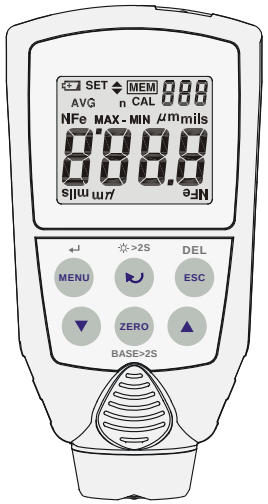
OPERATING INSTRUCTIONS
MODEL: TG-05 CE
2 IN 1 COATING THICKNESS GAUGE



INTRODUCTION

The instrument is a ferrous and non-ferrous coating thickness gauge designed for simply one hand operation.
The Product features:

- LED backlight
- LCD display reverse
- Auto power off
- Low-battery indicator
- Calibration for normal use
- Data logging function
- Warning beeper triggers by hi/lo limit settings
- Inch and Metric measurement options
- Zeroing Plate and Standard Coating Plate
- Attached with carrying strap
- Soft carrying case

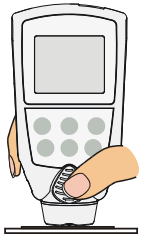
SAFETY INFORMATION

It is recommended that you read the safety and operation instructions before using the coating thickness gauge.

CAUTION

- Do not use the unit near any device which generates strong electromagnetic radiation or near a static electrical charge, as these may cause errors.
- Do not use the unit where it may be exposed to corrosive or explosive gases. The unit may be damaged, or explosion may occur.

- Do not keep or use this unit in an environment where it will be directly illuminated by sunshine, or where it condensation. If you do, it may be deformed, its insulation may be damaged, or it may no longer function according to specification.
- Do not place the meter on or around hot objects (70°C/158°F). It may cause damage to the case.
- If the meter is exposed to significant changes in ambient temperature, allow 30 minutes for temperature stabilization, before taking measurement.
- Condensation may form on the sensor when going from a cold to hot environment. Wait for 10 minutes for condensation to dissipate before taking measurements.



- This unit is not constructed to be waterproof and dustproof. Do not use it in a wet or very dusty environment.
- In order to take accurate measurement, make sure the sensing tip contacts the coated surface tightly without tilting.
- Please make sure there is no air bubbles between substrate and coating.
- **Substrate zeroing calibration must be implemented for each use.**
- **Two point calibration is suggested to implement for frequent testing points to increase measuring accuracy.**
- The enclosed zeroing plates are only suitable for the use of calibration of coating thickness meter itself. Apart from that, the meter should be performed two point calibration methods to get accurate readings before use.
  The zeroing on specific material substrate still needs to be done before taking formal measurements, such as Iron, Steel, Bronze, Copper, Nickel, Zinc, and SUS304 and so on, which is to avoid the measuring errors that cause by the difference of individual substrates. The end users can get much more accurate measuring readings on the specific metal under test by doing two calibration methods.

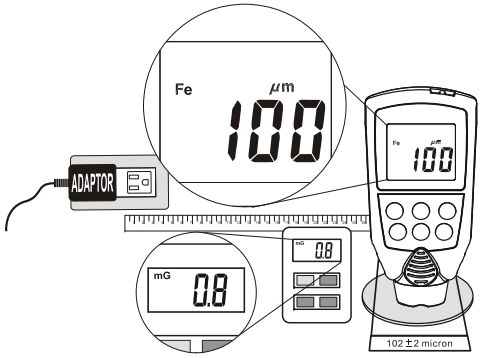
WARNING

ELECTROMAGNETIC FIELD INTERFERENCE
This instrument uses magnetic field method to measure the coating thickness on ferrous metal base. If this meter was placed in the environment with 20mG (mini Gauss) or above, the accuracy would be affected. Suggest that the meter should to put far away from the interfered source at least 30cm.

