

TESMEN TN-213, TSM-599

TESMEN TN-213 Voltage Tester & TSM-599 Smart Digital Multimeter Bundle User Manual

Comprehensive Guide for Safe and Accurate Electrical Measurements

[Overview](#) [Setup](#) [Operation](#) [Introduction](#) [Safety Information](#) [Product](#)
[Maintenance](#) [Troubleshooting](#) [Specifications](#) [Warranty & Support](#)

1. INTRODUCTION

This manual provides detailed instructions for the safe and effective use of your TESMEN TN-213 Voltage Tester and TSM-599 Smart Digital Multimeter Bundle. This comprehensive kit is designed for both professionals and DIY enthusiasts, offering precise and reliable electrical measurements for a wide range of applications, from household repairs to automotive and industrial tasks. Please read this manual thoroughly before operating the devices and retain it for future reference.

2. SAFETY INFORMATION

Always adhere to the following safety precautions to prevent electric shock, injury, or damage to the devices:

- **Read Instructions:** Understand all instructions and safety warnings before use.
- **Proper Use:** Use the devices only as specified in this manual.
- **Inspect Before Use:** Before each use, inspect the devices and test leads for any damage. Do not use if damaged.
- **Voltage Limits:** Do not exceed the maximum voltage ratings specified for each device.
- **Live Circuits:** Exercise extreme caution when working with live circuits. Always assume circuits are live until proven otherwise.
- **Personal Protective Equipment (PPE):** Wear appropriate PPE, such as safety glasses and insulated gloves, when performing electrical work.
- **Dry Conditions:** Do not use the devices in wet or damp environments.
- **Qualified Personnel:** Electrical testing should only be performed by qualified personnel or under their direct supervision.
- **Battery Safety:** Ensure correct battery polarity and replace batteries when the low battery indicator appears. Remove batteries if the device will not be used for an extended period.

3. PRODUCT OVERVIEW

3.1 TESMEN TN-213 Non-Contact Voltage Tester

The TN-213 is a non-contact AC voltage detector designed for quick and safe voltage presence checks without direct contact. It features visual and audible indicators for enhanced safety.

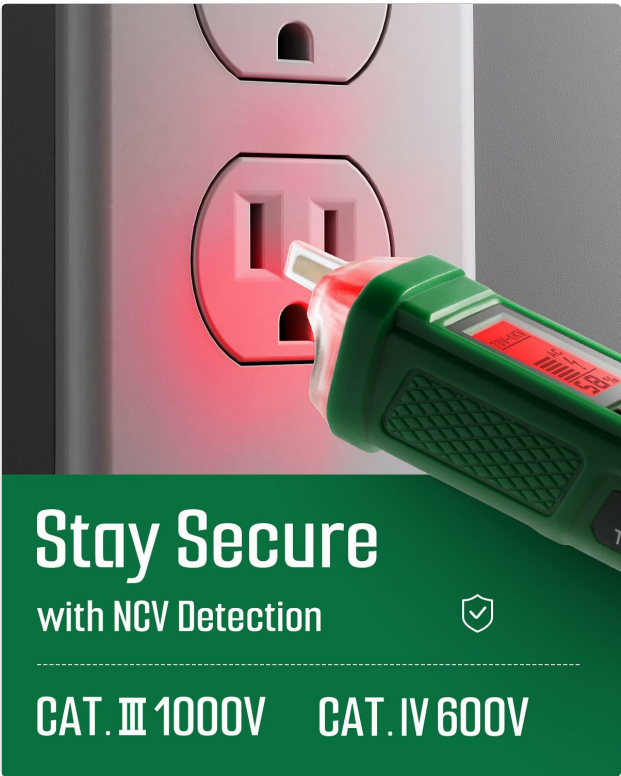


Image 3.1.1: The TN-213 in use, demonstrating non-contact voltage detection in an electrical outlet. The device illuminates red, indicating the presence of AC voltage, ensuring user safety through NCV detection.

