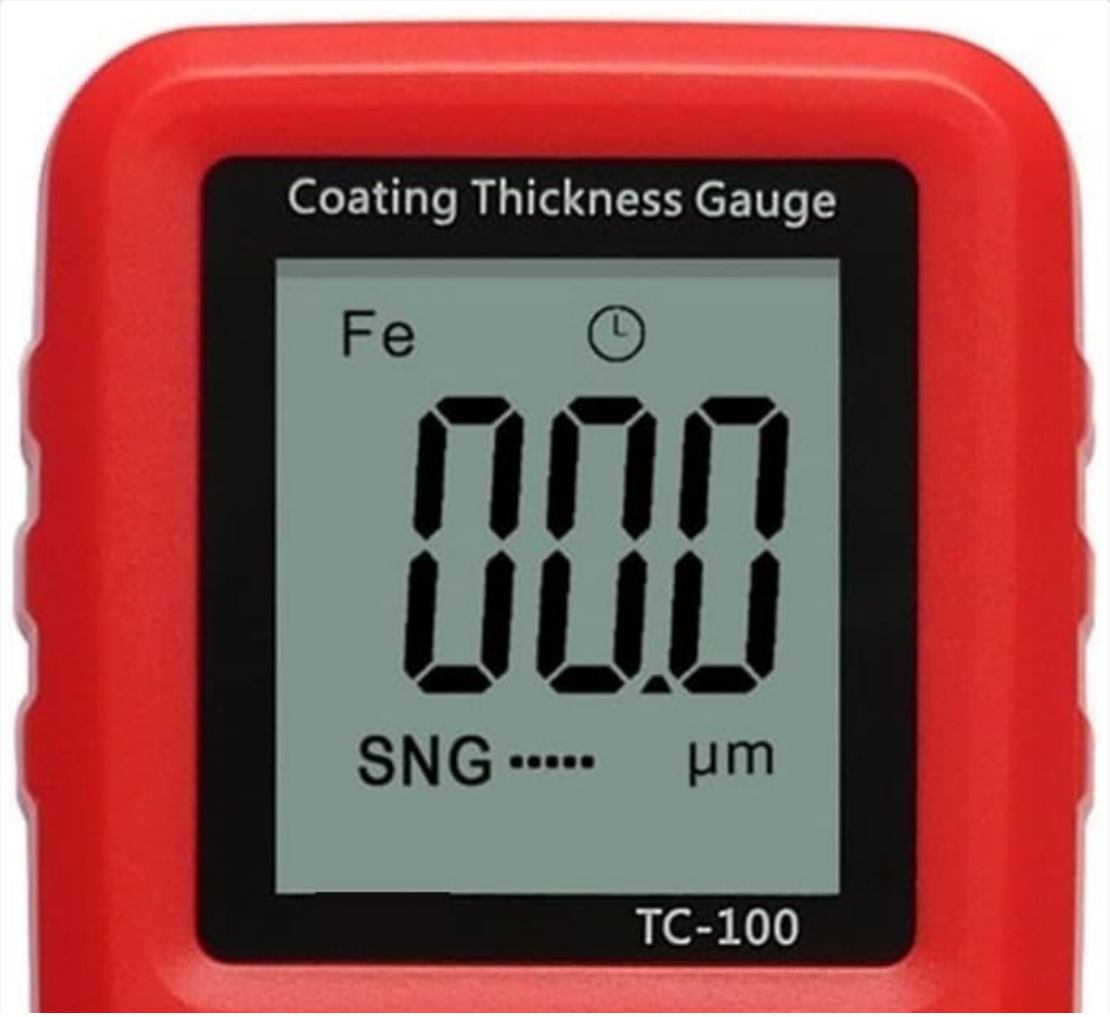
TC100

Generic TC100 Coating Thickness Gauge User Manual

Model: TC100

1. Introduction

The TC100 Digital Coating Thickness Gauge is designed for non-destructive measurement of coating and painting thickness on various metal substrates. It utilizes principles of electromagnetic induction and the eddy current effect to automatically detect the substrate material (ferrous or non-ferrous).
This instrument is suitable for measuring the thickness of plated and coated sheets on metals such as paint/enamel/chrome on steel, and paint/anodizing coatings on aluminum/copper. It is an essential tool for material surface treatment applications in manufacturing, metal-processing, chemical industries, and commodity inspection.