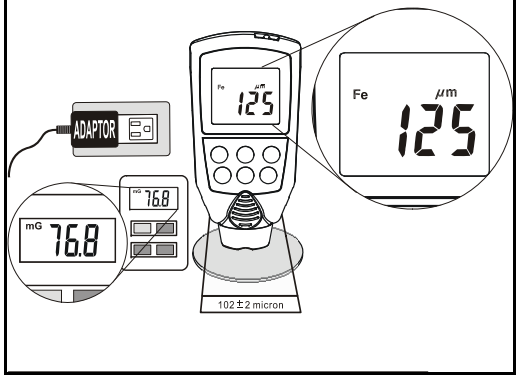
Electromagnetic field strength:(※unit = mini Gauss)

Electromagnetic Source	0cm	30cm
Cellular Phone Charger	50 ~ 500	< 1
Notebook Power Supply	100 ~ 1000	< 5
LCD Display	10 ~ 100	< 1
Fan	100 ~ 1000	< 5
Reading Lamp	400 ~ 4000	< 10
※Any product with coil inside should be considered.		

Recommended operating conditions (>30cm)



Abnormal operating conditions (<30cm)



SPECIFICATION

ELECTRICAL

Detectable Substrate Material: Ferrous metal (iron, steel) and Non-Ferrous metal (copper, aluminum, zinc, bronze, brass, etc.)
Ferrous Thickness Range: 0 to 80.0mils (0 to 2000µm).
Non-Ferrous Thickness Range: 0 to 40.0mils (0 to 1000µm).
Display Resolution: 0.1mils/1µm
Ferrous Accuracy:
±4dgts on 0 to 7.8mils
±(3% + 4dgts) on 7.9mils to 39.0mils
±(5% + 4dgts) on 39.1mils to 80.0mils
±10dgts on 0 to 199µm
±(3% + 10dgts) on 200µm to 1000µm
±(5% + 10dgts) on 1001µm to 1999µm
Non-Ferrous Accuracy:
±4dgts on 0 to 7.8mils
±(3% + 4dgts) on 7.9mils to 39.0mils
±10dgts on 0 to 199µm
±(3% + 10dgts) on 200µm to 1000µm
Response Time: 1 second.

GENERAL

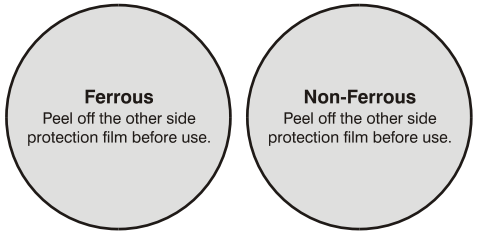
Operating Environment: 32°F to 122°F (0°C to 50°C) at < 75% R.H.
Storage Temperature: -4°F to 140°F (-20°C to 60°C), 0 to 80% R.H. with battery removed from meter.
Accuracy: Stated accuracy at 18°C to 28°C(64°F to 82°F), <75% R.H.
Temperature Coefficient: 0.1 times the applicable accuracy specification per °C out of 18°C to 28°C(64°F to 82°F).
Auto Power Off: 30 seconds.
Standby Consuming Current: < 6µA.
Battery: 1.5V (AAA size) x 2pcs.
Battery Life: 17 hours continuity use typical alkaline.
Low Battery Indication: The "+" is displayed when the battery voltage drops below the operating level.
Dimensions: 105mm (H) x 55mm(W) x 27mm(D).
Weight: Approx. 80g (including battery).

Product Use

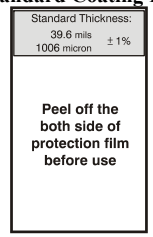
DEFINITION

Zeroing Plate

Ferrous is steel **Non-ferrous is Aluminum**

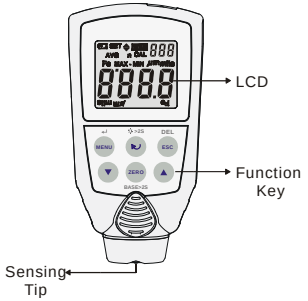


Standard Coating Plate

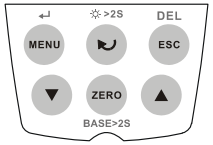


※Peel off the protection films from foil before first use.

