OPERATING INSTRUCTIONS
MODEL: ET-110
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.

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)

<table>
<thead>
<tr>
<th>Electromagnetic Source</th>
<th>0cm</th>
<th>30cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cellular Phone Charger</td>
<td>50 – 500</td>
<td>&lt; 1</td>
</tr>
<tr>
<td>Notebook Power Supply</td>
<td>100 – 1000</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>Fan</td>
<td>100 – 1000</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>Reading Lamp</td>
<td>400 – 4000</td>
<td>&lt; 10</td>
</tr>
</tbody>
</table>

Any product with coil inside should be considered.

SPECIFICATION
ELECTRICAL
Detectable Substrate Material: Ferrous metal (iron, steel)
Thickness Range: 0 to 80.0mils, 0 to 2000µm.
Display Resolution: 0.1mils/1µm.
Accuracy:
±10dgts on 0 to 199µm
±(3%+10dgts) on 200µm to 1999µm
±4dgts on 0 to 7.8mils
±(3%+4dgts) on 7.9mils to 80.0mils

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).

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 condensates. If you do, it may be deformed, its internal structure and coating may be damaged, or it may no longer function according to specification.
- Do not use the unit in a wet or very dusty environment.
- Condensation may form on the sensor when going from a cold to hot environment. In case of the light reflection, 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.
- If the meter is exposed to significant changes in ambient temperature, allow 30 minutes for temperature stabilization, before taking measurement.
- 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.

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**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.

“ ”

1. Press “ ” button to turn on or off backlight function. It can benefit users for reviewing display in dark environment.
2. Press “ ” button over 2 seconds to switch between mLs and µm. (1 mL = 25.4 µm)

“CAL”

1. In measuring mode, quickly press “CAL” button to start one point calibration.
2. In measuring mode, press “CAL” button over 2 seconds to start two point calibration.
3. In calibration mode, press “CAL” button to confirm and proceed to next step.

“ ”

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.

“ ”

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**CALIBRATION**

1. During calibration, Auto Power Off function will be inactivated.
2. When it is calibrated by user, its max calibrated value is 43.3 mls /1100µm.

Two Point Calibration step-by-step:

1. In measuring mode, press “CAL” button for 2 seconds to start two point calibration.
2. LCD will display “2 - 1” - “CAL” blinking.
3. Press the sensing tip tightly with the foil, wait for the two sounds “Beep” announced.
4. LCD will display “2 - 2”. Press the sensing tip tightly with the “standard” coating plate on top of the foil, wait for the two sounds “Beep” announced.
5. Use ▲ or ▼ button to adjust reading until it matches the standard thickness.
6. Press “CAL” button briefly to exit the procedure of two point calibration and return to measuring mode. “CAL” off.

**MAINTENANCE**

Installing and Replacing Battery

1. Power is supplied by 2pcs 1.5V (AAA SIZE).
2. When “ ” 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.

Cleaning

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

**INSTRUCTION**

**Power on and off**: 
1. Keep the sensing tip of the meter away from any substrate 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 “...”.

**Calibrating Point Clearance**: 
In measuring mode, press “ ” button over 3 seconds to clear Calibrating Point. LCD will display “oooo”.

When calibration is not operated properly, the clearance function helps users to start it again.