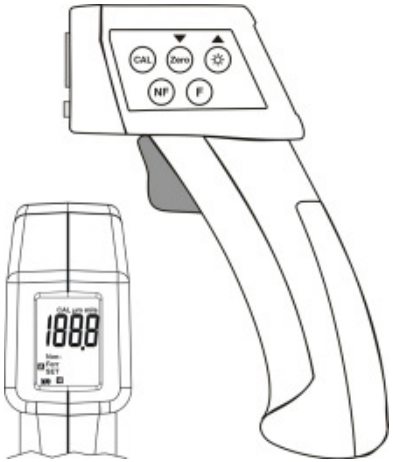
OPERATING INSTRUCTIONS

ETARI ET **115S** CE

2 IN 1 COATING THICKNESS GAUGE



INTRODUCTION

This instrument is a portable easy to use 3½ digit, compact-sized digital "ferrous" or "non-ferrous" coating thickness gauge designed for simply one hand operation. Meter comes with backlight LCD display, Data Logging function and Auto Power Off (30 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.

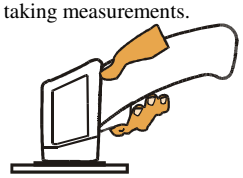
Video instructions for setting up and using the feature appliance can be found on the website www.etari.de

CAUTION

- Do not use the unit near any device which generates strong electromagnetic radiation or near a static electrical charge, like power generator, magnet…, 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.

If the meter continues to use over one minute, the accuracy of the measurement of the higher thickness will become degraded. But the meter is still within its specified accuracy.

- 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 or dust proof. 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.
- This instrument is not to be used for production purposes. The manufacturer or supplier is not liable for any incorrect readings and any consequences that may arise due to these readings.
- Two point calibration MUST 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.

MAINTENANCE

Battery Replacement

1. Power is supplied by a 9 volt "transistor" battery (NEDA 1604, IEC 6F22). If the LCD shows "🔋", it means the battery replacement is need.
2. Pull off battery cover "▭".
3. Remove the battery cover by gently sliding it onwards the bottom of the meter.
4. Remove and disconnect the old battery from the meter and replace with a new unit. Wind the excess lead length and put the top of battery beneath the battery chamber. Install the battery and put the battery cover.

Caution

Cleaning

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

SPECIFICATION

GENERAL

Display: 3½ digit liquid crystal display (LCD) wit maximum reading of 1999.
Low Battery Indication: The "🔋" is displayed when the battery voltage drops below the operating level.
Measurement Rate: 1 second, nominal.
Operating Environment: -13°F to 122°F (-25°C to 50°C) at < 75% R.H. Ambient Temperature: -20°C ~ 0°C is conditional allowed. Slow liquid crystal response time on display reading and safety operation under cold ambient need to be addressed. Be aware to wear glove to prevent frostbite.
Storage Temperature: -13°F to 140°F (-25°C to 60°C), 0 to 80% R.H. with battery removed from meter.
Auto Power Off: 30 seconds.
Standby Consuming Current: < 15μA.
Battery: Standard 9V battery (NEDA 1604, IEC 6F22 006P).
Battery Life: 9 hours (continuity) typical (contain Backlit).
Dimensions: 148mm (H) x 105mm(W) x 42mm(D).
Weight: Approx. 157g (including battery).
Detectable Substrate Material: Ferrous metal (iron, steel) and Non-Ferrous metal (copper, aluminum, zinc, bronze, brass, etc.)

ELECTRICAL

Thickness Range: 0 to 1000μm.
Display Resolution: 1μm.
Accuracy:
±10dgts on 0 to 199μm
±(3%+10dgts) on 200μm to 1000μm
Temperature Coefficient: 0.1x (specified accuracy) / °C (< 18°C or > 28°C)
Response Time: 1 second.

WARNING

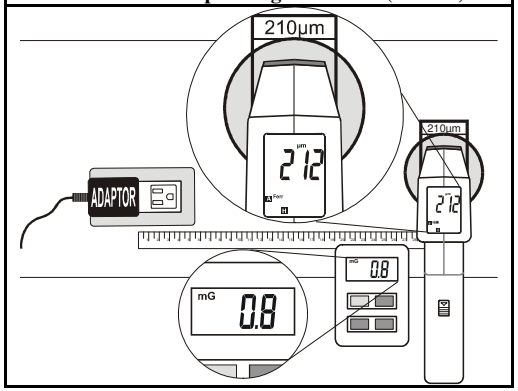
ELECTROMAGNETIC FIELD INTERFERENCE

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.