The product



Buttons



Button	Function
MENU	Press the button to enter MENU/selecting.
>2S	Press the button to reverse the display. Press the button for 2 seconds to turn on or off backlight.
DEL ESC	Jumped off and return to the previous mode.
▼ ▲	Up/down adjusting. (select function, value)
ZERO BASE>2S	Press the button to substrate Zeroing Calibration. Press the button for 2 seconds to clear Calibrating Point.

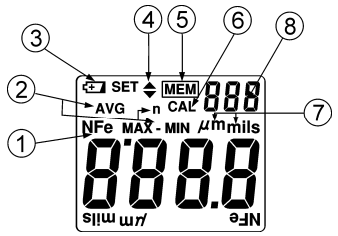
※ During measuring mode:

DEL ESC ▼ ▲ **The three buttons are disabled.**

※ During setting mode:

>2S ZERO BASE>2S **The two buttons are disabled.**

The Display



No.	Symbol	Meaning
1	Fe、NFe	Ferrous/Non-Ferrous
2	MAX	Maximum reading
	MIN	Minimum reading
	MAX - MIN	(Maximum - Minimum) reading
	AVG	Average reading
	n	Number of the reading
3		Low battery
4	▲、▼	Alarm indicator
5	MEM	Record is activated
6	CAL	Calibration is activated
7	μm、mils	Measurement units
8	AL	Substrate: Auto
	FE	Ferrous
	nFE	Non- Ferrous

Auto Power Off (APO):

Leave the gauge without operation for 30 seconds, power turns off automatically.

※During set mode, Auto Power Off function will be inactivated.

Measuring

1. Gage automatically powers up and Measuring when probe is pressed.
2. Put the probe to contact coated surface tightly, wait for the reading to appear and measurement is completed.(One sound "Beep" announced)
3. If the coating thickness is out of range, the meter shows "----".
4. When the alarm is activated, measured exceed "Hi Limits" or "Lo Limits", LCD display (updated) the measured value will be lit up along with pressing ▲ or ▼ symbol, the beeper emits a continuous or pulsed tone, warm users exceeds the Hi or Lo Limits value .

CAUTION：Keep the sensing tip of the meter away from any substrate or any magnetic field.

MENU

In measuring mode, press MENU button to enter menus, CAL will blink.

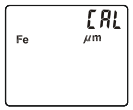
With ▼ and ▲ button to select the function, browse the menus：

CAL Two Point Calibration
↕
rEC Record setting/recall
↕
ALr Alarm setting
↕
Unt Measurement units
↕
FEr Substrate Material setting

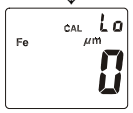
CAL Two point calibration

※During two point calibration, the foil and standard coating plate 1006μm can be replaced by uncoated substrate and a standard coating plate with a known-thickness.

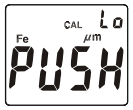
※When it is calibrated by user, its max calibrated value is 1100μm (43.3 mils).



In this mode, Press MENU button to enter two point calibration.

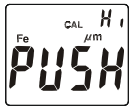


Into "low" value adjustments of the two point calibration, press ▲ or ▼ button to adjust reading, when it displays the desired value, press MENU button to confirm.



Press the tip of the Gauge to contact coated surface tightly (Zeroing plate or uncoated substrate), Wait for one "Beep" sound announces.

Into "Hi" value adjustments of the two point calibration, press ▲ or ▼ to adjust reading, when it displays the desired value, press MENU button to confirm.



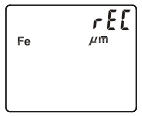
Press the tip of the Gauge to contact coated surface tightly (standard coating plate 1006μm or standard coating plate), wait for one "Beep" sound announces, exit two point calibration and return to measuring mode.

Before users finish two point calibration, if press DEL ESC button to exit two point calibration, since the calibration is not finished, it will not record its previous calibrated value.

rEC Record setting/ recall

The product can record 255 samples.

