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> [SULMILE TM-8811 Ultrasonic Thickness Gauge User Manual](#)

## SULMILE TM-8811

# SULMILE TM-8811 Ultrasonic Thickness Gauge User Manual

Model: TM-8811

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## 1. INTRODUCTION

The SULMILE TM-8811 Ultrasonic Thickness Gauge is a precision instrument designed for measuring the thickness and detecting corrosion in various materials. It is widely used in industries such as petroleum, shipbuilding, power generation, and machine manufacturing for inspecting pressure vessels, chemical equipment, boilers, and oil storage tanks. This device utilizes an exclusive micro-computer LSI circuit and crystal time base to ensure high accuracy and fast measurement times. Its broad measuring range and high resolution, combined with high power emission and broad band receiving sensitivity, allow it to effectively measure rough surfaces and various materials including steel, cast iron, aluminum, copper, brass, zinc, quartz glass, polyethylene, PVC, gray cast iron, and nodular cast iron.

## 2. PRODUCT OVERVIEW & COMPONENTS

### 2.1 What's in the Box

- Main Unit (TM-8811 Ultrasonic Thickness Gauge)
- 5M98 Standard Probe
- Carrying Case
- User Manual



Figure 1: The TM-8811 Ultrasonic Thickness Gauge kit, including the main unit, probe, glycerin couplant, and carrying case.

## 2.2 Key Features

- Wide measuring range: 1.5-200mm / 0.06-8 inch
- High resolution: 0.1mm
- High accuracy measurement using Micro-computer LSI circuit and crystal time base
- Applicable to various materials including steel, cast iron, aluminum, copper, brass, zinc, quartz glass, polyethylene, PVC, gray cast iron, and nodular cast iron
- Automatic power off function to conserve battery life
- Capable of measuring rough surfaces, including cast iron



Figure 2: Front view of the SULMILE TM-8811 Ultrasonic Thickness Gauge, showing the display and control buttons.

## TM-8811

### Ultrasonic Thickness Meter

- Measuring Range**  
1.5-200mm/0.06-8 inch
- Resolution**  
0.1 mm
- Accuracy**  
 $\pm(0.5\%n+0.2)$
- Sound Velocity**  
500-9000 m/s



5M  $\Phi$ 8 Standard Probe

Codes for Materials  
CD 01-CD 11, etc.

Figure 3: Diagram highlighting key features and specifications of the TM-8811, including measuring range, resolution, accuracy, and

### 3. SAFETY INFORMATION

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Please read and understand all safety instructions before operating the TM-8811 Ultrasonic Thickness Gauge. Failure to follow these instructions may result in injury or damage to the device.

- **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.
- **Environmental Conditions:** Operate the device within specified temperature and humidity ranges. Avoid exposure to extreme temperatures, direct sunlight, high humidity, or corrosive environments.
- **Handling:** Handle the device and probe with care. Avoid dropping or subjecting them to strong impacts.
- **Couplant Use:** Use appropriate ultrasonic couplant as recommended. Avoid contact with eyes and skin; refer to the couplant's safety data sheet for specific precautions.
- **Maintenance:** Do not attempt to disassemble or repair the device yourself. Refer all servicing to qualified personnel.

### 4. SETUP

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#### 4.1 Battery Installation

1. Locate the battery compartment cover on the back of the main unit.
2. Slide or unclip the cover to open it.
3. Insert four (4) AA batteries, ensuring correct polarity (+/-) as indicated inside the compartment.
4. Replace the battery compartment cover securely.

#### 4.2 Probe Connection

1. Identify the two BNC connectors on the top of the main unit.
2. Connect the probe cable to these connectors. Ensure a secure connection by twisting the connectors until they lock into place.



Figure 4: Top view of the TM-8811 showing the two BNC connectors for the ultrasonic probe.



Figure 5: Close-up of the 5MHz, 8mm diameter standard probe used with the TM-8811.