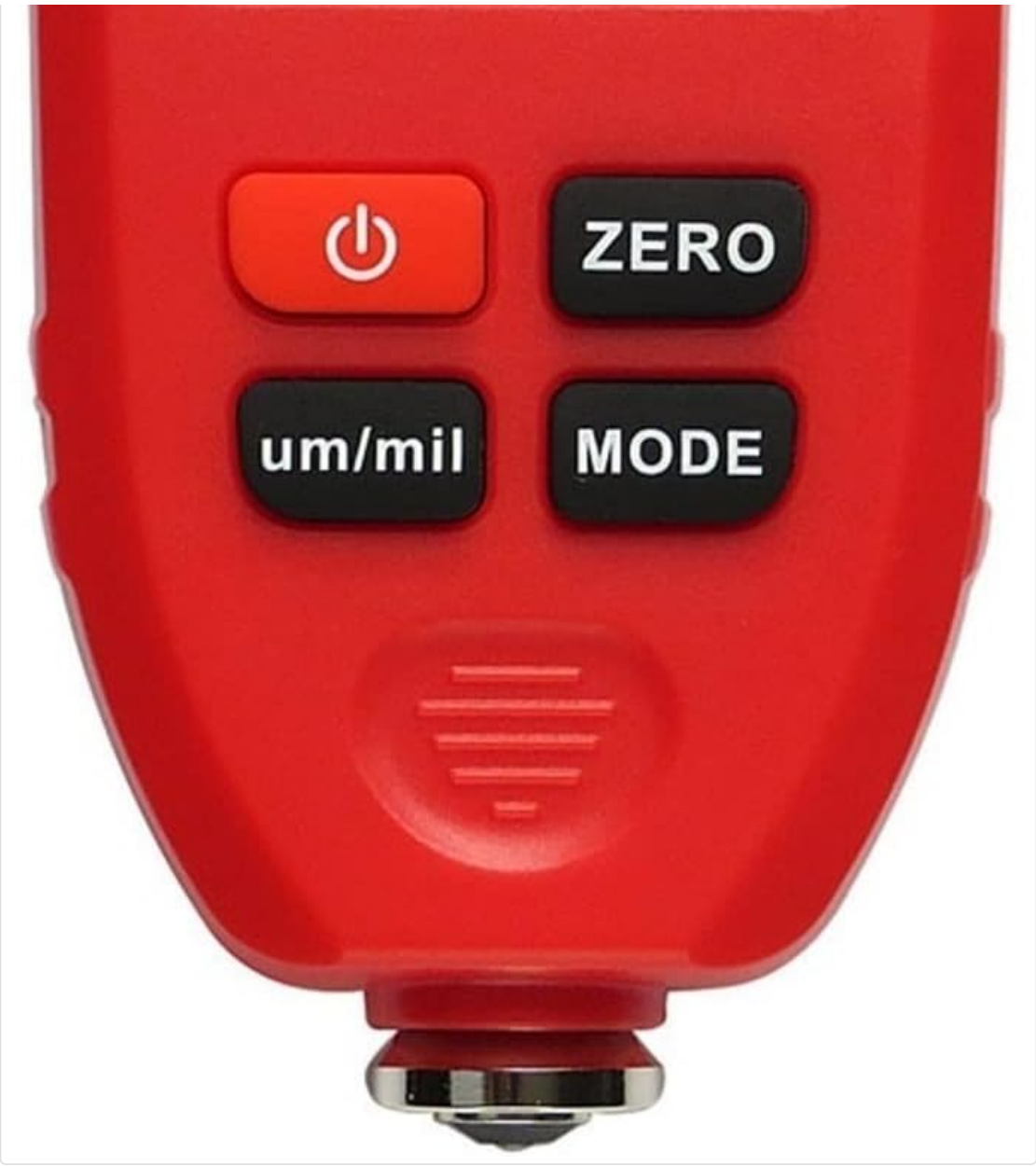


Image 1.1: Front view of the TC100 Coating Thickness Gauge, displaying the screen and control buttons.