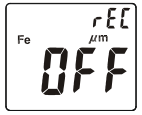
Stop recording after the 255th measured value.

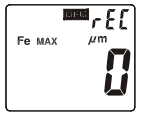


In this mode, press MENU button to enter recording setting.

Press ▲ or ▼ button to select the record on or off.

After it's selected, press MENU button to confirm.





a. Recalling previous records:

To exit this mode, press MENU button.

Press ▼ or ▲ button to browse previous records, its sequence as follows:

MAX (Maximum reading)
↕
MIN (Minimum reading)
↕
MAX-MIN
(Maximum - Minimum reading)
↕
AVG (Average reading)
↕
n Number of the recorded data
↕
n The first data
:
n The 255th data

b. To delete all recorded data**:**

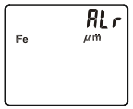
Press DEL ESC button for five seconds.

Press ▼ or ▲ button to select the delete no or YES.

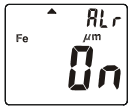
no, press MENU button to return to browse previous records.

YES, press MENU button to delete record and return to the measuring mode.

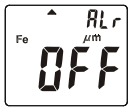
ALr Alarm setting



In this mode, press MENU button to enter the “Hi Limits” alarm setting mode.



Press ▲ or ▼ button to turn on or off the“Hi Limits” alarm.

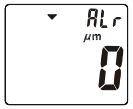


After it’s selected, press MENU button to enter the “Hi Limits value” alarm setting mode.

Press ▲ or ▼ button to adjust reading. When it displays the desired value, press MENU button to confirm the “Hi Limits” alarm, and enter the “Lo Limits” alarm mode setting.

Press ▲ or ▼ button to turn on or off the “Lo Limits” alarm.

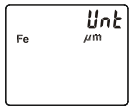
After it’s selected, press MENU button to enter the “Lo Limits value” setting.



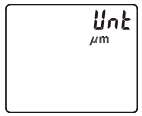
Press ▲ and ▼ to adjust reading to meet the desired value, press MENU button to confirm the “Hi Limits” alarm, and return to measuring mode.

Alarm setting: Maximum is 2000µm(78.8 mils), Minimum is 0µm(0.0 mils).

Unt Unit selecting



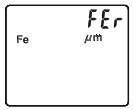
In this mode, press MENU button to enter to unit selecting.



Press ▲ or ▼ button to select the um or mils.

After it’s selected, press MENU button to exit the unit selecting and return to measuring mode.

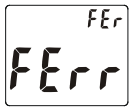
FEr Substrate Material setting



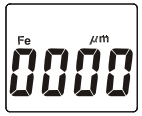
In this mode, press MENU button to enter to Substrate Material setting.

Press ▲ or ▼ button to select the AUTO or NON-ferrous or Ferrous substrate material.

After it’s selected, press MENU button to exit the unit selecting and return to measuring mode.



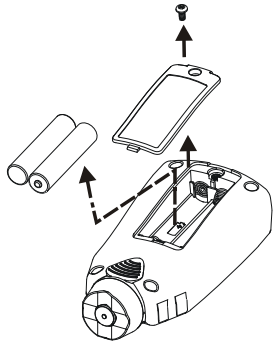
Calibrating Point Clearance:



In measuring mode, keep the meter away any substrate or any magnetic field. Press ZERO BASE=25 button over 2 seconds to clear Calibrating Point. LCD will display “0000”. When calibration is not operated properly, the clearance function helps users to start it again.

MAINTENANCE

Installing and Replacing Battery



1. Power is supplied by 2pcs 1.5V (AAA SIZE).
2. The “▭” appears in the display when battery replacement is needed.
3. Remove the battery cover by gently sliding it onwards the bottom of the meter.
4. Remove the batteries from battery compartment.
5. Replace with 2 new AAA batteries with polarity as indicated on the bottom of Battery Compartment.
6. Replace the Battery Cover.

CAUTION: When not in use for long periods remove battery. Do not store in locations with high temperatures, or high humidity.

Cleaning

Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.