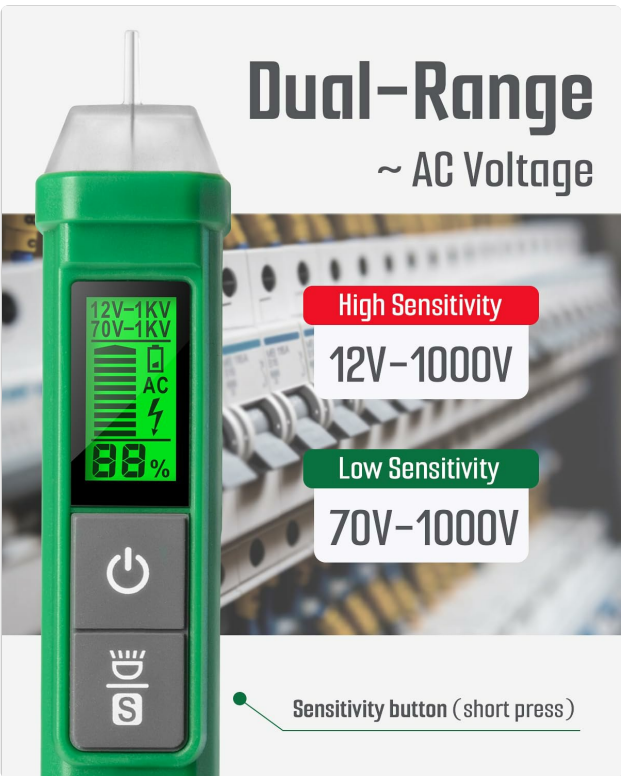


Image 3.1.2: The TN-213's display illustrating its dual-range AC voltage detection capabilities. It offers both High Sensitivity (12V-1000V) and Low Sensitivity (70V-1000V) modes, selectable via a sensitivity button for varied testing scenarios.

Key Features:

- Non-Contact Voltage (NCV) detection.
- Dual-range AC voltage detection (12-1000V / 70-1000V).
- Audible and visual alerts.
- Built-in flashlight.
- IP66 rated for dust and water resistance.

3.2 TESMEN TSM-599 Smart Digital Multimeter

The TSM-599 is a versatile smart digital multimeter offering a broad range of measurement functions in both Auto and Manual modes. It features a color LCD display and enhanced safety features.



Image 3.2.1: The TSM-599 multimeter showcasing its 'TRUE RMS 6000 Counts' capability and a comprehensive array of measurement functions, including voltage, resistance, continuity, diode, capacitance, frequency, temperature, current, NCV, and live wire detection.



Image 3.2.2: The TSM-599's interface highlighting its Smart & Manual Mode functionality. This image visually represents the various measurement modes available, such as continuity, frequency, capacitance, diode, NCV, and live detection, catering to diverse testing requirements.

Key Features:

- True RMS 6000 counts.
- Auto and Manual modes.
- Measures AC/DC Voltage, AC/DC Current, Resistance, Continuity, Diode, Capacitance, Frequency, Temperature.
- Non-Contact Voltage (NCV) and Live Wire detection.
- Color LCD display with analog bar and real-time temperature.
- Data Hold, Flashlight, Auto-off function.
- 10A/250V fuse for overload protection.
- Full-coverage insulated case.

4. SETUP

4.1 Battery Installation

Both the TN-213 and TSM-599 require batteries for operation. Refer to the specific device's battery compartment for type and quantity (typically AAA for TN-213, and AA for TSM-599, or as indicated on the device).

1. Locate the battery compartment cover on the back of the device.
2. Use a screwdriver if necessary to open the cover.
3. Insert new batteries, ensuring correct polarity (+ and -).
4. Replace the battery compartment cover and secure it.

4.2 Connecting Test Leads (TSM-599 only)

For the TSM-599 multimeter, connect the test leads as follows:

- Insert the **black** test lead into the **COM** (common) jack.
- For most measurements (voltage, resistance, continuity, diode, capacitance, frequency, temperature), insert the **red** test lead into the **VΩHzCAPTemp** jack.
- For current measurements (mA/μA), insert the **red** test lead into the **mA/μA** jack.
- For high current measurements (10A), insert the **red** test lead into the **10A** jack.

Ensure test leads are fully inserted and free from damage before use.

