GOLDCHAMP T8-UT200

GOLDCHAMP T8-UT200 Ultrasonic Thickness Gauge User Manual

Model: T8-UT200

1. Introduction

The GOLDCHAMP T8-UT200 Ultrasonic Thickness Gauge is an advanced instrument designed for precise and reliable material thickness measurement. It integrates cutting-edge technology, ergonomic design, and multi-functionality to meet the diverse needs of professionals across various industries. This device is ideal for pipeline inspection, precious metal authentication, and general material thickness assessment.
Key features include:

- **Three Measurement Modes:** IE mode for measuring metal thickness through coatings, PE mode for uncoated materials, and a special test mode for precious metal verification.
- **High Precision:** Measurement range of 0.65 to 500 mm with 0.01 mm resolution, supported by V-PATH calibration.
- **Data Storage:** Comprehensive storage of thickness values, sound velocity, and time information.
- **Clear Display:** Adjustable contrast LCD with LED backlight for visibility in all lighting conditions.
- **Wide Application:** Suitable for metals (steel, aluminum, copper), plastics, ceramics, glass, PVC, and pipes.

Figure 1: GOLDCHAMP T8-UT200 Ultrasonic Thickness Gauge. This image shows the front view of the device, highlighting its compact design and clear display.

2. Package Contents

Before proceeding with the setup, please verify that all items listed below are present in your package:

- 1 x Ultrasonic Thickness Gauge (UT200)
- 1 x 5 MHz Probe
- 1 x Packing Box / Carrying Case
- 1 x Couplant bottle (*Note: Couplant liquid is not included and must be purchased separately*)

Figure 2: Contents of the GOLDCHAMP T8-UT200 package. This image displays the thickness gauge, probe, and a bottle for couplant, all neatly arranged within the protective carrying case.

3. Device Components

Familiarize yourself with the main components of the T8-UT200 Ultrasonic Thickness Gauge:

Figure 3: Labeled diagram of the T8-UT200. This image points out key parts such as the Transmission Socket, Receiving Socket, Backlight LED Screen, Control Panel, Probe, and Measuring Block.

- **Transmission Socket:** Connects one lead of the probe.
- **Receiving Socket:** Connects the other lead of the probe.
- **Backlight LED Screen:** Displays measurement readings and menu options. Features adjustable contrast and LED backlight.
- **Control Panel:** Contains buttons for menu navigation, saving data, adjusting settings, and calibration.
- **Probe:** The transducer that emits and receives ultrasonic waves.
- **Measuring Block:** A standard block used for calibration.

4. Setup

1. **Connect the Probe:** Carefully connect the probe's two leads to the Transmission Socket and Receiving Socket on the top of the device. Ensure a secure connection.
2. **Power On:** Press and hold the power button (usually marked with **MENU** or a power symbol) to turn on the device. The LED

screen should illuminate.

3. **Apply Couplant:** Before any measurement, apply a small amount of ultrasonic couplant to the surface of the material to be measured, or directly to the probe face. This ensures proper ultrasonic wave transmission.

5. Operating Modes and Measurement

The T8-UT200 offers three distinct measurement modes:

