AMTAST AMT211

Professional Surface Roughness Tester AMT211 User Manual

Model: AMT211 | Brand: AMTAST

1. INTRODUCTION

The AMTAST Professional Surface Roughness Tester AMT211 is a precision instrument designed for accurate measurement of surface roughness on various materials, including both metal and non-metal workpieces. This device is compliant with international standards such as ISO, DIN, ANSI, and JIS, ensuring reliable and consistent results.

Its user-friendly system features an intuitive menu navigation and a touch screen interface, allowing for multi-directional measurements. The AMT211 is suitable for applications in machining, manufacturing, quality control, and inspection departments, particularly for large and heavy workpieces and on-site assembly lines. As a non-destructive testing instrument, it performs measurements without causing damage to the test piece.

This manual provides detailed instructions for the setup, operation, maintenance, and troubleshooting of your AMT211 roughness tester.

2. PRODUCT COMPONENTS AND OVERVIEW

The AMT211 roughness tester consists of a main unit with a display and control buttons, and a detachable sensor/drive unit. Key components are illustrated below:

Figure 2.1: Main unit with the detachable drive and calibration block. The main unit features a large display and control buttons for operation.
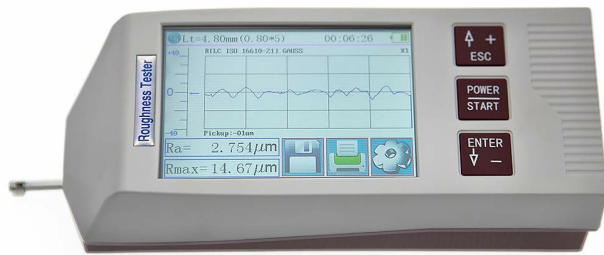
Figure 2.2: Front view of the AMT211 showing the display screen with measurement results and the control buttons on the right side.

Figure 2.3: Detailed view of the sensor unit, highlighting the stylus tip and its protective cover. The sensor can be used integrated or detached.
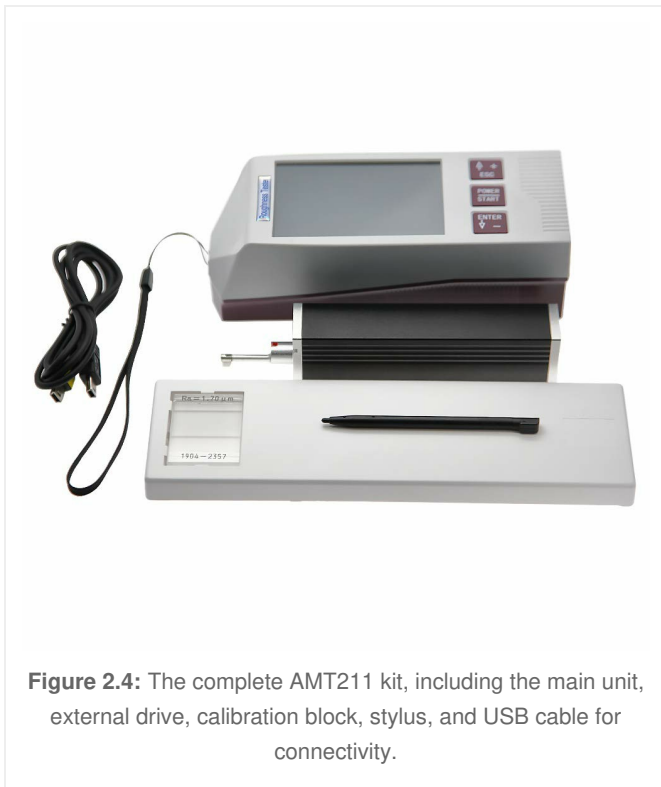
Figure 2.4: The complete AMT211 kit, including the main unit, external drive, calibration block, stylus, and USB cable for connectivity.

The sensor can operate either integrated within the main unit or independently via a 1.0m length cable (extendable up to 3m), offering flexibility for various measurement scenarios.