5. OPERATION

5.1 TESMEN TN-213 Voltage Tester

1. **Power On:** Press the power button to turn on the device. The indicator light will illuminate.
2. **Sensitivity Selection:** Short press the sensitivity button (often marked 'S' or with a light bulb icon) to switch between High Sensitivity (12V-1000V) and Low Sensitivity (70V-1000V). High sensitivity is suitable for detecting weaker signals or tracing wires, while low sensitivity helps avoid false positives in noisy environments.
3. **NCV Detection:** Place the tip of the tester near the conductor, outlet, or wire you wish to test.
4. **Interpreting Indicators:**
 - If AC voltage is detected, the tip will glow red, and an audible beep will sound. The frequency of beeps and flashes increases with stronger voltage.
 - No light or sound indicates no detectable AC voltage.
5. **Flashlight:** Press the flashlight button (often marked with a light bulb icon) to turn the built-in flashlight on or off.
6. **Power Off:** Press and hold the power button to turn off the device. It may also feature an auto-off function after a period of inactivity.

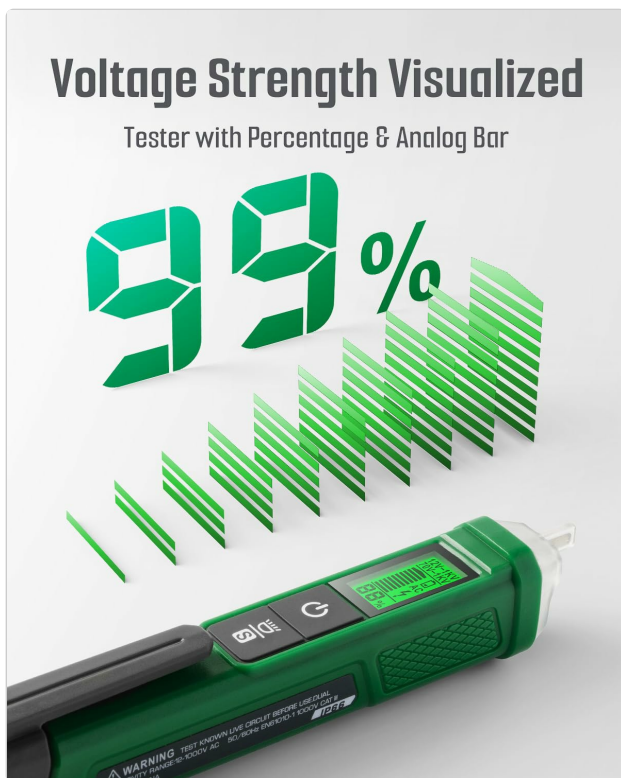


Image 5.1.1: The TN-213's display showing a visualized representation of voltage strength, indicated by a percentage (e.g., 99%) and an analog bar. This feature provides a clear, intuitive understanding of the detected voltage level.



Image 5.1.2: The TN-213 voltage tester, highlighting its IP66 rating. This image demonstrates the device's robust construction, designed to be shielded from water and dust, ensuring reliable performance in challenging environments.

5.2 TESMEN TSM-599 Smart Digital Multimeter

1. **Power On:** Press the power button to turn on the multimeter.

2. **Mode Selection:**

- **Smart Mode:** The multimeter automatically identifies the measurement type (AC/DC voltage, resistance, continuity) and displays the reading. This is the default mode for quick checks.
- **Manual Mode:** Press the 'FUNC' button to cycle through specific measurement functions (e.g., AC/DC Current, Capacitance, Frequency, Temperature, Diode). The selected function will be indicated on the display.

3. **Performing Measurements:**

- **Voltage (AC/DC):** Connect test leads in parallel to the circuit or component. Ensure correct polarity for DC voltage.
- **Current (AC/DC):** Connect test leads in series with the circuit. Ensure the correct current jack (mA/μA or 10A) is used.
- **Resistance:** Connect test leads across the component when the circuit is de-energized.
- **Continuity:** Connect test leads across the component. An audible beep indicates continuity.
- **Diode:** Connect test leads across the diode. The forward voltage drop will be displayed.
- **Capacitance:** Connect test leads across the capacitor (ensure it is discharged).
- **Frequency/Duty Cycle:** Connect test leads to the signal source.
- **Temperature:** Insert the thermocouple into the designated jacks and place the probe on the object to be measured.
- **Live Wire Detection:** Use the NCV function or the dedicated 'Live' mode by placing the NCV sensor near the wire.