2. Packing List

Please verify that all items listed below are present in your package:

- 1x TC100 Coating Thickness Gauge
- 1x Protective Case
- 1x Aluminum Substrate
- 1x English Manual
- 5x Standard Calibration Foils
- 1x Iron Substrate

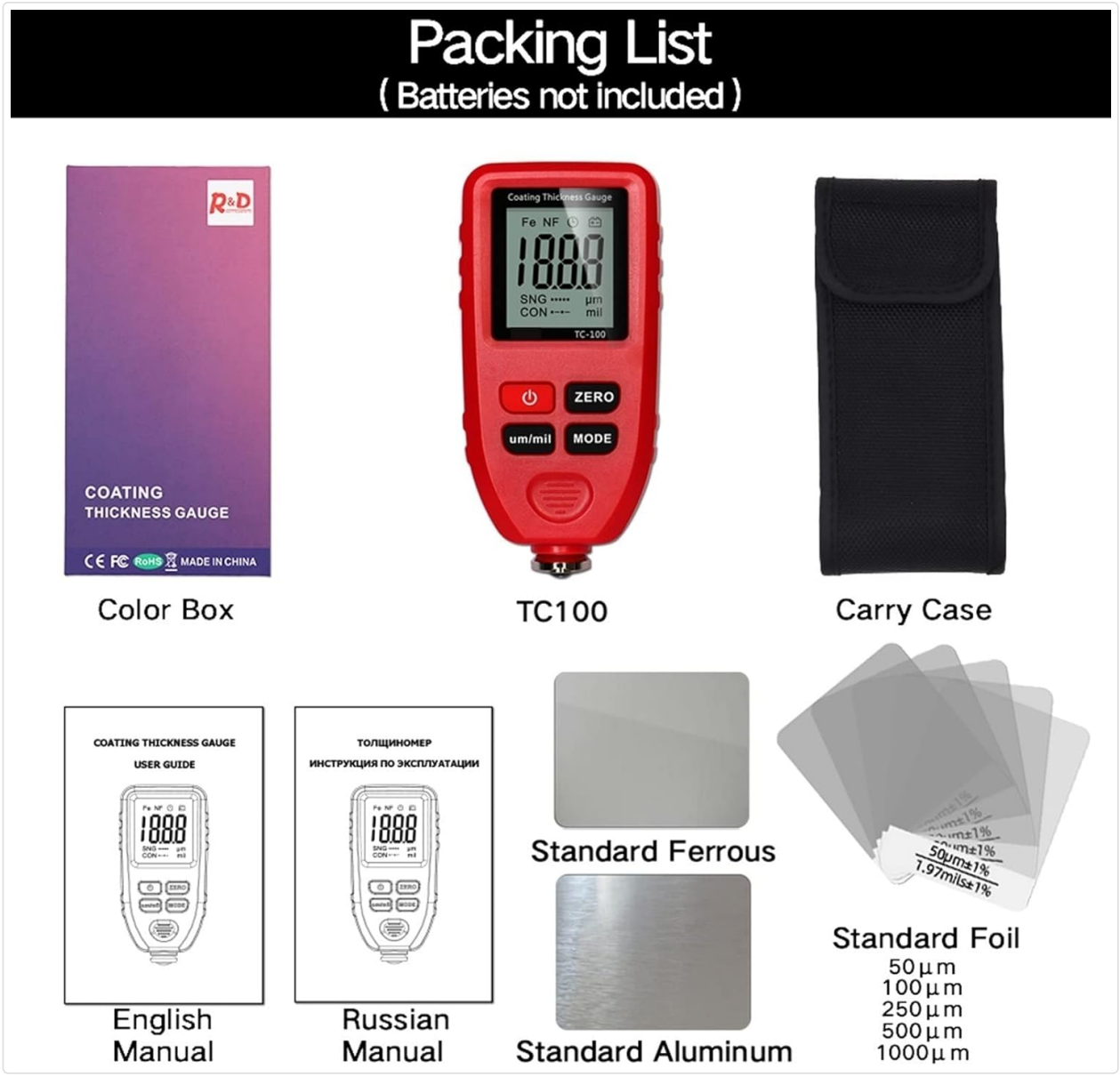


Image 2.1: Illustration of the TC100 Coating Thickness Gauge and its included accessories, such as the protective case, calibration foils, and substrate samples.