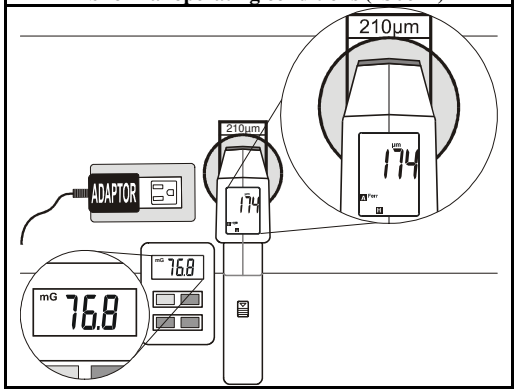
Electromagnetic field strength:(□unit = mini Gauss)

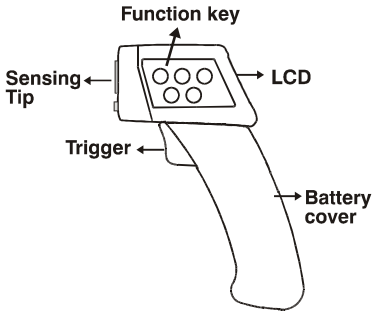
Electromagnetic Source	0cm	30cm
Cellular Phone Charger	50 ~ 500	< 1
Notebook Power Supply	100 ~ 1000	< 5
LCD Display	10 ~ 100	< 1
Fan	100 ~ 1000	< 5
Reading Lamp	400 ~ 4000	< 10
□Any product with coil inside should be considered.		

Recommended operating conditions (>30cm)



Abnormal operating conditions (<30cm)





FUNCTION KEY

"☼"

Use "☼" key to turn backlight on and off.

"NF"

Use "NF" key to switch mode to fix non-ferrous mode.
(For detail please see Auto and fixed mode).

"F"

Use "F" key to switch mode to fix ferrous mode.
(For detail please see Auto and fixed mode).

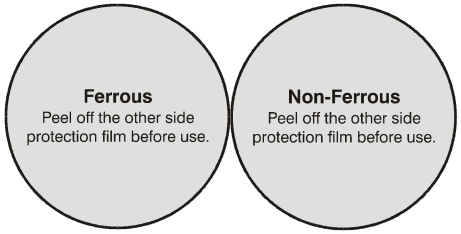
"Zero"

Quickly press "Zero" key for substrate zeroing calibration.

DEFINITION

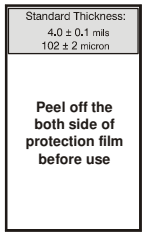
Zeroing Plate

Ferrous is steel Non-ferrous is Aluminum



Peel off the protection films from foil and standard coating plate before first use.

Standard Coating Plate

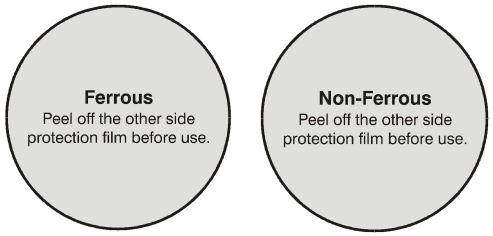


CALIBRATION

- Before calibration, make sure the substrate material can be recognized by the meter.
- During calibration, Auto Power Off function will be extended to 2 minutes.

Two Point Calibration:

- There are two zeroing plates one is steel, and the other is Aluminum. Ferrous is steel, and Non-ferrous is Aluminum.

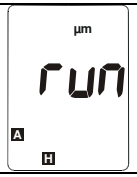


Peel off the protection films from foil and standard coating plate before first use.