3. SETUP

3.1 Initial Charging

Before first use, ensure the device is fully charged. Connect the provided charger (DC5V, 800mA) to the main unit. The built-in Lithium-ion battery provides extended operation time.

3.2 Sensor Connection

The sensor can be used in two configurations:

1. **Integrated:** For compact use, the sensor can remain attached to the main unit.
2. **Detached:** For measurements in confined spaces or on large workpieces, connect the sensor to the main unit using the provided USB cable. Ensure the connection is secure.

3.3 Power On/Off

Press and hold the **POWER START** button to turn the device on or off. The display will illuminate upon successful power-on.

4. OPERATING INSTRUCTIONS

4.1 Navigating the Menu

The AMT211 features a touch screen for easy navigation. You can also use the physical buttons **+**, **-**, **ESC**, **ENTER**) for menu selection and adjustments.
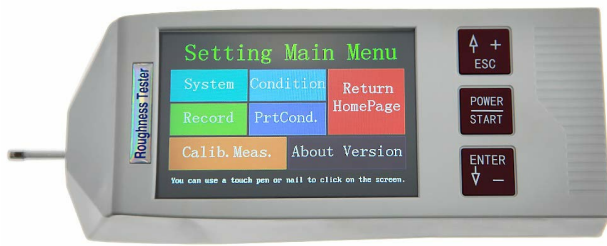
Figure 4.1: The "Setting Main Menu" allows access to System settings, Condition, Record, Print Condition, and Calibration.

Figure 4.2: "System Setting 1" screen, where you can adjust parameters like Ra, Rmax, enable/disable Bluetooth, and set auto-shutdown.

Figure 4.3: "System Setting 2" screen, providing options for Touch Calibration, Date & Time settings, TFT Brightness, and memory formatting.

4.2 Performing a Measurement

1. **Prepare the Sample:** Ensure the surface to be measured is clean and stable.
2. **Select Parameters:** Navigate to the "Condition" or "System Setting" menu to select the desired roughness parameters (e.g., Ra, Rz, Rq, Rt) and standards (ISO, ANSI, DIN, JIS).
3. **Position the Sensor:** Gently place the sensor's stylus tip onto the surface to be measured. Ensure stable contact.
4. **Start Measurement:** Press the **POWER START** button to initiate the measurement. The sensor will traverse the surface.
5. **View Results:** Once the measurement is complete, the results will be displayed on the screen, including numerical values and graphical profiles (Bearing area curve, Roughness profile, Primary profile).

4.3 Data Management and Connectivity

The AMT211 allows for calculation results, assessed profiles, bearing, and amplitude curves to be displayed. It can be easily connected to a PC or printer for data analysis and reporting.

- **PC Connection:** Use the provided USB cable to connect the device to a computer. Data can be transferred for further analysis.
- **Bluetooth Connectivity:** The device supports Bluetooth connectivity, allowing it to connect to a mobile phone via a dedicated app for data viewing and control. Enable Bluetooth in the "System Setting" menu (Figure 4.2).

5. MAINTENANCE

5.1 Cleaning

Regularly clean the exterior of the main unit with a soft, dry cloth. For the sensor and stylus, use a soft brush or lint-free cloth to gently remove any dust or debris. Avoid using abrasive cleaners or solvents.

5.2 Battery Care

To prolong battery life:

- Avoid fully discharging the battery frequently.
- Store the device in a cool, dry place when not in use for extended periods.

- Charge the battery periodically if stored for a long time to prevent deep discharge.

5.3 Stylus Tip Care

The stylus tip is a delicate component. Handle with care to prevent damage. If the stylus tip appears worn or damaged, contact AMTAST support for replacement options to ensure measurement accuracy.

6. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Low battery; Power button not pressed correctly.	Charge the device. Press and hold the POWER START button firmly.
Inaccurate measurements.	Stylus tip dirty or damaged; Incorrect parameter settings; Device not calibrated.	Clean the stylus tip. Verify measurement parameters. Perform calibration using a standard block.
Sensor not detected.	Loose cable connection; Sensor not properly seated (if integrated).	Ensure the sensor cable is securely connected. Re-seat the sensor if using integrated mode.
Bluetooth connection issues.	Bluetooth disabled; Device out of range; Interference.	Enable Bluetooth in System Settings. Ensure devices are within range. Reduce interference sources.
Screen unresponsive to touch.	Needs touch calibration.	Go to "System Setting 2" and perform "Touch Calib.".

If you encounter problems not listed here or if the suggested solutions do not resolve the issue, please contact AMTAST customer support.

7. TECHNICAL SPECIFICATIONS

Feature	Specification
Measurement Range (Z-axis)	±80µm / ±160µm (enhanced model)
Measurement Range (X-axis)	20mm
Parameter Range (Ra, Rq)	0.005µm ~ 30µm
Parameter Range (Rz, Ry, Rt, etc.)	0.02µm ~ 320µm
Resolution (Z-axis)	0.01µm/±20µm, 0.02µm/±40µm, 0.04µm/±80µm, 0.08µm/±160µm
Measurement Parameters	Ra, Rz, Rq, Rt, Rp, Rv, R3z, R3y, Rz(JIS), Rs, Rsk, Rsm, Rku, Rmr, Ry(JIS), Rmax, RPc, Rk, Rpk, Rvk, Mr1, Mr2
Standards	ISO, ANSI, DIN, JIS
Graphics Display	Bearing area curve, Roughness profile, Primary profile
Filter Types	RC, PC-RC, Gauss, D-P
Sampling Length (lr)	0.25, 0.8, 2.5mm

Feature	Specification
Assessment Length (ln)	Ln = lr × n (n=1~5)
Sensor Type	Skidded
Stylus Tip	Diamond, 90° cone angle, force 4mN, 2μm Radius (standard); Optional 60° cone angle, force 0.75mN, 2μm Radius for smooth surface.
Traversing Speed	lr=0.25: Vt=0.135mm/s; lr=0.8: Vt=0.5mm/s; lr=2.5: Vt=1mm/s; Return: Vt=1mm/s
Accuracy	Less than ±10%
Repeatability	Less than 6%
Power Supply	Built-in Lithium ion battery, Charger: DC5V, 800mA
Main Unit Dimensions	64 x 53 x 160mm
Drive Dimensions	23 x 27 x 115mm
Weight (main unit)	Around 380g
Working Environment Temperature	-20°C ~ 40°C
Working Environment Humidity	<90% RH
Storage Temperature	-40°C ~ 60°C
<90% RH	<90% RH

8. WARRANTY INFORMATION

Warranty details for the AMTAST Professional Surface Roughness Tester AMT211 are typically provided at the time of purchase or can be found on the official AMTAST website. Please retain your proof of purchase for warranty claims.

For specific warranty terms and conditions, refer to the documentation included with your product or visit the AMTAST official support page.

9. CUSTOMER SUPPORT

For technical assistance, troubleshooting, or inquiries regarding your AMTAST Professional Surface Roughness Tester AMT211, please contact AMTAST customer support.

You can find contact information and additional resources by visiting the official AMTAST store on Amazon:AMTAST Store.

Please have your product model number (AMT211) and purchase details ready when contacting support to facilitate a quicker resolution.

Documents - AMTAST – AMT211

Surface Roughness Tester Instruction manual

AMTAST USA INC

[pdf] User Manual Decleration of Conformity

Microsoft Word NDT160 Roughness Manual EN201904 plus22 doc Administrator User AMTAST Professional Surface Tester Metal Gauge Digital Meter AMT211 Industrial Scientific C1R3LerhJPS m media amazon images I |||

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Surface Roughness Tester Instruction manual

AMTAST USA INC

AMTAST Surface Roughness Tester Instruction Manual

Comprehensive instruction manual for the AMTAST Surface Roughness Tester, detailing its features, operation, maintenance, troubleshooting, and technical specifications for accurate surface texture analysis.

lang:i-klingon score:25 filesize: 5.84 M page_count: 50 document date: 2024-11-21