	100 μ m~1000 μ m (1 μ m)	100 μ m~1000 μ m (1 μ m)
	1000 μ m~2000 μ m (0.01mm)	1000 μ m~2000 μ m (0.01mm)
	0~10mils (0.01 mils)	0~10mils (0.01 mils)
	10~78.7mils (0.1 mils)	10~78.7mils (0.1 mils)
Minimum curvature radius	1.5mm	3mm
Diameter of Minimum area	7mm	5mm
Minimum measurable thickness	0.5mm	0.3mm
Overload display	---	—
Working temperature	0°C~40°C (32°F~104°F)	
Working relative humidity	20%~90%	

1-6. Front View



1-LCD display

2- Power ON/OFF key

3-Left Key: For choose and OK

4-Up key: For upward selection and working mode switch

5-Right Key: For return or delete the last measured data

6-Down key: For downward selection or working mode switch

7-Probe

8- Lanyard hole

9-Battery cover

1-7. LCD Display

1-Working mode

2-Auto measure mode

3-Bluetooth indication

4-Ferrous or No-ferrous

metals being measured.

It will change automatically in the Auto measure mode,

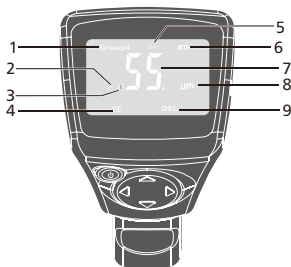
5-Measured data quantity in the working mode

6-Battery indication

7-Measure data

8-Unit

9-Delete data, press right button to delete the current data



2. Ready to start

2-1. Power Supply

For power on, please press and hold  button. If no LCD display: please check if the battery is correctly installed or it is in low battery.

 Display: Please replace battery immediately.

Note that the gauge will make faulty measurements if the voltage is very low.

Note: When power on, please away from any metal at least 10 cm above

Before each measurement, zero calibration is recommended.

2-2. Replacing the Battery

- Power off the meter.
- Open the battery cover.
- Remove battery.
- Insert new battery.
- Close the battery cover.

Caution: Make sure the anode and cathode are correctly positioned.

2-3. Menu System and Basic Settings

Press  to power on; the gauge will work in measuring mode. Press left button into MENU mode. See following MENU system arrangement:

2-3-1. Function and operation instruction

2-3-1-1. Select Working mode

Working mode: There are 51 working modes in this gauge. Measure data would not be stored in the gauge in Group0 measure mode.

In the other 50 working modes, 50 measured data can be stored in each mode in cycle.

- Press left button to enter the menu
- Press Up/down button to select working mode
- Press left button to enter working mode
- Press up/down button to select working mode
- Press left button for OK.

2-3-1-2. select measure mode (Probe)

The probe can work in three modes:

AUTO: The probe can automatically select the working mode. When placed on steel (magnetic substrates), it will work in magnetic induction principle. When placed on no-ferrous metals, it will work in eddy current principle.

Fe: The probe works in magnetic induction principle.

No-Fe: The probe works in eddy current principle.

- Press left button to enter the menu
- Press Up/down button to select working mode
- Press left button to enter working mode
- Press up/down button to select working mode
- Press left button for OK.

3. Settings

3-1. Unit Setting

3-1-1. Select unit

- Press left button to enter the menu
- Press up/down button to select the setting
- Press left button to enter the setting
- Press up/down button to select Unit
- Press left button to enter
- Press up/down button to select
- Press left button for ok

3-2. Backlight Setting

Adjust the brightness of the backlight.

- Press left button to enter the menu
- Press up/down button to select the setting
- Press left button to enter the setting
- Press up/down button to select backlight
- Press left button to enter
- Press up/down button to adjust the brightness of the backlight
- Press right button to return.

3-3. Auto Power Off

You can disable Auto-power-off via MENU system or the gauge will power off automatically in about 10 minutes if no measurement or operation.

