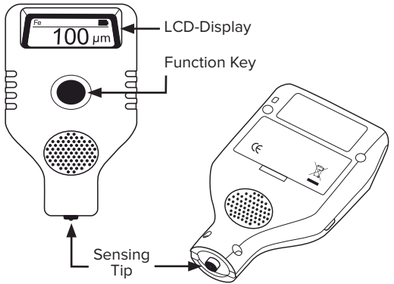
DEFINITION

Zeroing Plate

Ferrous is steel plate

Non-ferrous is Aluminum plate

Standard Coating Foil 101µm ±**1%**



FUNCTION KEY

The instrument has a multi-function key for power on/off, as well as for accessing a settings menu for:

1) Setting the measurement mode for substrate detection,
2) Language,
3) Switching from «**mils**» to «**µm**» and «**mm**»,
4) Factory setting «Reset» self-calibration,
5) Rotation of the display by 180°,
6) The calibration.

SETTINGS MENU

To enter the settings menu, press and hold the multi-function key **with the device switched off until** the settings menu (**Setup Menu**) appears on the display and **release** the key **immediately**.

Then select the desired menu item for the setting as **quickly as possible** by **briefly pressing** the multi-function key.

Wait briefly until you automatically reach the desired menu. Select the desired setting/unit there and wait until the device saves it.

THE FOLLOWING OPTIONS CAN BE SET:

1) «**Probe**» (measurement mode):
- *AUTO* (the instrument automatically detects the substrate to be measured).
- *MAG* (magnetic induction - this setting is suitable for substrates made of ferromagnetic metals - ferrous metals)
- *EDDY* (eddy current method - this setting is suitable for non-ferromagnetic substrates - nonferrous metals, such as aluminum).

2) «**Language**» (menu language) – Only the menu language English is available.

3) «**Unit**» (unit) - you can select µm, mil or mm.

4) «**Reset**» (restoration of factory setting) - to restore the factory setting, please select this function and wait until briefly «**Reset...**» and thereafter "**Finish!**" is shown on the display. This resets the device to the factory setting.

The factory setting resets the device to the delivery state.
After the factory setting, the instrument can be calibrated again.

The factory setting/self-calibration is sufficient to precisely determine the paint thickness differences on the vehicle.

5) **Rotate display 180°** - with the device switched off, the multifunction button must be pressed and held until the display is rotated 180° - **the button must not be released even when the device opens the settings menu.**

Display illumination:

The device has a display illumination that turns on automatically when the device is switched on and every time it is operated and remains on for 30 seconds.

STORING AND RETRIEVING STORED DATA

The instrument records up to 10 readings. If there are more than 10, the instrument automatically updates the newest data and discards the oldest data. This data is not lost when the instrument is turned off and can only be erased by restoring the factory settings.

Viewing the data:
Press the **multifunction button briefly** to **turn on** the device.

Then, press the **multifunction button briefly** at a time while the instrument is in the measurement mode to scroll through the data. The data is displayed in the following **order**:

- Number of stored readings (**NO:**),
- Average (**AVG:**),
- Minimum (**MIN:**),
- Maximum (**MAX:**),
- Readings starting from the last measurement in descending order (**N**).

CALIBRATION

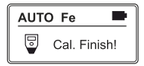
First, have one of the two calibrating discs, e.g. the **iron disc** (Ferrous) ready.

Steps:

1. Switch on the device by **briefly** pressing the **multifunction key.**

2. Then press and **hold down** the multifunction key and **immediately** place the sensor on the calibration disk **while holding down** the key.

3. The display shows briefly «**Cal. Finish!**» and afterwards "**0.0**". **Remove the sensor** from the calibration disk and **release** the **multifunction key**.



(This automatically calibrated the instrument and terminated the calibration mode).

Note: If you press and hold the multifunction key for 3 seconds without performing a calibration procedure, the instrument will turn off.

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

The device is then completely calibrated.

INSTRUCTION

Power on and off:

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

2. **Briefly** press the multi-function key to switch on the device. **After switching on, the last measured value is displayed.**

3. To **turn off** the device, press the multi-function key for **3 seconds** and the device will turn off.

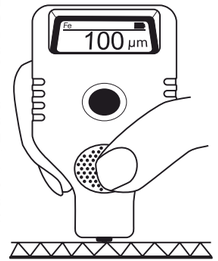
4. Auto Power Off (APO):

Leave the gauge without operation for 2 minutes, power turns off automatically.

Audible signals sound before the shutdown.

Measuring:

1. Press the sensing tip of the gauge to contact coated surface tightly, wait for the reading to appear, measuring value and the material (Fe or NFe) is shown, herewith the measurement is completed (**One "Beep" sound announced**).

