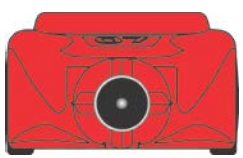
OPERATOR'S MANUAL
MODEL: ETARI MD-07
2 IN 1 COATING THICKNESS GAUGE



INTRODUCTION
This instrument is a 4 digit, portable, easy to use and compact-sized digital "**ferrous" or "non-ferrous"** coating 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.

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 condenses. 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.
- Not a toy, the use of measuring instruments is to supervise by trained personnel
- The device is not intended for production purposes. For further damages we do not assume any liability! In case of damage by disregarding this manual the warranty will void!
- For material damage or personal injury, caused by improper use or disregard of the safety instructions we do not assume any liability!
- The enclosed zeroing plates are only suitable for the use of calibration of coating thickness meter itself. Apart from that **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 calibration.

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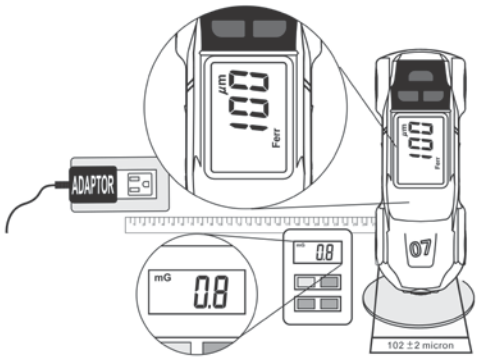
WARNING
ELECTROMAGNETIC FIELD INTERFERENCE
This instrument uses magnetic field method to measure the coating thickness on ferrous metal base. If this meter was placed in the environment with 20mG (mini Gauss) or above, the accuracy would be affected. Suggest that the meter should to put far away from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

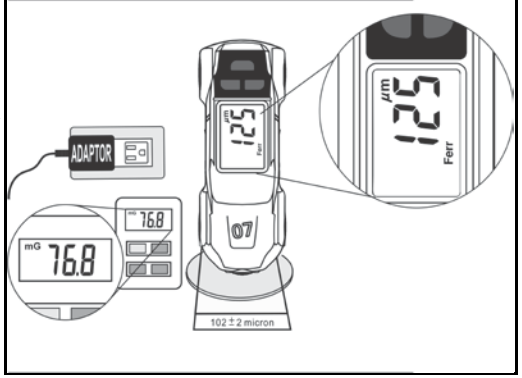
Electromagnetic field strength:(※unit = mini Gauss)

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:
±0,4mils on 0 to 7.8mils.
±(3%+0,4mils) on 7.9mils to 80.0mils.
±10μm on 0 to 199μm.
±(3%+10μm) on 200μm to 1999μm.

Non-Ferrous Accuracy:
±0,4mils on 0 to 7.8mils.
±(3%+0,4mils) on 7.9mils to 40mils.
±10μm on 0 to 199μm.
±(3%+10μm) on 200μm to 1000μm.

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.

Battery: 1.5V (AAA size) x 2pcs.

Battery Life: 17 hours (continuity) typical with alkaline battery.

Low Battery Indication: The "" is displayed when the battery voltage drops below the operating level.

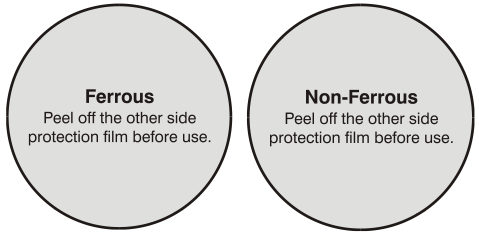
Dimensions: 120mm (H) x 40.4mm (W) x 29.2mm (D).

Weight: Approx. 78g (including battery).

DEFINITION

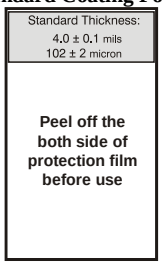
Zeroing Plate

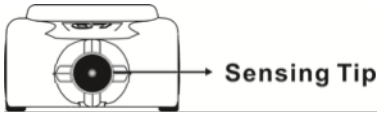
Ferrous is steel plate **Non-ferrous is Aluminum plate**

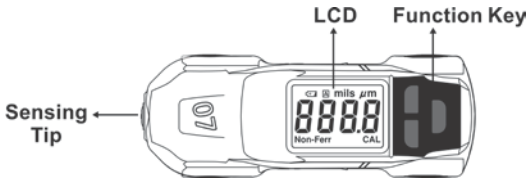


※Peel off the protection films from foil before first use.

Standard Coating Foil







FUNCTION BUTTON

"☼"

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

2. Press "☼" button **over 3 seconds** to switch between **mils** and **µm**. (1 mils = 25.4 µm)

"CAL"

When power is on, press "**CAL**" button over 3 seconds to start calibration.

"Reset" – Self-Calibration:

1. Press the sensing tip to turn on the device.

2. With the **"Reset"** button the device can be reset to the factory setting by self-calibration.
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To do this, briefly press the **"Reset"** button, 4 small zeros appear on the display.

The **factory setting is sufficient** to precisely **determine differences** in the paint thickness on the vehicle.

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. Press the sensing tip of the gauge to contact coated surface tightly, wait for the reading to appear, measureing value and the material (Ferr or Non-Ferr) is shown, herewith the measurement is completed (One "Beep" sound announced).
2. If the meter shows **"----"**. This means the coating thickness **on Ferr is more than 2000 µm** or **on Non-Ferr** more than **1000 µm** or the measuring material is **not metal** (for example: plastic, wood, etc.)

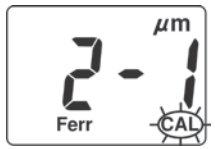
CALIBRATION

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

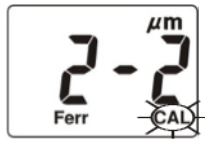
※First, prepare one of the two calibrating discs, e.g. the iron disc.
To do this, remove the white protective film from the metal disc before use, and prepare the calibration plastic foil.

1. Switch on the device by pressing the sensor.

2. Hold down the **"CAL"** button until a beep sounds, **"2-1"** appears on the display and **"CAL"** blinks.



3. Place the sensor of the unit straight on the disc until a **beep sounds twice** and on the display appears **"2-2"**.
(The device automatically calibrates to the uncoated area).



4. Place the standard thickness foil with the standard thickness of 102 microns on the uncoated calibration disc.

5. Push the sensor **straight** onto the calibration foil. Wait until the **beep** sounds twice, **"102µm"** appears on the display.

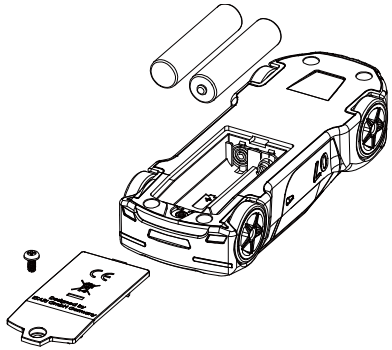
Then remove the sensor from the foil.
Now the device has automatically calibrated to the value **"102µm"** and terminated the calibration mode.

Repeat the same calibration procedure also on the other disc (non-ferrous).

The device is then completely calibrated.

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. Turn the screw with a Phillips screwdriver to the left until it comes out. Remove the battery cover.

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 and screw shut.

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.

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