3. Setup

3.1 Battery Installation

1. Locate the battery compartment cover on the back of the device.
2. Slide the cover downwards to open the compartment.
3. Insert one 9V (6F22) battery, ensuring correct polarity (+ and - terminals).
4. Close the battery compartment cover by sliding it back into place until it clicks.

Note: Batteries are not included with the product.

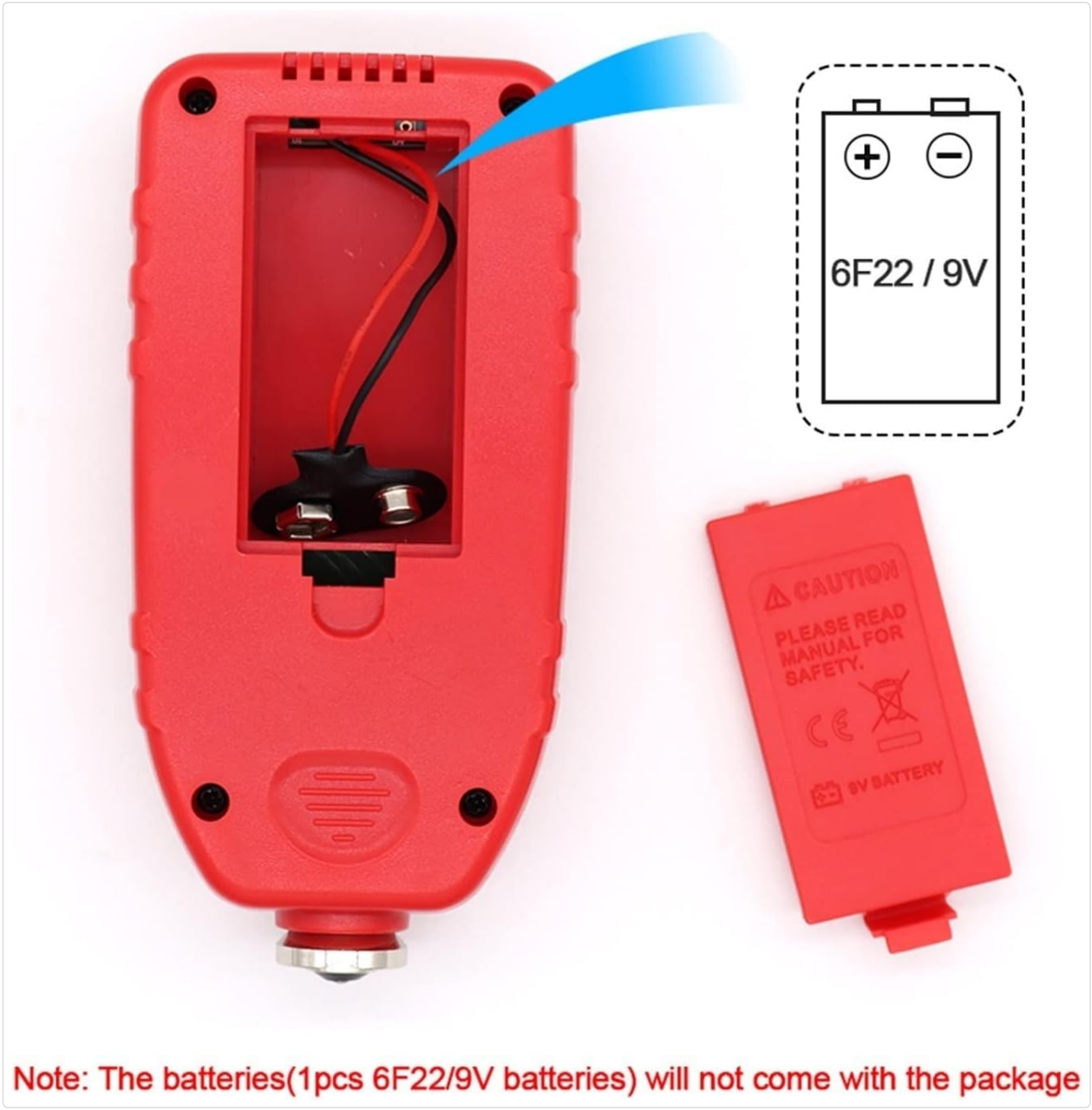


Image 3.1: Rear view of the TC100 Coating Thickness Gauge with the battery compartment open, showing the correct orientation for a 9V battery.

