

SULMILE TM-8812

SULMILE TM-8812 Ultrasonic Thickness Gauge Meter User Manual

Model: TM-8812

1. INTRODUCTION

The SULMILE TM-8812 Ultrasonic Thickness Gauge is a precision instrument designed for accurate measurement of material thickness. It is widely used across various industries, including petroleum, shipbuilding, power generation, and machine manufacturing, for assessing the thickness and corrosion levels of pressure vessels, chemical equipment, boilers, and oil storage tanks. This gauge offers a wide measuring range (1.2-200mm) and high resolution (0.1mm), making it suitable for diverse applications and materials such as steel, cast iron, aluminum, copper, brass, zinc, quartz glass, polyethylene, PVC, and more. Its advanced micro-computer LSI circuit ensures high accuracy and fast measurement times.

2. SAFETY INFORMATION

Please read and understand all safety instructions before operating the TM-8812 Ultrasonic Thickness Gauge. Failure to follow these instructions may result in injury or damage to the device.

- **General Safety:** Always operate the device in a safe environment. Keep the device away from strong magnetic fields, high temperatures, and excessive humidity.
- **Probe Handling:** Handle the ultrasonic probe with care. Avoid dropping or subjecting it to impact, as this can damage the transducer.
- **Couplant Use:** Use only approved ultrasonic couplant (e.g., glycerin) for measurements. Do not use corrosive or abrasive substances. Ensure proper application and removal of couplant.
- **Battery Safety:** Ensure correct battery polarity when installing. Do not mix old and new batteries, or different types of batteries. Remove batteries if the device will not be used for an extended period to prevent leakage.
- **Maintenance:** Do not attempt to disassemble or repair the device yourself. Refer all servicing to qualified personnel.
- **Environmental:** Dispose of batteries and the device according to local environmental regulations.

3. PACKAGE CONTENTS

Verify that all items listed below are present in your package:

- TM-8812 Main Unit
- 5M98 Standard Probe

- Carrying Case
- Instruction Manual (this document)
- Couplant (Glycerin)



Image 3.1: Complete package contents of the SULMILE TM-8812 Ultrasonic Thickness Gauge Meter, including the main unit, probe, couplant, and blue carrying case.



Image 3.2: Close-up view of the 5MHz ultrasonic probe with its cable, used for thickness measurements.

4. DEVICE OVERVIEW AND SETUP

4.1 Device Components



Image 4.1: Front view of the TM-8812 main unit, displaying the LCD screen and control panel.

- **LCD Display:** Shows measurement readings, units, and other operational information.
- **CAL. Button:** Used for calibration.
- **SELECT Button:** Used to select material types or menu options.
- **mm/inch Button:** Toggles between millimeter and inch measurement units.
- **Up/Down Arrows:** Used for navigation and adjusting values.
- **VEL. Button:** Used to set or adjust the sound velocity for specific materials.
- **Power Button (Red):** Turns the device on or off.



Image 4.2: Side view of the TM-8812, showing the two ports for connecting the ultrasonic probe.



Image 4.3: Back view of the TM-8812, showing the battery compartment cover and the optional USB/RS-232 data output port.

4.2 Battery Installation

1. Locate the battery compartment on the back of the main unit (refer to Image 4.3).
2. Slide the battery compartment cover open.
3. Insert four (4) AA batteries, ensuring correct polarity (+/-).
4. Close the battery compartment cover securely.

4.3 Probe Connection

1. Identify the two coaxial connectors on the side of the TM-8812 main unit (refer to Image 4.2).
2. Connect the two plugs from the 5M98 Standard Probe cable into these ports. Ensure a firm connection.

5. OPERATION

5.1 Powering On/Off

- To power on, press the red **Power** button. The LCD display will illuminate.
- To power off, press and hold the red **Power** button until the display turns off.

5.2 Unit Selection (mm/inch)

Press the **mm/inch** button to toggle between millimeter and inch measurement units on the display.

