**Diydeg HW300PRO**

# Diydeg HW300PRO Paint Thickness Gauge User Manual

Model: HW300PRO
Brand: Diydeg

## 1. Introduction

The Diydeg HW300PRO Paint Thickness Gauge is a high-precision instrument designed for non-destructive measurement of coating thickness on metal substrates. It is capable of measuring both magnetic (ferrous) and non-magnetic (non-ferrous) coatings. This device is widely utilized in various industries including manufacturing, metal processing, chemical engineering, and quality inspection, particularly for assessing vehicle paint conditions.
Key features include a wide measurement range of 0-2000µm, high accuracy, clear display with backlight, automatic substrate identification, and statistical analysis functions (average, minimum, maximum, quantity). Its compact and anti-slip design ensures comfortable handling and portability.

## 2. Safety Information

Please read and understand all safety instructions before operating the device to ensure safe and proper use.

- **General Safety:** Keep the device away from water, moisture, and extreme temperatures. Do not expose it to direct sunlight for prolonged periods.
- **Battery Safety:** Use only the specified battery type (2 x 1.5V AAA). Ensure correct polarity when inserting batteries. Remove batteries if the device will not be used for an extended period to prevent leakage.
- **Handling:** Handle the gauge with care. Avoid dropping or subjecting it to strong impacts, which may damage the internal components or the sensitive probe.
- **Maintenance:** Do not attempt to disassemble or repair the device yourself. Refer all servicing to qualified personnel.
- **Children:** Keep the device out of reach of children.

## 3. Package Contents

Upon opening the package, please verify that all the following items are included:

- 1 x HW300PRO Paint Thickness Gauge
- 6 x Calibration Films (various thicknesses)
- 1 x Base Sheet (for calibration)
- 1 x User Manual

**Figure 3.1:** Contents of the HW300PRO package, including the gauge, calibration films, and base sheet.

## 4. Product Overview

Familiarize yourself with the components and controls of your HW300PRO Paint Thickness Gauge.

