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> UNI-T UT343D Digital Coating Thickness Gauge User Manual

## UNI-T UT343D

# UNI-T UT343D Digital Coating Thickness Gauge User Manual

Model: UT343D

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## 1. INTRODUCTION

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The UNI-T UT343D Digital Coating Thickness Gauge is a precision instrument designed for measuring the thickness of non-magnetic coatings on magnetic substrates (Fe) and non-conductive coatings on non-magnetic metal substrates (NFe). This device offers automatic identification of substrate types, ensuring accurate and reliable measurements across various applications. Its user-friendly interface, data storage capabilities, and USB connectivity make it an essential tool for quality control, manufacturing, and inspection tasks.



Figure 1: UNI-T UT343D Digital Coating Thickness Gauge with included accessories (USB cable, calibration foils, carrying case).

## 2. KEY FEATURES

- **Automatic Substrate Identification:** Automatically distinguishes between ferrous (Fe) and non-ferrous (NFe) substrates.
- **Wide Measurement Range:** Measures coating thickness from 0 to 1250 $\mu$ m.
- **High Accuracy:** Ensures precise readings with an accuracy of  $\pm(1\%+3\%H)\mu$ m.
- **Data Storage:** Stores up to 500 groups of measurement data for later analysis.
- **USB Data Transfer:** Allows easy transfer of stored data to a computer via USB.
- **Tri-color LED Warning Lights:** Provides visual alerts (red, yellow, green) based on user-defined limits.
- **Auto-Rotating Screen:** The display content automatically rotates 0°, 90°, 180°, and 270° for convenient viewing from any angle.
- **Single/Continuous Measurement Modes:** Supports both single-point and continuous measurement methods.
- **Calibration Options:** Includes single-point and two-point calibration to maintain measurement accuracy.

- **Limit Setting:** User-definable upper and lower limits for quick judgment.



Figure 2: The UT343D is suitable for various applications such as measuring car paint, metal coatings, enamel, and general paint thickness.

### 3. PRODUCT COMPONENTS

Familiarize yourself with the main components and controls of your UT343D device:



1.LED warning light

2.LCD screen

3.Power button

4.Set/Confirm/Calibrate button

5.Cancel/Clear button

6.Value-/Down/  
Quick judgment button

7.Value+/Up/Lock screen button

8.Sensor assembly

9.Hand rope hang buckle

10.USB communication interface

11.Battery compartment

Figure 3: Labeled diagram of the UT343D's external components and controls.

1. **LED Warning Light:** Indicates measurement status (Red, Yellow, Green).
2. **LCD Screen:** Displays measurement readings, settings, and menu options.
3. **Power Button:** Turns the device ON/OFF.
4. **Set/Confirm/Calibrate Button (OK/MENU):** Used to enter menu, confirm selections, and initiate calibration.
5. **Cancel/Clear Button (ZERO):** Used to exit menus, clear current readings, or perform zero calibration.
6. **Value-/Down/Quick Judgment Button:** Navigates down in menus, decreases values, or activates quick judgment mode.
7. **Value+/Up/Lock Screen Button:** Navigates up in menus, increases values, or locks the screen.
8. **Sensor Assembly:** The probe that contacts the surface for measurement.
9. **Hand Rope Hang Buckle:** Attachment point for a wrist strap.
10. **USB Communication Interface:** Port for connecting to a computer for data transfer.
11. **Battery Compartment:** Houses the AA batteries.

## 4. SETUP

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### 4.1 Battery Installation

The UT343D requires two AA batteries for operation.

1. Locate the battery compartment on the back of the device (Component 11 in Figure 3).
2. Open the battery compartment cover.
3. Insert two AA batteries, ensuring correct polarity (+/-).
4. Close the battery compartment cover securely.

### 4.2 Powering On/Off

- To power on the device, press the **Power Button** (Component 3).
- To power off the device, press and hold the **Power Button** until the screen turns off. The device also features a 5-minute automatic shutdown function to conserve battery life.

## 5. OPERATION

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### 5.1 Basic Measurement

The UT343D automatically identifies the substrate type (Fe or NFe) and displays the coating thickness.

1. Ensure the device is powered on.
2. Place the **Sensor Assembly** (Component 8) firmly and perpendicularly onto the coated surface.
3. The measurement will be displayed on the **LCD Screen** (Component 2). The device will also indicate the substrate type (Fe for magnetic, NFe for non-magnetic).
4. For continuous measurement, slide the probe across the surface. For single-point measurement, lift and re-place the probe for each reading.



Automatically rotate screen content



Support USB data transfer



The probe automatically recognizes the substrate

Figure 4: The UT343D features automatic screen rotation and substrate recognition for ease of use.