- Press left button to enter the menu
- Press up/down button to select the setting
- Press left button to enter the setting
- Press up/down button to select Auto-power-off
- Press left button to enter
- Press up/down button to select
- Press left button for ok

3-4. Turn on/off Bluetooth

Turn on Bluetooth, data can be transferred to PC or phone or other Bluetooth receiving device.

Turn on Bluetooth, measure data will be sent automatically via Bluetooth. You can also download measured data via software by PC or phone or other Bluetooth receiving device in working mode.

Note: Turn on Bluetooth, battery power will loss quickly; please do not turn it on when there is not necessary.

When the first connection between the phone/PC and the device is being established, a prompt for the Pin-code of the device may be displayed. In the case, enter the code 0000 into your phone/PC.

The coating thickness gauges includes Bluetooth® wireless technology allowing wireless data transfer to properly equipped smartphones or tablets running iOS or Android operating systems.

Download the app to your smartphone or tablet by going to https://play.google.com/store/apps/details?id=com.cem.ictt.activities&hl=zh_EN



Meterbox ICTT for Android

- Press left button to enter the menu
- Press up/down button to select the setting
- Press left button to enter the setting
- Press up/down button to select Bluetooth
- Press left button to enter
- Press up/down button to select
- Press left button for ok

3-5. Adjust gray scale (contrast)

The grayscale adjustment: dot matrix LCD display may not be good in different temperature & humidity, than you can adjust gray scale to get good LCD display.

- Press left button to enter the menu
- Press up/down button to select the setting
- Press left button to enter the setting
- Press up/down button to select gray scale
- Press left button to enter
- Press up/down button to adjust gray scale
- Press left button for ok

4. System Information

4-1. System version number and gauge serial number display

- Press left button to enter the menu
- Press up/down button to select the setting
- Press left button to enter the setting
- Press up/down button to select information
- Press left button to enter
- View the system information, then press right button to return.

4-2. Data View

View the stored measured data in each mode.

All-delete: Delete all measured data in group.

- Press left button to enter the menu
- Press up/down button to select view
- Press left button to enter view
- Press up/down button to select working mode
- Press left button to enter

- Press up/down button to view each data
- Press right button to return or press left button to delete this group data.

5. Calibration and Measurement

The gauge can calibrate Zero-point of Fe or Non-Fe, or delete wrong calibrated zero-point of Fe or Non-Fe.

It suggested that zero-point be calibrated before use.

6. Zero-point calibration of Fe or Non-Fe

- Press left button to enter the menu
- Press up/down button to select calibration
- Press left button to enter view
- Press up/down button to select zero-point calibration of Fe or Non-Fe
- Press left button to enter
- Press right button to return the measurement interface
- Measure directly on Fe or Non-Fe matrix(can measure many times, last measure is effective)
- Press left button to confirm the calibration

Also you can press and hold the down button to enter the Zero-point calibration of Fe in measuring mode

Also you can press and hold the up button to enter the Zero-point calibration of Non-Fe in measuring mode

7. Delete Fe or Non-Fe Zero-point

- Press left button to enter the menu
- Press up/down button to select calibration
- Press left button to enter calibration
- Press up/down button to delete zero-point of Fe or Non-Fe
- Press left button for Ok
- Press right button to return

8. Delete Functions

In MENU system, you can find following function:

- **Delete current data:** in measurement interface, you can delete the last data by pressing right button.
- **Delete all data:** Enter menu-view; you can delete all data and statistics of the Current
- **Delete Group data:** Enter menu-view-group data; you can delete this group data by pressing left button

Transfer data to PC or phone or other Bluetooth receiving device.

Enter Menu-setting, then turn on Bluetooth, measure data will be sent automatically via Bluetooth, you can also read all stored measured in all mode.

9. Trouble Shooting

The following list of error messages explains how to identify and eliminate faults.

Err1: Fe probe fault

Err2: Non-Fe probe fault

Err3: Both probes.

Err4: Fe probe fault

Err5: Non-Fe probe fault

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions :

- (1) this device may not cause harmful interference, **and**
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Shielded cables must be used with this unit to ensure compliance with the Class B FCC limits.

The device must not be co-located or operating in conjunction with any other antenna or transmitter.