TESMEN TSM-599

TESMEN TSM-599 Smart Digital Multimeter User Manual

Model: TSM-599

1. Safety Information

Please read and understand all safety information before operating the TESMEN TSM-599 Smart Digital Multimeter. Failure to follow these instructions may result in electric shock, fire, or personal injury.

- Always use the correct terminals, function, and range for measurements.
- Do not apply more than the rated voltage between terminals or between any terminal and ground.
- Ensure test leads are in good condition and properly connected before use.
- Do not use the multimeter if it appears damaged or if the case is open.
- Replace batteries when the low battery indicator appears to ensure accurate readings.
- Avoid using the device in wet environments or during electrical storms.
- Always disconnect power to the circuit under test before connecting or disconnecting test leads for current measurements.

2. Package Contents

Verify that all items are present in the package:

- 1 x TESMEN TSM-599 Smart Digital Multimeter
- 2 x Test Leads (Red and Black)
- 1 x Thermocouple
- 1 x Storage Bag
- 4 x AAA Batteries (1.5V)
- 1 x User Manual

Image: TESMEN TSM-599 Smart Digital Multimeter with included test leads, thermocouple, storage bag, and AAA batteries.

3. Product Features

- **Auto & Manual Dual Measurement Modes:** Automatically detects DC/AC voltage, resistance, and continuity. Manual mode for DC/AC Current, Diode, Capacitance, Hz%, Temperature, NCV, and Live Wire.
- **TRMS 6000 Counts:** Provides accurate True RMS readings.
- **Safety Features:** Equipped with a 10A/250V fuse to prevent overload and an insulated silicone casing for enhanced safety.
- **User-friendly Design:** Auto-off function (15 minutes inactivity), low battery indicator, data hold, built-in flashlight, and a stand.
- **Large Color LCD Screen:** Clear and easy-to-read display with an analog bar and real-time temperature display.
- **Non-Contact Voltage (NCV) Detection:** Safely detects AC voltage without direct contact.
- **Live Wire Detection:** Identifies live electrical wires.

Image: The TESMEN TSM-599 Multimeter's display showing available measurement functions like AC/DC Voltage, Resistance, Continuity, Diode, Capacitance, Frequency/Duty, Temperature, AC/DC Current, NCV, and Live Wire.

4. Setup

4.1. Battery Installation

1. Ensure the multimeter is turned off.
2. Locate the battery compartment cover on the back of the device.
3. Unscrew the retaining screw(s) and remove the cover.
4. Insert the 4 AAA batteries, observing the correct polarity (+/-) as indicated inside the compartment.
5. Replace the battery cover and secure it with the screw(s).

4.2. Connecting Test Leads

The test leads are essential for most measurements. Connect them as follows:

- Insert the black test lead into the **COM** (Common) jack.
- For most voltage, resistance, continuity, diode, capacitance, frequency, and temperature measurements, insert the red test lead into the **INPUT** (VΩHz) jack.
- For current measurements (mA or A), insert the red test lead into the appropriate current jack (**mA** or **10A**).

Image: The main product image showing the multimeter with test leads connected to the COM and INPUT jacks.

5. Operating Instructions

The TSM-599 features both Auto and Manual measurement modes.

5.1. Auto Mode

In Auto mode, the multimeter automatically detects and measures DC/AC voltage, resistance, and continuity. This is the default mode when powered on.

1. Turn the rotary switch to the **AUTO** position.
2. Connect the test leads to the circuit or component. The multimeter will automatically identify the

measurement type and display the reading.

5.2. Manual Mode (Function Selection)

For specific measurements not covered by Auto mode, or to manually select a range, use the Manual mode.

1. Turn the rotary switch to the desired function group (e.g., V~ for AC Voltage, V- for DC Voltage, Ω for Resistance).
2. Press the **FUNC** button to cycle through specific functions within that group (e.g., AC Voltage, DC Voltage, Frequency within the Voltage group).
3. Connect the test leads to the circuit or component.

5.3. Specific Measurement Functions

5.3.1. Voltage Measurement (AC/DC)

- Set the rotary switch to **V~** (AC Voltage) or **V-** (DC Voltage) or use Auto mode.
- Connect the red test lead to the positive side and the black test lead to the negative side of the circuit.
- Read the voltage value on the display.

Image: The multimeter displaying AC voltage measurement from a wall outlet and DC voltage measurement from a car battery.

5.3.2. Current Measurement (AC/DC)

- **CAUTION:** Disconnect power to the circuit before connecting the multimeter for current measurement.
- Set the rotary switch to **A~** (AC Current) or **A-** (DC Current).
- Connect the multimeter in series with the circuit. The red test lead goes into the appropriate current jack (mA or 10A) and the black lead into COM.
- Apply power and read the current value.

5.3.3. Resistance Measurement

- Set the rotary switch to **Ω** (Resistance) or use Auto mode.

- Ensure the circuit is de-energized. Connect the test leads across the component to measure resistance.

5.3.4. Continuity Test

- Set the rotary switch to **Ω** (Resistance) and press **FUNC** until the continuity symbol (speaker icon) appears.
- Connect the test leads across the circuit or component. A continuous beep indicates continuity.