4. **Data Hold:** Press the 'HOLD' button to freeze the current reading on the display. Press again to release.

5. **Flashlight:** Press the flashlight button to activate the built-in flashlight for improved visibility in dark areas.
6. **Auto-off:** The multimeter will automatically power off after a period of inactivity to conserve battery life.
7. **Power Off:** Press and hold the power button to manually turn off the multimeter.

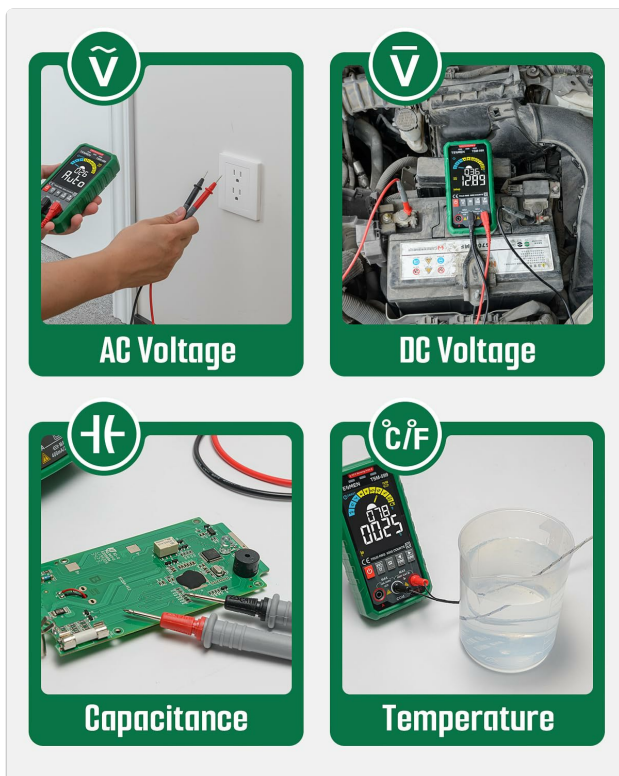


Image 5.2.1: A composite image demonstrating the TSM-599's versatility across different measurement types: AC Voltage from an outlet, DC Voltage from a car battery, Capacitance on a circuit board, and Temperature of a liquid using a thermocouple.

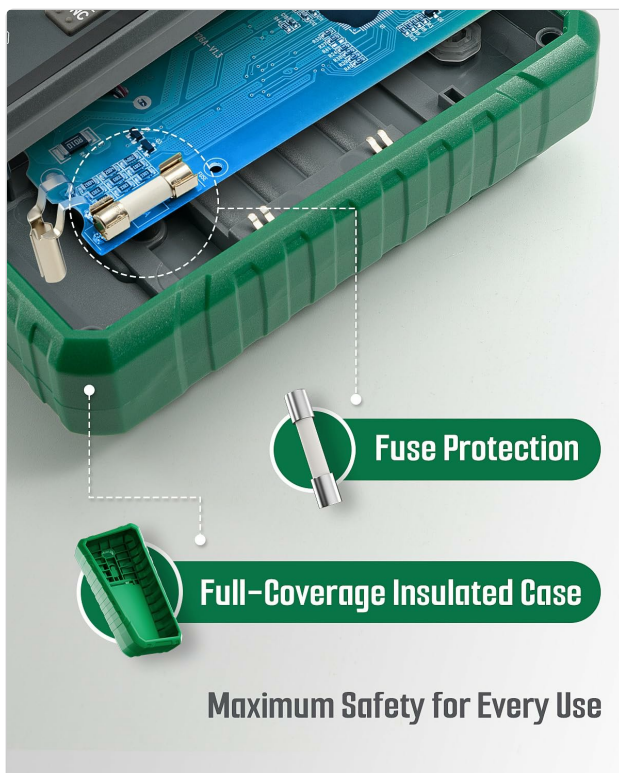


Image 5.2.2: An internal view of the TSM-599, emphasizing its fuse protection mechanism and the robust, full-coverage insulated case. These features are integral to ensuring maximum safety for the user during all electrical testing

6. MAINTENANCE

6.1 Cleaning

To maintain accuracy and prolong the life of your devices:

- Wipe the exterior of the devices with a damp cloth and mild detergent. Do not use abrasive cleaners or solvents.
- Ensure the devices are completely dry before storage or next use.

