OPERATING INSTRUCTIONS
MODEL: ETARI ET-110 CE
COATING THICKNESS GAUGE

INTRODUCTION

This instrument is a 4-digit, portable, easy to use and compact-sized digital ferrous coating thickness gauge designed for simply one hand operation. Meter comes with backlight LCD display and Auto Power Off (60 seconds approx.) to extend battery life.

SAFETY INFORMATION

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

DANGER
The UV light LED, and radiate intense UV light during operation. Since UV light can be harmful to eyes, do NOT look directly into the UV light, even through an optical instrument. In case of the light reflection, UV protective glasses are required to use in order to avoid damage by the light.

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.
- **One point calibration must be implemented for each use.**
- **Two point calibration is suggested to implement for frequent testing points to increase measuring accuracy.**
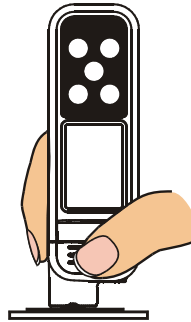
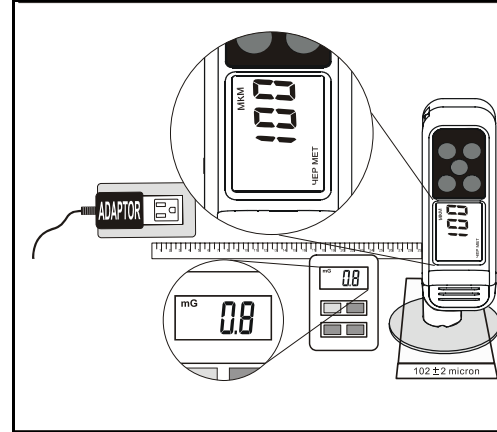## WARNING

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.
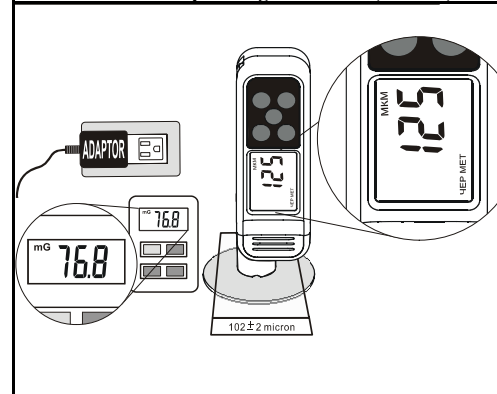
Electromagnetic field strength:(※unit = mini Gauss)		
Electromagnetic Source	**0cm**	**30cm**
Cellular Phone Charger	50 ~ 500	< 1
Notebook Power Supply	100 ~ 1000	< 5
LCD Display	10 ~ 100	< 1
Fan	100 ~ 1000	< 5
Reading Lamp	400 ~ 4000	< 10
※**Any product with coil inside should be considered.**		

Recommended operating conditions (>30cm)

Abnormal operating conditions (<30cm)

SPECIFICATION

ELECTRICAL
Detectable Substrate Material：Ferrous metal (iron, steel)
Thickness Range： 0 to 2000MKM.
Display Resolution： 1MKM.
Accuracy：
  ±10dgts on 0 to 199MKM
  ±(3%+10dgts) on 200 MKM to 1000MKM
  ±(5%+10dgts) on 1001 MKM to 1999MKM
Response Time： 1 second.

GENERAL

Operating Environment：-13°F to 122°F (-25°C to 50°C) at < 75% R.H.
Storage Temperature：-13°F to 140°F (-25°C to 60°C), 0 to 80% R.H. with battery removed from meter.
Temperature Coefficient： 0.1x (specified accuracy) / °C (< 18°C or > 28°C)
Auto Power Off： 1 minute.
Standby Consuming Current： < 6μA.
Battery： 1.5V (AAA size) x 2pcs.
Battery Life： 32 hours continuity use typical alkaline.
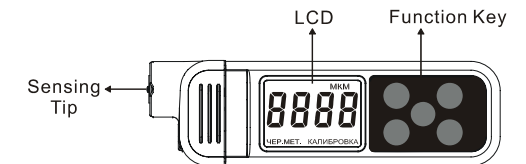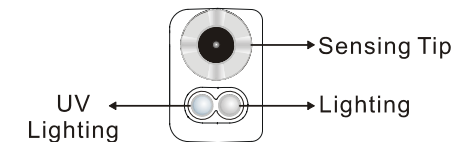**Low Battery Indication：**The "🔋" is displayed when the battery voltage drops below the operating level.
Dimensions： 120mm (H) x 40.4mm(W) x 29.2mm(D).
Weight： Approx. 100g (including battery).