5.3 Material Selection and Sound Velocity Adjustment

Accurate thickness measurement relies on setting the correct sound velocity for the material being tested. The TM-8812 allows for both pre-programmed material selection and manual sound velocity adjustment.

1. Press the **SELECT** button to cycle through pre-programmed material types (e.g., Steel, Aluminum, etc.). The device automatically recalls the corresponding sound velocity.
2. If your material is not listed or you require a precise custom velocity, press the **VEL.** button.
3. Use the **Up** and **Down** arrow buttons to adjust the sound velocity value. Refer to material property tables for accurate sound velocity values.
4. Press **VEL.** again to confirm the setting. The device automatically remembers the last set sound velocity.

5.4 Calibration

Calibration is crucial for accurate measurements. It is recommended to calibrate the device using a known thickness sample of the material to be measured.

1. Ensure the probe is connected and the correct material sound velocity is selected.
2. Apply a small amount of couplant to a known thickness sample (e.g., a calibration block).
3. Place the probe firmly and flatly on the sample.
4. Press the **CAL.** button. The display will show the current measured thickness.
5. Use the **Up** and **Down** arrow buttons to adjust the displayed value to match the known thickness of the sample.
6. Press **CAL.** again to save the calibration.

5.5 Taking a Measurement



Image 5.1: The TM-8812 displaying a thickness measurement, with the probe connected and ready for use.

1. Ensure the device is powered on, calibrated, and the correct material sound velocity is set.
2. Apply a small amount of couplant to the surface of the object to be measured.
3. Place the probe firmly and flatly onto the couplant-applied surface. Ensure good contact.
4. The thickness reading will appear on the LCD display.
5. If the reading is unstable or "----" appears, adjust the probe position or reapply couplant to ensure proper coupling.
6. Remove the probe from the surface after measurement.

5.6 Data Output (Optional)

The TM-8812 supports USB/RS-232 data output for connection to a PC (optional accessory required). Refer to the separate instructions provided with the data cable and software for detailed usage.

6. MAINTENANCE

- **Cleaning:** After each use, wipe the probe face and the main unit with a soft, dry cloth to remove any couplant residue or dirt. Do not use abrasive cleaners or solvents.
- **Storage:** Store the device and probe in the provided carrying case in a cool, dry place, away from direct sunlight and

extreme temperatures. Remove batteries if storing for extended periods.

- **Probe Care:** Ensure the probe cable is not kinked or bent sharply. Protect the probe face from scratches or damage.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Dead or incorrectly installed batteries.	Check battery polarity, replace with fresh batteries.
Unstable or "----" reading.	Poor probe coupling, incorrect couplant, rough surface, incorrect sound velocity.	Ensure sufficient couplant and firm probe contact. Clean surface. Verify sound velocity setting. Recalibrate.
Inaccurate readings.	Improper calibration, incorrect sound velocity, probe wear.	Perform calibration with a known sample. Verify sound velocity. Inspect probe for damage.
Device freezes or malfunctions.	Software glitch, low battery.	Remove and reinsert batteries to reset. Replace batteries. If problem persists, contact support.

8. SPECIFICATIONS

Feature	Detail
Measuring Range	1.2 - 200 mm
Resolution	0.1 mm
Item Weight	1.9 pounds
Package Dimensions	10.6 x 8.5 x 3 inches
Applicable Materials	Steel, Cast iron, Aluminum, Red copper, Brass, Zinc, Quartz glass, Polyethylene, PVC, Gray cast iron, Nodular cast iron.
Data Output	USB/RS-232 (Optional Accessory)
Manufacturer	M&A INSTRUMENTS INC
First Available Date	January 11, 2018

9. WARRANTY AND SUPPORT

SULMILE products are manufactured to high-quality standards. For warranty information, please refer to the warranty card included with your product or contact SULMILE customer support. If you encounter any issues or require technical assistance, please contact your retailer or SULMILE customer service through the official website or contact information provided in your purchase documentation.

For further assistance, please visit the [SULMILE Store on Amazon](#).

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question