### 4.3 Applying Couplant

Ultrasonic couplant (e.g., glycerin) is essential for effective measurement. It eliminates air gaps between the probe and the test material, allowing ultrasonic waves to transmit properly.

- Apply a small amount of couplant to the surface of the material to be measured, or directly to the face of the probe.
- Ensure an even, thin layer for optimal results.

## 5. OPERATING INSTRUCTIONS

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### 5.1 Powering On/Off

- To power on, press the **POWER** button (usually the central red button).
- The device features automatic power off to conserve battery life after a period of inactivity.

### 5.2 Calibration

Calibration is crucial for accurate measurements. The TM-8811 typically has a built-in calibration block or requires calibration on a known thickness of the material being tested.

- Press the **CAL** button to enter calibration mode.
- Follow the on-screen prompts to calibrate the device using a known thickness standard.
- Ensure the probe is properly coupled to the calibration block during this process.

### 5.3 Material Selection

Different materials have different sound velocities. The gauge must be set to the correct sound velocity for the material being measured.

- Press the **SELECT** button to cycle through pre-programmed material types or to manually adjust the sound velocity.
- Refer to the material codes (e.g., CD 01-CD 11) provided in the full manual for specific material settings.

## 5.4 Adjusting Sound Velocity (VEL)

- If the material is not pre-programmed, or for fine-tuning, press the **VEL** button.
- Use the **UP** and **DOWN** arrow buttons to adjust the sound velocity value to match the material being tested.

## 5.5 Unit Conversion (mm/inch)

- Press the **mm/inch** button to switch between millimeters and inches for measurement display.

## 5.6 Taking a Measurement

1. Ensure the device is calibrated and the correct material sound velocity is selected.
2. Apply a small amount of couplant to the test surface.
3. Place the probe firmly and flatly onto the prepared surface.
4. The thickness reading will appear on the digital display.
5. If the 'COUPLING' indicator light illuminates, it signifies proper coupling between the probe and the material.
6. Remove the probe and wipe off any excess couplant from both the probe and the test surface.

# 6. MAINTENANCE

## 6.1 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 that could damage the device's casing or display.

## 6.2 Storage

- Store the TM-8811 in its protective carrying case when not in use.
- Keep the device in a cool, dry place, away from direct sunlight, extreme temperatures, and high humidity.
- Remove batteries if storing for extended periods to prevent potential leakage and damage.

# 7. TROUBLESHOOTING

Problem	Possible Cause	Solution
No display or device won't turn on	Dead or incorrectly installed batteries	Check battery polarity; replace with fresh AA batteries.
Inaccurate readings	Improper calibration; incorrect sound velocity setting; poor probe coupling; rough surface	Recalibrate the device; verify sound velocity for the material; ensure sufficient couplant and firm probe contact; prepare surface if too rough.
'COUPLING' indicator not lighting up	Insufficient couplant; air gap between probe and material; probe not flat on surface	Apply more couplant; ensure no air bubbles; press probe firmly and flatly against the surface.
Device powers off unexpectedly	Automatic power-off activated; low batteries	This is normal behavior for inactivity. If it happens during use, replace batteries.

# 8. SPECIFICATIONS

Parameter	Value
Measuring Range	1.5-200mm / 0.06-8 inch
Resolution	0.1mm
Accuracy	$\pm(0.5\%n+0.2)$
Sound Velocity Range	500-9000 m/s
Operating Temperature	0-45°C (32-113°F)
Power Supply	4x 1.5V AA batteries
Dimensions	Approx. 9.76 x 7.8 x 2.09 inches
Weight	Approx. 1.74 Pounds (including batteries)
Item Model Number	TM-8811

## 9. WARRANTY & SUPPORT

SULMILE products are manufactured to high-quality standards. For specific warranty information, please refer to the warranty card included with your product or contact SULMILE customer support directly. In case of technical issues or questions regarding the operation of your TM-8811 Ultrasonic Thickness Gauge, please reach out to our customer service team for assistance.

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