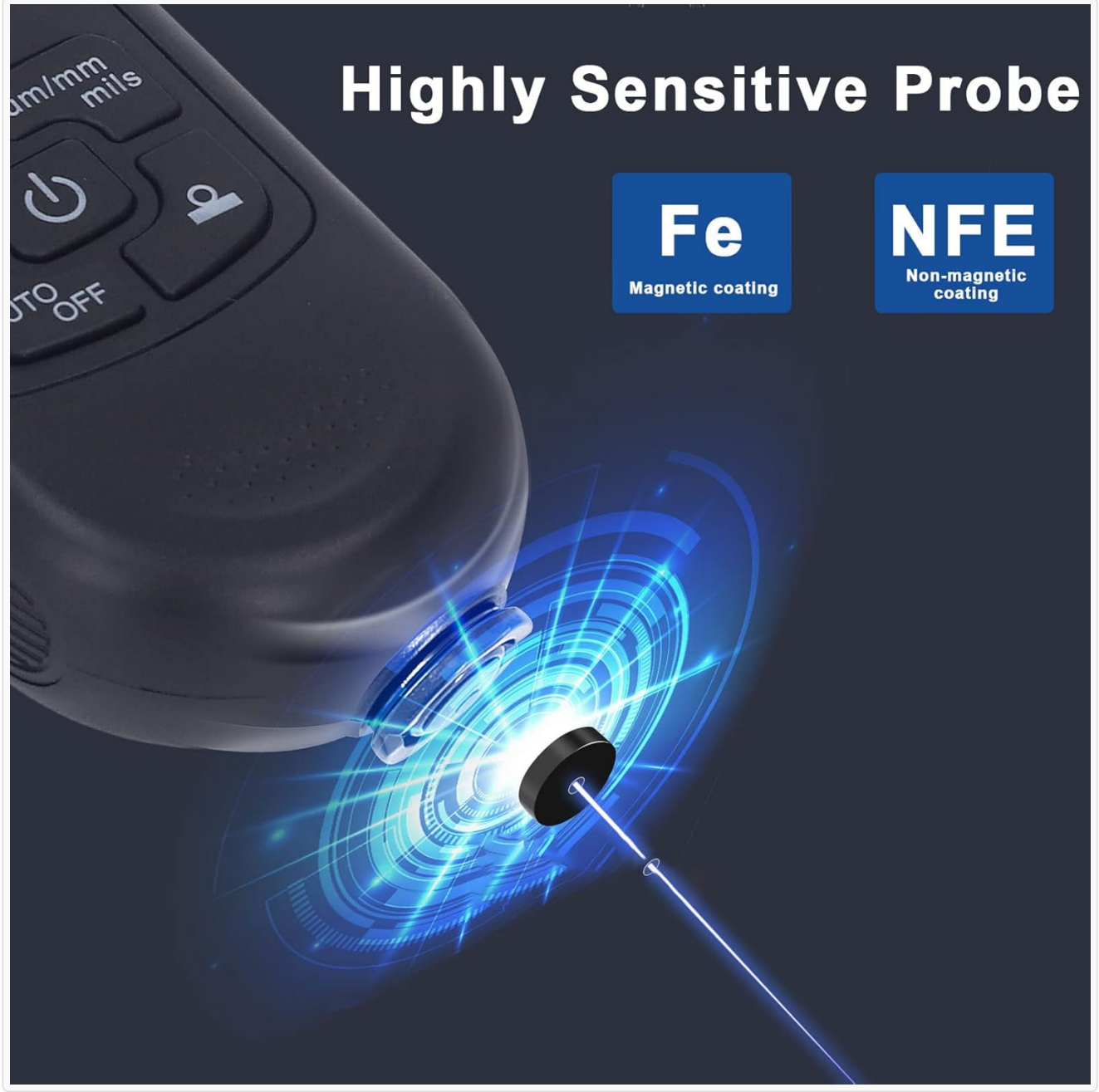


**Figure 4.1:** Front view of the HW300PRO gauge with labeled components.

1. **Probe:** The sensor tip used for making contact with the surface to be measured.
2. **Display Screen:** High-definition LCD with backlight, showing measurement readings, metal type, operating mode, battery status, and statistical data.
3. **F/NF Button (Left Key):** Switches between ferrous (F) and non-ferrous (NFE) modes, or clears statistics.
4. **Power Button:** Turns the device ON/OFF.
5. **Unit Button (Right Key):** Switches measurement units (μm/mm/mils) or performs zero calibration/statistical display.
6. **Backlight Button (Down Key):** Toggles the display backlight ON/OFF. Also activates automatic shutdown.
7. **Strap Hole:** For attaching a wrist strap.


**Figure 4.2:** Details of the HD display, high-precision probe, and anti-slip groove design.

## 5. Setup and Calibration

### 5.1 Battery Installation

The HW300PRO gauge requires two 1.5V AAA batteries (not included). To install:

1. Locate the battery compartment cover on the back of the device.
2. Slide the cover downwards to open.
3. Insert two AAA batteries, ensuring correct polarity (+/-) as indicated inside the compartment.
4. Close the battery compartment cover by sliding it back into place until it clicks.


**Figure 5.1:** Battery compartment with cover removed, showing battery slots.

## 5.2 Calibration

For accurate measurements, it is recommended to perform a zero calibration before use, especially when measuring on a new type of substrate or after prolonged storage.

1. Turn on the gauge by pressing the Power button.
2. Place the probe firmly and flatly on the provided Base Sheet (non-coated metal substrate).
3. Press and hold the Unit button (Right Key) until the display shows "0.00" or "CAL". Release the button.
4. The gauge is now zero-calibrated for the current substrate.


**Figure 5.2:** Performing self-calibration for accurate measurements.

## 6. Operating Instructions

### 6.1 Taking a Measurement

1. Ensure the gauge is powered on.
2. Place the probe perpendicular to the surface to be measured. Apply gentle, steady pressure to ensure full contact.
3. The measurement reading will appear on the display almost instantly (within 2 readings per second).
4. Lift the gauge from the surface to prepare for the next measurement.


**Figure 6.1:** The HW300PRO display showing a typical measurement reading.

## 6.2 Understanding Measurement Principles

The HW300PRO utilizes two primary measurement principles:

- **Magnetic Induction (F-probe):** Used for measuring non-magnetic coatings (e.g., paint, plastic, enamel, rubber) on magnetic metal substrates (e.g., steel, iron).
- **Eddy Current Effect (NFE-probe):** Used for measuring non-conductive coatings (e.g., paint, anodized layers) on non-magnetic metal substrates (e.g., aluminum, copper, brass).