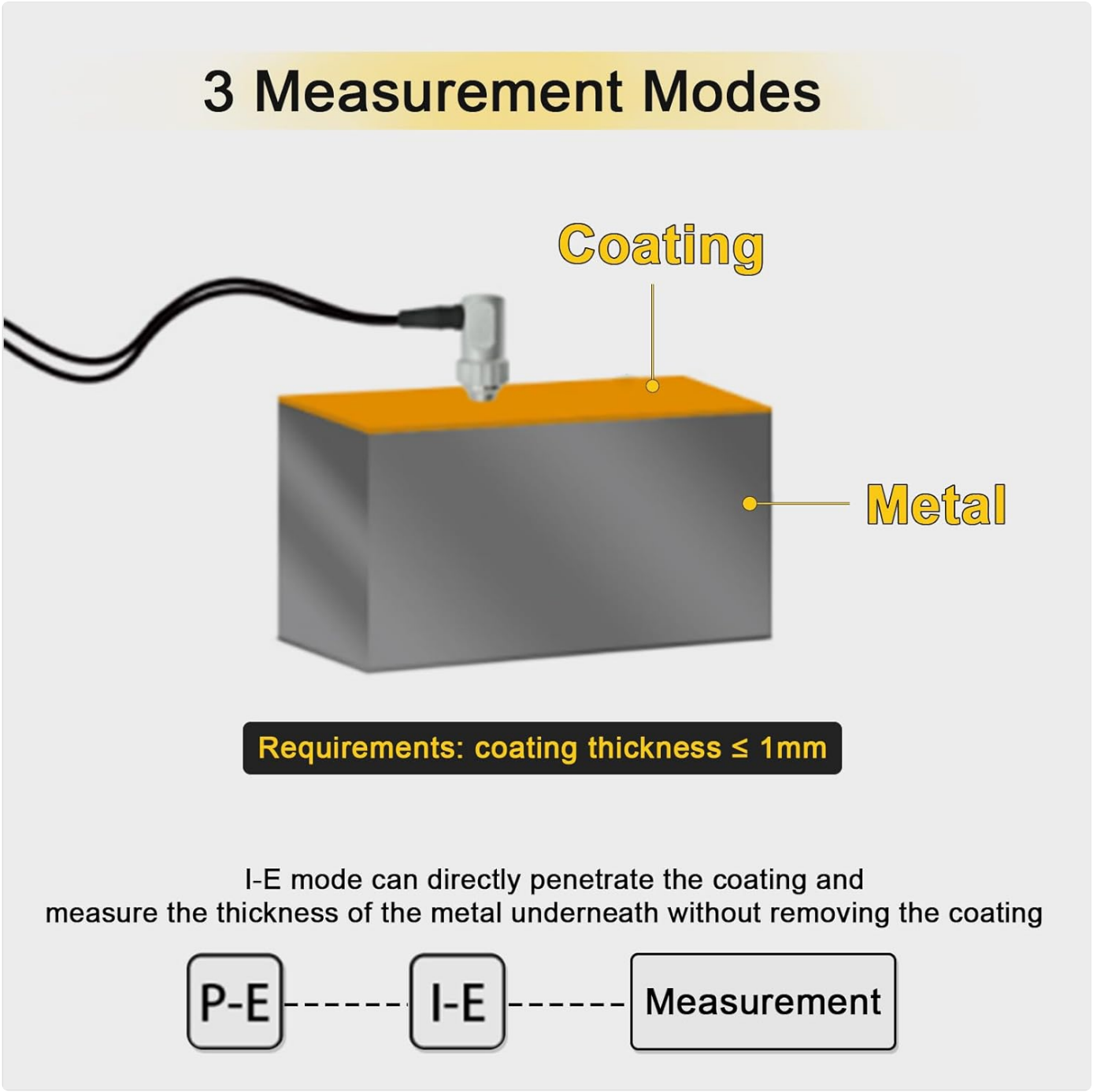

Figure 4: Illustration of the three measurement modes. This diagram visually explains the difference between PE mode (uncoated material), IE mode (through coating), and the general measurement process. It also notes the coating thickness requirement for IE mode.

5.1. Measurement Modes

- **PE Mode (Pulse-Echo):** Used for measuring the thickness of uncoated materials. In this mode, the ultrasonic pulse travels directly through the material and reflects from the back surface.
- **IE Mode (Echo-Echo):** Designed for measuring the thickness of metal through coatings (e.g., paint, rust) without removing

the coating. The device measures the time difference between two consecutive echoes from the metal substrate. This mode is effective for coating thicknesses up to 1mm.

- **Precious Metal Test Mode:** A specialized mode for verifying the authenticity and purity of precious metals like gold and silver by measuring their thickness and comparing it against known material properties.