4. Operating Instructions

4.1 Device Overview and Controls

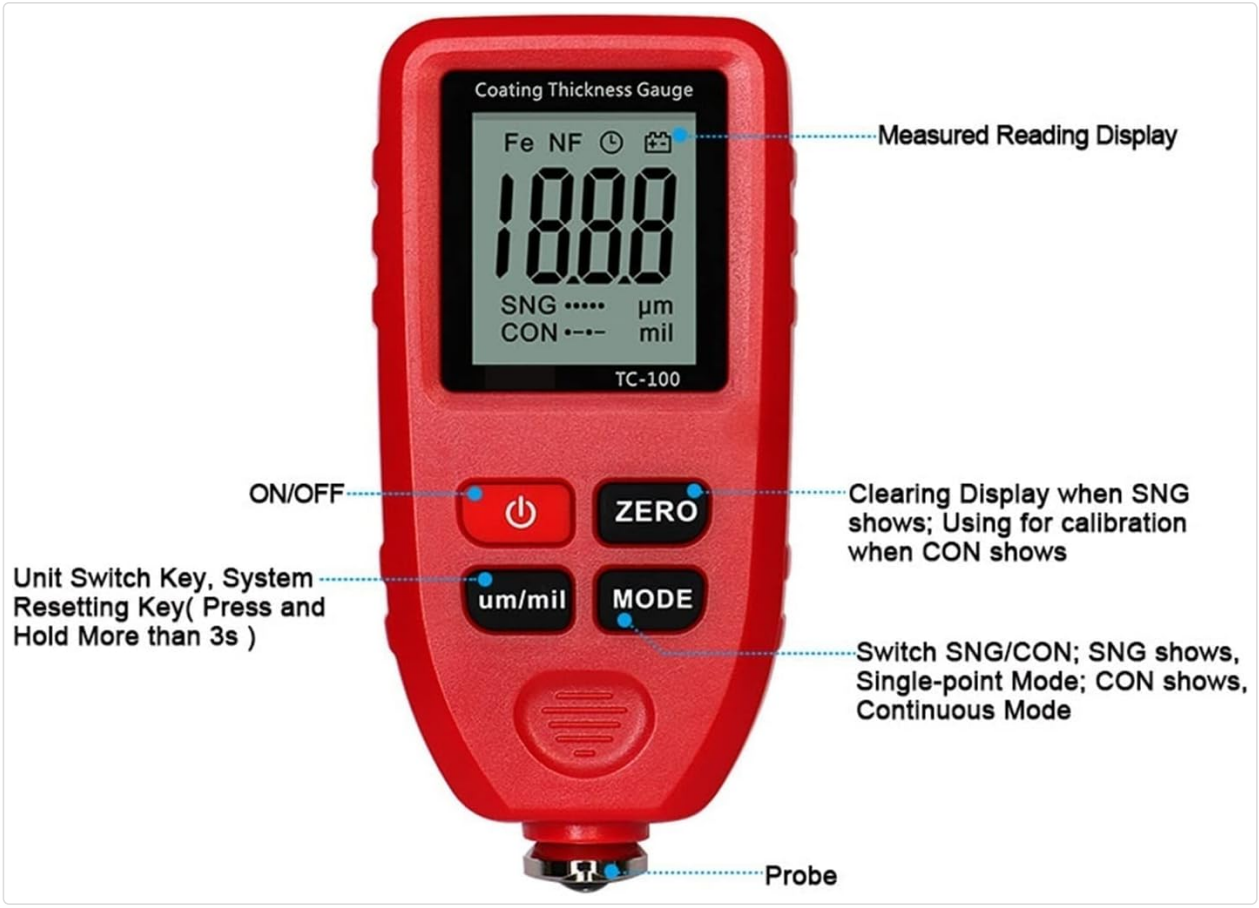


Image 4.1: Detailed diagram of the TC100 Coating Thickness Gauge, highlighting the measured reading display, ON/OFF button, ZERO button, unit switch key (um/mil), mode switch (SNG/CON), and the probe.