## 5.2 Calibration

Regular calibration ensures the accuracy of your measurements. The device supports single-point and two-point calibration.

### 5.2.1 Zero Calibration

1. Place the **Sensor Assembly** directly onto the bare (uncoated) substrate of the material you intend to measure.
2. Press the **ZERO Button** (Component 5). The display should show "0.0" or a value very close to zero.
3. This sets the baseline for subsequent measurements on that specific substrate.

### 5.2.2 Two-Point Calibration

For enhanced accuracy, especially when measuring specific coating thicknesses, use two-point calibration with known thickness foils.

1. Perform Zero Calibration as described above.

2. Place a calibration foil of known thickness (e.g., 100 $\mu$ m) onto the bare substrate.
3. Place the **Sensor Assembly** onto the calibration foil.
4. Enter the calibration menu (refer to the full manual for detailed menu navigation using **OK/MENU** and arrow buttons). Adjust the displayed value to match the known thickness of the foil.
5. Repeat with a second calibration foil of a different known thickness (e.g., 500 $\mu$ m) if desired, following similar steps.
6. Save the calibration settings.

### 5.3 Limit Settings and Warning Lights

The UT343D allows users to set upper and lower measurement limits (0-1200 $\mu$ m). The tri-color LED warning lights provide immediate visual feedback:

- **Red Light:** Indicates the measured thickness is below the set lower limit.
- **Yellow Light:** Indicates the measured thickness is above the set upper limit.
- **Green Light:** Indicates the measured thickness is within the acceptable limits.



Figure 5: Tri-color LED warning lights provide quick visual feedback on measurement status.

## 6. DATA MANAGEMENT

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### 6.1 Data Storage

The UT343D can store up to 500 groups of measurement data. This data includes individual readings, average, minimum, and maximum values.

- To access stored data, navigate through the device's menu using the **OK/MENU** and arrow buttons.
- Specific instructions for saving and recalling data groups are detailed in the comprehensive user manual.

### 6.2 USB Data Transfer

Transfer measurement data to a computer for further analysis and reporting.

1. Connect the UT343D to your computer using the provided USB cable. The USB communication interface is Component 10.
2. Install the necessary software/drivers (if required, typically provided on a CD or available for download from the manufacturer's website).
3. Follow the software instructions to download and manage your stored data.

## 7. MAINTENANCE

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- **Cleaning:** Wipe the device with a soft, dry cloth. Do not use abrasive cleaners or solvents. Ensure the sensor assembly is kept clean and free of debris.
- **Storage:** Store the device in a dry, cool environment, away from direct sunlight and extreme temperatures. If storing for extended periods, remove the batteries to prevent leakage.
- **Battery Replacement:** Replace batteries when the low battery indicator appears on the screen.
- **Calibration:** Perform regular calibration as needed, especially before critical measurements or if accuracy is suspected to have drifted.

## 8. TROUBLESHOOTING

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Problem	Possible Cause	Solution
Device does not power on.	Low or dead batteries; incorrect battery installation.	Replace batteries with new AA batteries, ensuring correct polarity.
Inaccurate readings.	Device not calibrated; sensor dirty; incorrect measurement technique; substrate not flat.	Perform calibration (zero or two-point); clean the sensor assembly; ensure probe is perpendicular to the surface; measure on a flat area.
"OL" or "Err" displayed.	Measurement range exceeded; sensor error.	Ensure coating thickness is within 0-1250µm range; clean sensor; restart device. If problem persists, contact support.
Data transfer fails.	Incorrect USB connection; missing/outdated drivers; software issue.	Check USB cable connection; install/update drivers; ensure software is running correctly.

## 9. SPECIFICATIONS

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Parameter	Value
Model	UT343D

Parameter	Value
Measuring Range	0 to 1250µm
Accuracy	±(1%+3%H)µm
Resolution	0.1µm (0-99.9µm); 1µm (100-1250µm)
Substrate Identification	Automatic (Ferrous/Non-ferrous)
Data Storage	500 groups
USB Data Transfer	Supported
Display	2-inch TFT LCD, 320x240 pixels, Auto-rotating
Warning Lights	Red, Yellow, Green LED
Power Source	2 x AA batteries
Automatic Shutdown	5 minutes (adjustable)
Product Dimensions	0.61 x 2.54 x 0.43 inches (approx. 15.5 x 64.5 x 10.9 mm)
Weight	1.01 Pounds (approx. 458 grams)

## 10. WARRANTY AND SUPPORT

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UNI-T products are designed for reliability and performance. For specific warranty information, please refer to the warranty card included with your product or visit the official UNI-T website. For technical support, troubleshooting assistance, or service inquiries, please contact UNI-T customer service through their official channels.

You can find more information and contact details on the [UNI-T Store on Amazon](#) or the official UNI-T website.