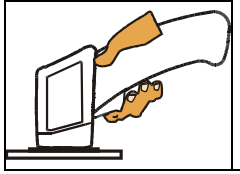
Calibration step-by-step

Step 1. Turn the unit ON

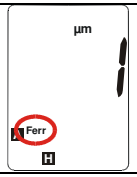
Step 2. Display shows "run"



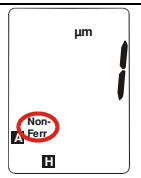
Step 3. Put the measuring head on the substrate (Ferrous or Non-Ferrous) ***And then pull trigger** (Put the measuring head on the substrate)



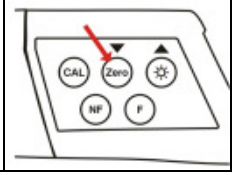
Step 4. Ferr stands for ferrous material.



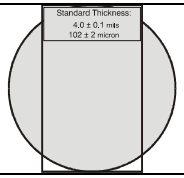
Step 5. Non-Ferr stands for Non-ferrous.



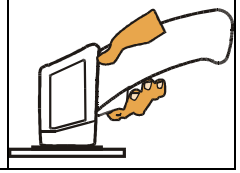
Step 6. Press "Zero" key to make zeroing, and the display will show "0"



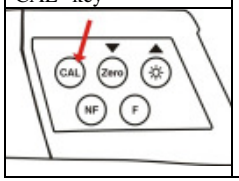
Step 7. Place Standard Thickness 4.0mil/ 102micron on the substrate



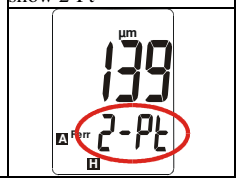
Step 8. Pull trigger one time



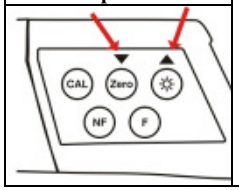
Step 9. Please press "CAL" key



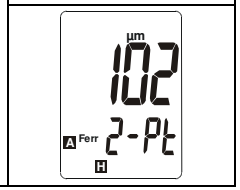
Step 10. Display will show 2-Pt



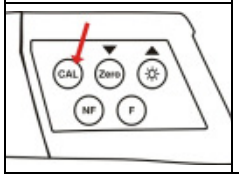
Step 11. Press Zero (▼) or ☼ (▲) to adjust Display's values to 102 um. See the **Step 12.**



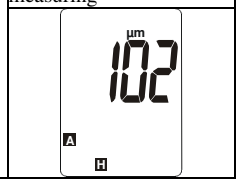
Step 12. Display's values to 102 um.



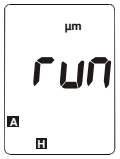
Step 13. Press "CAL" again



Step 14. The 2-Pt will disappear, this means that the calibration is complete. And can start measuring



OPERATION



1. Pull the trigger to power on, and wait for "run" and H sign.
   !!! Keep the sensing tip of the meter away (at least 10cm) from any substrate or any magnetic field during **power on**. If the device was turned on at the time when it was pressed against the sensor to the metal, do a factory reset and calibrate it.
2. Measuring:

Single Mode:

Press the sensing tip to contact coated surface tightly. Pull the trigger (One sound "Beep" announced) and release immediately (Another sound "Beep" announced) to have single measurement. H sign appears when measurement is completed. DO NOT remove the sensing tip from surface until H sign is shown.

Continuous Mode:

Pull the trigger(One sound "Beep" announced) and hold it, continuous measuring will be performed. Reading is refreshed every second. Release the trigger(Another sound "Beep" announced) and wait for H sign to complete the last measuring. DO NOT remove the sensing tip from surface until H sign is shown.

※No matter single or continuous mode, there are two sounds "beep" announced to complete the measurement.

4. Substrate material will be indicated accordingly. If the substrate material can not be recognized, "Ferr" and "Non-Ferr" are not shown.
5. When the thickness is over the measurement range, the LCD will show the original data, and there is one sound "beep" announced.
6. Auto Power Off (APO) function: Leave the gauge without operation for 30 seconds, power turns off automatically.

RESET

Calibrating Point Clearance:

In case of any errors or if the device was turned on at the time when it was pressed against the sensor to the metal, do a factory reset and calibrate it.

1. When power is off, hold "Zero" key and pull the trigger to power on. LCD shows "Clr" and "Set". The zeroing point, one point, or two point calibration readings will be deleted.
2. When calibration is not operated properly, the clearance function helps users to start over again.