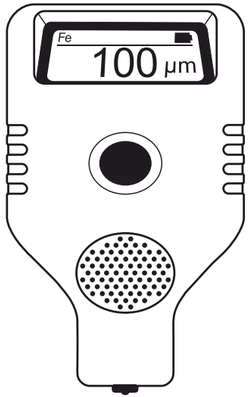


2. If the meter shows «**Over Flow**», this means the coating thickness **on Ferr** or **on Non-Ferr** is **more than 2000µm** or the measuring material is **not metal** (for example: plastic, wood, etc.)

OPERATOR'S MANUAL

Thickness Coating Gauge MD-700

for measurement on all metallic body parts



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INTRODUCTION

This instrument is a portable, easy to use and compact-sized digital “**ferrous**” or “**non-ferrous**” coating gauge, designed for simply one hand operation. Meter comes with backlight LCD-display and Auto Power Off to extend battery life.

SAFETY INFORMATION

IMPORTANT! Please read the safety and operation instructions before using the coating thickness gauge.

Ensure proper commissioning of the device. Please observe this operating manual.

Not a toy, keep the device away from children. The handling of measuring instruments must be monitored responsibly by trained personnel.

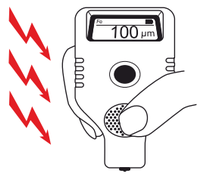
CAUTION

→ 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.
→ To ensure **accurate measurement**, make sure, that the surface is clean and the sensing tip contacts the coated surface tightly without tilting.
→ Please make sure there are no air bubbles between substrate and coating.
→ The use of measuring instruments in schools, training institutions, hobby and self-help workshops must be supervised by trained personnel.
→ The device is not intended for industrial and production purposes. We do not assume any liability for consequential damages! 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! For safety and certification reasons conversion and/or modification of the device is not permitted. Make sure that the device is put into operation properly and follow the instructions in this operating manual.
→ 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.

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 interference can lead to incorrect measurement values.

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.

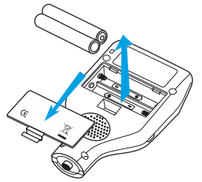
CLEANING

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

MAINTENANCE

Installing and Replacing Battery

1. Power is supplied by 2pcs 1.5V (AAA SIZE).
2. The “ ” appears in the display when battery replace-ment is needed.
3. Remove the battery cover by carefully lifting it up with your fingernail using the release tab and then carefully pulling it out of the holders.
4. Remove the batteries from the battery compartment.
5. Replace with 2 new unused branded 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 (risk of leakage). Do not store in locations with high temperatures, or high humidity.

Weak batteries can affect the operation of the device.

SPECIFICATION

ELECTRICAL

Detectable Substrate Material:
Ferrous metal (iron, steel) and Non-Ferrous metal (copper, aluminium, zinc, bronze, brass, etc.)

Ferrous Thickness Range:
0 to 80.0mils, 0 to 2000µm.

Non-Ferrous Thickness Range:
0 to 80.0mils, 0 to 2000µm.

Display Resolution: 0.1mils/1µm.

Response Time: 0,3 seconds.

Ferrous Accuracy:
±0,3mils on 0 to 7.8mils,
±(3%+0,04mils) on 7.9mils to 80.0mils,
±7µm on 0 to 199µm,
±(3%+1µm) on 200µm to 1999µm.

Non-Ferrous Accuracy:
±0,3mils on 0 to 7.8mils,
±(3%+0,04mils) on 7.9mils to 80mils,
±7µm on 0 to 199µm,
±(3%+1µm) on 200µm to 1999µm.

GENERAL

Operating Environment:
5°F to 122°F (-15°C to 50°C) at < 75% R.H.

Storage Temperature:
5°F to 140°F (-15°C to 60°C), 0 to 80% R.H. with battery removed from meter.

Temperature Coefficient:
0.1 x (specified accuracy) / °C (< 18°C or > 28°C).

Auto Power Off: 2 minutes.

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

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

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

Dimensions: 103mm (H) x 63mm (W) x 27mm (D).

Weight: Approx. 83g (including battery).

MD-700

SENSOR
made of wear-resistant ruby

AUTOMATIC
calibration, shutdown, substrate detection

MEASURING RANGE
0-2000µm (Measurement accuracy ±**3%** + 1µm)

WINTER-RESISTANT
at an ambient temperature of -15°C to +50°C

LIGHTNING-FAST
Response time of **0.3** seconds

DISPLAY ILLUMINATION
with automatic switch on

DISPLAY
rotatable by 180°

AUDIBLE
signal during measurement and shutdown

SWITCHING
between mils and micrometers

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