The gauge automatically detects the substrate type (ferrous or non-ferrous) and switches to the appropriate measurement mode.


**Figure 6.2:** The highly sensitive probe automatically identifies magnetic (Fe) and non-magnetic (NFE) substrates.

## 6.3 Unit Switching

Press the **Unit button** (Right Key) to cycle through the available measurement units: micrometers (µm), millimeters (mm), and mils.

## 6.4 Statistical Display

The gauge can display statistical values of your measurements. Press the**Unit button** repeatedly to cycle through average (AVG), minimum (MIN), maximum (MAX), and number (NUM) of readings.

## 6.5 Backlight Control

Press the **Backlight button** (Down Key) to turn the display backlight ON or OFF for better visibility in different lighting conditions.

### 6.6 Automatic Shutdown

To conserve battery life, the HW300PRO features an automatic shutdown function. If the device is idle for a certain period (typically 3 minutes), it will automatically power off. This feature can be activated or deactivated via the Backlight button (Down Key) in some modes.

## 7. Maintenance

Proper maintenance will ensure the longevity and accuracy of your HW300PRO Paint Thickness Gauge.

- **Cleaning:** Wipe the device with a soft, dry cloth. Do not use abrasive cleaners, solvents, or immerse the device in water. Ensure the probe tip is clean and free of debris before each measurement.
- **Storage:** Store the gauge in a cool, dry place, away from direct sunlight and extreme temperatures. If storing for an extended period, remove the batteries to prevent leakage.
- **Probe Care:** The probe is a sensitive component. Avoid scratching or damaging it. Do not apply excessive force when taking measurements.

## 8. Troubleshooting

If you encounter issues with your HW300PRO gauge, refer to the following common problems and solutions:

| Problem | Possible Cause | Solution |
|---|---|---|
| Device does not turn on. | Low or dead batteries; incorrect battery installation. | Replace batteries with new 1.5V AAA batteries. Check battery polarity. |
| Inaccurate readings. | Needs calibration; dirty probe; unstable contact with surface. | Perform zero calibration. Clean the probe tip. Ensure firm and flat contact with the surface. |
| Display is dim or flickering. | Low battery power. | Replace batteries. |
| "OL" or "Err" displayed. | Measurement out of range; sensor error. | Ensure the coating thickness is within 0-2000µm. Re-calibrate. If problem persists, contact support. |

## 9. Specifications

Technical specifications for the Diydeg HW300PRO Paint Thickness Gauge:

| Parameter | Value |
|---|---|
| Model | HW300PRO |
| Measuring Range | 0-2000µm (0-78.7 mils) |
| Measurement Accuracy | ±(3% ± 1µm) |
| Resolution | 0µm~999µm (1µm) |
| Measurement Speed | 2 readings per second |

| Parameter | Value |
| --- | --- |
| Minimum Convex Arc | Approx. 5mm / 0.2in |
| Minimum Concave Arc | Approx. 25mm / 0.98in |
| Minimum Measuring Area Diameter | Approx. 20mm / 0.79in |
| Minimum Substrate Thickness (F-probe) | 0.2mm |
| Minimum Substrate Thickness (N-probe) | 0.05mm |
| Power Supply | 2 x 1.5V AAA battery (not included) |
| Operating Temperature | 0℃ ~ 50℃ (32℉ ~ 122℉) |
| Operating Humidity | 20-90% RH, non-condensing |
| Storage Temperature | -10℃ ~ 60℃ (14℉ ~ 140℉) |
| Storage Humidity | 20-90% RH, non-condensing |
| Dimensions | Approx. 12.2cm x 5cm x 2.2cm (4.8in x 1.97in x 0.87in) |
| Item Weight | Approx. 106g (3.74 ounces) without batteries |


**Figure 9.1:** Physical dimensions of the HW300PRO gauge.

## 10. Warranty and Support

Diydeg is committed to the quality of its products. The HW300PRO Paint Thickness Gauge comes with a commitment to replacement and lifelong technical support. If you encounter any issues or have questions regarding the operation or performance of your device, please do not hesitate to contact Diydeg customer support.
For further assistance, please visit the official Diydeg store on Amazon:Diydeg Store