- **Measured Reading Display:** Shows the thickness measurement.
- **ON/OFF Button (Power):** Press to turn the device on or off.
- **ZERO Button:** Used for clearing the display in Single-point (SNG) mode or for calibration in Continuous (CON) mode.
- **um/mil Button (Unit Switch Key):** Press to switch between micrometers (um) and mils (mil). Press and hold for more than 3 seconds to perform a system reset.
- **MODE Button:** Switches between Single-point (SNG) measurement mode and Continuous (CON) measurement mode.
- **Probe:** The sensor used to contact the surface for measurement.

4.2 Power On/Off

Press the **ON/OFF** button once to turn the gauge on. The display will light up. To turn off, press the **ON/OFF** button again.

4.3 Unit Selection

Press the **um/mil** button to toggle between micrometers (um) and mils (mil) units for measurement display.

4.4 Measurement Modes

Press the **MODE** button to switch between:

- **SNG (Single-point) Mode:** For individual measurements. The reading is held on the display until a new measurement is taken.
- **CON (Continuous) Mode:** For continuous measurements. The display updates in real-time as the probe

is moved across the surface.

4.5 Taking a Measurement

1. Ensure the gauge is powered on and the desired unit (um/mil) and mode (SNG/CON) are selected.
2. Place the probe firmly and perpendicularly onto the coated surface to be measured.
3. The gauge will automatically detect the substrate type (Fe for ferrous, NFe for non-ferrous) and display the coating thickness.
4. In SNG mode, the reading will remain until the probe is lifted and placed again. In CON mode, the reading will update continuously.

4.6 Calibration (ZERO Function)

The ZERO button is used for calibration to ensure accuracy. It is recommended to calibrate the device on an uncoated sample of the substrate material before taking measurements.

1. Place the probe directly onto an uncoated ferrous (Fe) or non-ferrous (NFe) substrate.
2. Press the **ZERO** button. The display should show '0.0' or a value very close to zero.
3. If calibrating with standard foils, place the foil on the substrate and then place the probe on the foil. Adjust as per specific calibration instructions in the full manual if available.

5. Maintenance

- Keep the device clean and free from dust and debris. Use a soft, dry cloth for cleaning.
- Avoid exposing the gauge to extreme temperatures, high humidity, or direct sunlight.
- Store the device in its protective case when not in use to prevent damage to the probe and display.
- Remove the battery if the device will not be used for an extended period to prevent leakage.

6. Troubleshooting

- **Device does not power on:** Check battery installation and ensure the battery has sufficient charge. Replace if necessary.
- **Inaccurate readings:** Ensure the probe is clean and making firm, perpendicular contact with the surface. Perform a calibration using the ZERO function on an uncoated substrate.
- **Display shows 'Err':** This may indicate a measurement error or an issue with the probe. Try cleaning the probe and re-attempting the measurement. If the issue persists, contact support.

7. Specifications

Feature	Specification
Measurement Range	0.1µm to 1300µm (0 to 51.2 mil)
Resolution	0.1µm (0.01 mil)
Substrate Detection	Automatic (Ferrous Fe / Non-Ferrous NFe)
Units	Micrometers (µm), Mils (mil)
Power Supply	1x 9V (6F22) Battery

Feature	Specification
Operating Temperature	0°C to 40°C (32°F to 104°F)
Dimensions	Approximately 125 mm x 61 mm x 33 mm (4.92 in x 2.40 in x 1.30 in)
Weight	Approximately 0.035 ounces (without battery)