5.2. Calibration (V-PATH)

The T8-UT200 utilizes a V-PATH calibration model for high precision. Regular calibration ensures accurate readings.

1. **Standard Calibration:** Place the probe firmly on the integrated measuring block (or a known thickness standard) with couplant.
2. **Initiate Calibration:** Press the **CAL** button on the control panel. Follow the on-screen prompts to complete the calibration process.
3. **Sound Velocity Adjustment:** If measuring a material with a known sound velocity different from the default, navigate to the sound velocity setting (usually via the **VEL** button) and adjust it accordingly. The range is 1000 ~ 9999 m/s.

Figure 5: Multi-scenario application of the T8-UT200. This image depicts the device being used in metallurgy, shipbuilding (steamship),

aviation, and chemical industry settings, demonstrating its versatility.

5.3. Performing a Measurement

1. **Select Mode:** Use the menu buttons to select the appropriate measurement mode (PE, IE, or Precious Metal Test) for your application.
2. **Apply Couplant:** Ensure a thin layer of couplant is applied to the test surface.
3. **Place Probe:** Press the probe firmly and perpendicularly onto the prepared surface. Maintain consistent pressure.
4. **Read Measurement:** The thickness reading will appear on the LCD screen.
5. **Data Storage:** To save the measurement, press the **SAVE** button. The device stores thickness values, sound velocity, and time information.

Figure 6: Data storage and backlight display. This image shows the device's screen with measurement data, indicating its ability to store readings and the clarity provided by the LED backlight.

6. Maintenance

- **Cleaning:** After each use, wipe the probe and the device's surface with a soft, dry cloth to remove any couplant residue or dirt. Do not use abrasive cleaners or solvents.
- **Probe Care:** Handle the probe carefully. Avoid dropping it or subjecting it to harsh impacts. Ensure the probe face is clean and free from scratches.
- **Storage:** Store the device and its accessories in the provided packing box in a cool, dry place, away from direct sunlight and extreme temperatures.
- **Battery Replacement:** If the device uses replaceable batteries, replace them when the low battery indicator appears on the screen to ensure optimal performance.

7. Troubleshooting

Problem	Possible Cause	Solution
Device does not power on.	Low or dead batteries (if applicable); incorrect battery installation (if applicable).	Ensure device is charged or replace batteries with new ones (if applicable); ensure correct polarity.
Inaccurate or unstable readings.	Insufficient couplant; improper probe placement; uncalibrated device; incorrect sound velocity setting.	Apply sufficient couplant; ensure firm, perpendicular probe contact; perform calibration; verify sound velocity setting for the material.
No reading displayed.	No couplant; probe not making good contact; material too thin/thick for range; probe malfunction.	Apply couplant; ensure firm contact; check if material thickness is within 0.65-500 mm range; inspect probe for damage.
Screen backlight not working.	Backlight feature turned off; low battery.	Check device settings to enable backlight; ensure device is charged or replace batteries (if applicable).

8. Specifications

Feature	Detail
Model	T8-UT200
Measurement Range	0.65 - 500 mm
Resolution	0.01 mm
Measurement Accuracy	+/- 0.5 %
Sound Velocity Range	1000 ~ 9999 m/s
Measurement Modes	IE (Coating Penetration), PE (Uncoated Materials), Precious Metal Test
Applicable Materials	Metals (steel, aluminum, copper), plastics, ceramics, glass, PVC, pipes
Display	Adjustable Contrast LCD with LED Backlight
Calibration	V-PATH Model
Data Storage	Thickness values, sound velocity, time information
Product Weight	226 g

Feature	Detail
Package Dimensions	27.94 x 20.32 x 10.16 cm
Included Components	UT200 Ultrasonic Thickness Gauge, 5 MHz Probe

9. Warranty and Support

Specific warranty information is not provided in this manual. For details regarding warranty coverage, please refer to the product packaging or contact your retailer.

For technical support, troubleshooting assistance beyond this manual, or inquiries about replacement parts, please contact GOLDCHAMP customer service through their official website or the contact information provided with your purchase.