6.2 Battery Replacement

Replace batteries promptly when the low battery indicator appears on the display to ensure accurate readings. Refer to Section 4.1 for battery installation instructions.

6.3 Fuse Replacement (TSM-599 only)

The TSM-599 is equipped with a fuse for overload protection. If the current measurement function stops working, the fuse may need replacement.

1. Ensure the multimeter is powered off and disconnect all test leads.
2. Open the battery compartment cover. The fuse is typically located near the battery compartment.
3. Carefully remove the old fuse and replace it with a new fuse of the exact same type and rating (e.g., 10A/250V).
Using an incorrect fuse can compromise safety.
4. Close the battery compartment cover securely.

6.4 Storage

Store the devices in a cool, dry place, away from direct sunlight and extreme temperatures. If storing for an extended period, remove the batteries to prevent leakage.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on.	Dead or incorrectly installed batteries.	Replace batteries, ensuring correct polarity.
No reading or incorrect reading on TSM-599.	Incorrect mode selected; test leads not properly connected; circuit not energized; component faulty.	Select appropriate measurement mode; ensure test leads are fully inserted; verify circuit status; test a known good component.
TN-213 does not detect voltage.	Low battery; voltage below detection threshold; device malfunction.	Replace batteries; ensure voltage is within 12-1000V AC range; try high sensitivity mode.
TSM-599 current measurement not working.	Blown fuse.	Replace the fuse with the correct type and rating (refer to Section 6.3).
Display shows 'OL' (Overload).	Measurement range exceeded.	Switch to a higher range if available (manual mode) or ensure the input is within the device's maximum ratings.

8. SPECIFICATIONS

8.1 TESMEN TN-213 Voltage Tester

- **AC Voltage Range:** 12V-1000V (High Sensitivity), 70V-1000V (Low Sensitivity)
- **Frequency:** 50/60Hz
- **Safety Rating:** CAT.III 1000V, CAT.IV 600V
- **Ingress Protection:** IP66 (Dust and Water Resistant)
- **Power Source:** Battery Powered (e.g., 2 x AAA batteries, not specified in input, common for NCV testers)
- **Indicators:** Audible buzzer, LED light

8.2 TESMEN TSM-599 Smart Digital Multimeter

- **Display:** 6000 Counts, Color LCD with Analog Bar
- **Measurement Functions:** AC/DC Voltage, AC/DC Current, Resistance, Continuity, Diode, Capacitance, Frequency, Temperature, NCV, Live Wire
- **Voltage Range:** Auto/Manual (specific ranges vary by mode, typically up to 1000V)
- **Current Range:** Auto/Manual (e.g., mA/μA, 10A)
- **Resistance Range:** Auto/Manual
- **Capacitance Range:** Auto/Manual
- **Temperature Range:** Auto/Manual (via thermocouple)
- **Safety Rating:** CAT.III 1000V, CAT.IV 600V (inferred from product description)
- **Fuse Protection:** 10A/250V
- **Power Source:** Battery Powered (e.g., 3 x AA batteries, not specified in input, common for multimeters)
- **Special Features:** True RMS, Data Hold, Flashlight, Auto-off, Input Jack Indicator Light

9. WARRANTY & SUPPORT

TESMEN products are manufactured to high-quality standards. For specific warranty information, please refer to the warranty card included with your product or visit the official TESMEN website. If you encounter any issues or require technical assistance, please contact TESMEN customer support through the contact information provided on the product packaging or their official website.

TESMEN Official Website: [Visit the TESMEN Store on Amazon](#)

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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.

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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