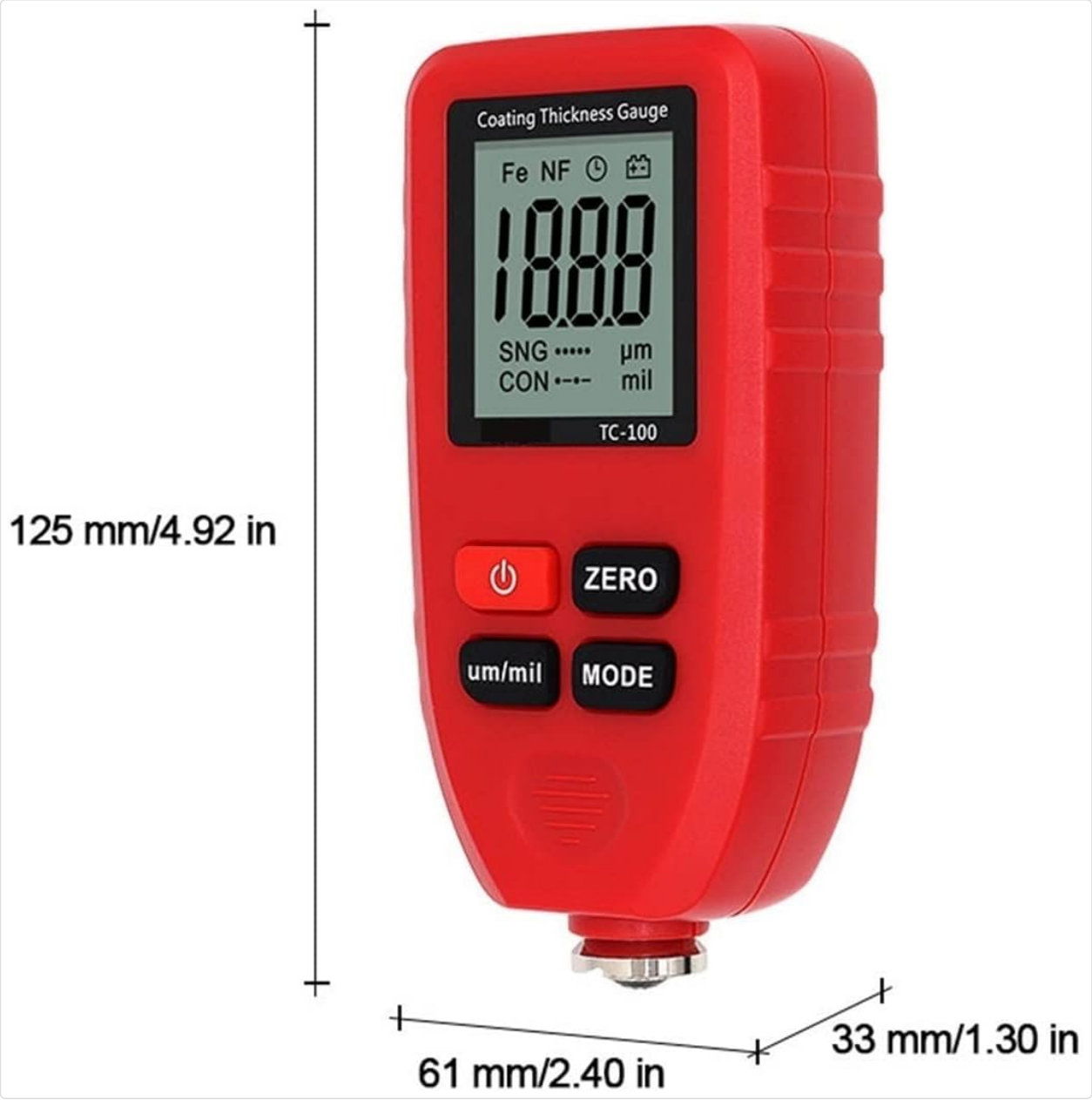


Image 7.1: Diagram illustrating the physical dimensions of the TC100 Coating Thickness Gauge.

8. Warranty and Support

This product comes with a standard manufacturer's warranty. For specific warranty terms and conditions, please refer to the documentation included with your purchase or contact the seller directly.

For technical support, troubleshooting assistance, or inquiries regarding your device, please contact the retailer or manufacturer through the contact information provided at the point of purchase.