DEFINITION

Zeroing Plate	Standard Coating Plate
Foil	Standard Thickness: 4.0 ± 0.1 mils 102 ± 2 micron **Peel off the both side of protection film before use**

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

FUNCTION KEY

"💡"
Push "💡" button each time, the display changes in the following sequence：**Lighting → UV light →OFF,** it can be operated in ON or Off mode.

"☼"
Use "☼" button to turn on or off backlight function. It can benefit users for reviewing display in dark environment.

"К"
1. In measuring mode, press "К" button over 2 seconds to start one point calibration.
2. In calibration mode, press "К" button to confirm and proceed to next step.
3. In calibration mode, press "К" button over 4 seconds to exit calibration mode.

"▲"
1. In measuring mode, press "▲"button over 2 seconds to clear Calibrating Point.
2. When two point calibration is on, use "▲" button to adjust its reading.

"▼"
1. In measuring mode, press "▼"button over 2 seconds to start the procedure of two point calibration.
2. When two point calibration is on, use "▼"button to adjust its reading.

INSTRUCTION

Power on and off：
1. Keep the sensing tip of the meter away from any sub-strate or any magnetic field.
2. Gage automatically powers up and Measuring when probe is pressed.
3. Auto Power Off (APO)：
   Leave the gauge without operation for 1 minute, power turns off automatically.

Measuring:
1. Put the probe to contact coated surface tightly, Wait for the reading to appear and measurement is completed.(One sound "Beep" announced)
2. If the coating thickness is out of range, the meter shows "----".

CALIBRATION

※During calibration, Auto Power Off function will be inactivated.

※**When it is calibrated by user, its max calibrated value is 1100.**

One Point Calibration：
1. In measuring mode, press "К" button over 2 sec. LCD will display "1－1" " КАЛИБРОВКА " blinking.

2. Press "К" button to confirm and proceed to next step. If pressing "К" button for 4 seconds, the meter will exit the procedure of one point calibration and return to measuring mode.
3. Press the sensing tip to touch Zeroing plate tightly, wait for the reading to appear. Then, user can move the meter away from the plate. Repeat this procedure will improve the calibration precision.
4. Press "К" button to exit one point calibration and return to measuring mode "КАЛИБРОВКА" off.

Two Point Calibration：
※**During two point calibration, the foil and standard coating plate 102MKM can be replaced by uncoated substrate and a standard coating plate with known-thickness.**

1. In measuring mode, Press "▼" button for 2 seconds to start two point calibration. LCD will display "2－1"，"КАЛИБРОВКА" blinking .

2. Press "К" button to confirm and proceed to next step. If pressing "К" button for 4 seconds, the meter will exit the procedure of two point calibration and return to measuring mode.
3. Press the sensing tip tightly with the foil, wait for the reading to appear. Then, user can move the meter away from the plate. Repeat this procedure will improve the calibration precision.
4. Press "К" button to confirm and proceed to next step. LCD will display "2－2".

5. Press the sensing tip tightly with the "standard" coating plate on top of the foil, wait for the reading to appear. Then, user can move the meter away from the plate. Repeat this procedure will improve the calibration precision.
6. Press "К" button to confirm and proceed to next step. Use ▲ or ▼button to adjust reading until it matches the standard thickness.
7. Press "К" button briefly to exit the procedure of two point calibration and return to measuring mode. "КАЛИБРОВКА" off.

Calibrating Point Clearance:
In measuring mode, press "▲"button over 2 seconds to clear Calibrating Point. LCD will display "oooo". When calibration is not operated properly, the clearance function helps users to start it again.
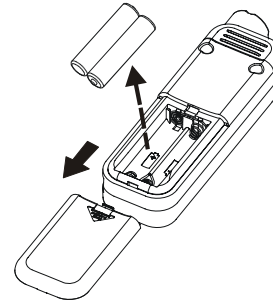

OPERATION

1. Keep the meter away any substrate or any magnetic field.
2. Put the sensing tip to contact coated surface tightly until for the bleep to sound and reading appears.
3. If the coating thickness is out off range, the meter shows "----".

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.