5.3.5. Diode Test

- Set the rotary switch to **Ω** (Resistance) and press **FUNC** until the diode symbol appears.
- Connect the red test lead to the anode and the black test lead to the cathode of the diode. Read the forward voltage drop. Reverse the leads to check for open circuit.

5.3.6. Capacitance Measurement

- Set the rotary switch to **Capacitance** symbol.
- Ensure the capacitor is fully discharged before testing. Connect the test leads across the capacitor.

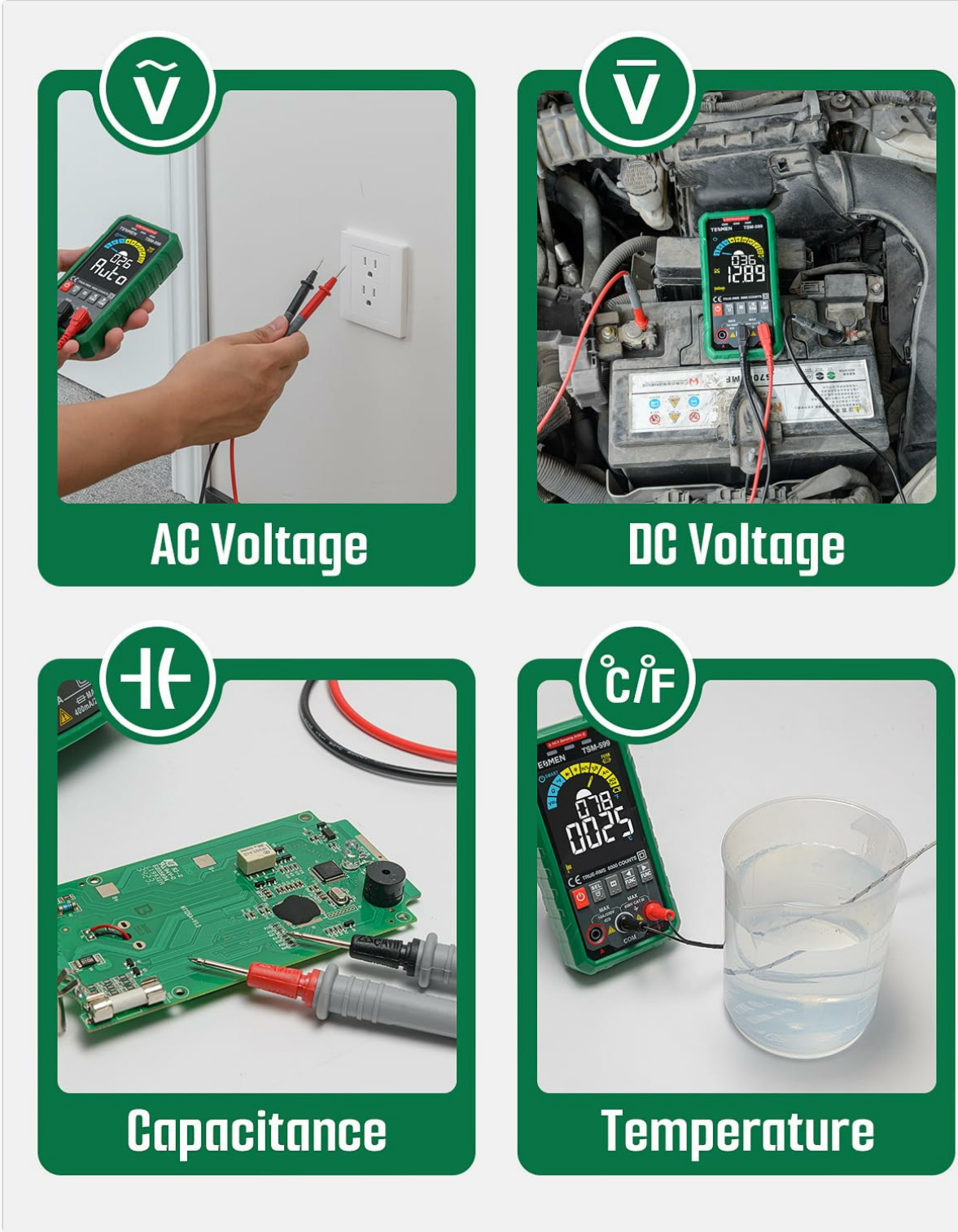

Image: The multimeter measuring the capacitance of an electronic component on a circuit board.

5.3.7. Frequency/Duty Cycle Measurement (Hz%)

- Set the rotary switch to **Hz%**.
- Connect the test leads to the signal source.

5.3.8. Temperature Measurement

- Set the rotary switch to **°C/°F**.
- Connect the thermocouple to the multimeter's input jacks, observing polarity. Place the thermocouple tip on the object to be measured.

Image: The multimeter measuring the temperature of water using the included thermocouple.

5.3.9. Non-Contact Voltage (NCV) Detection

- Set the rotary switch to **NCV**.
- Move the NCV sensing area of the multimeter close to the conductor. The device will beep and the LED indicator will light up, with intensity varying based on voltage strength.

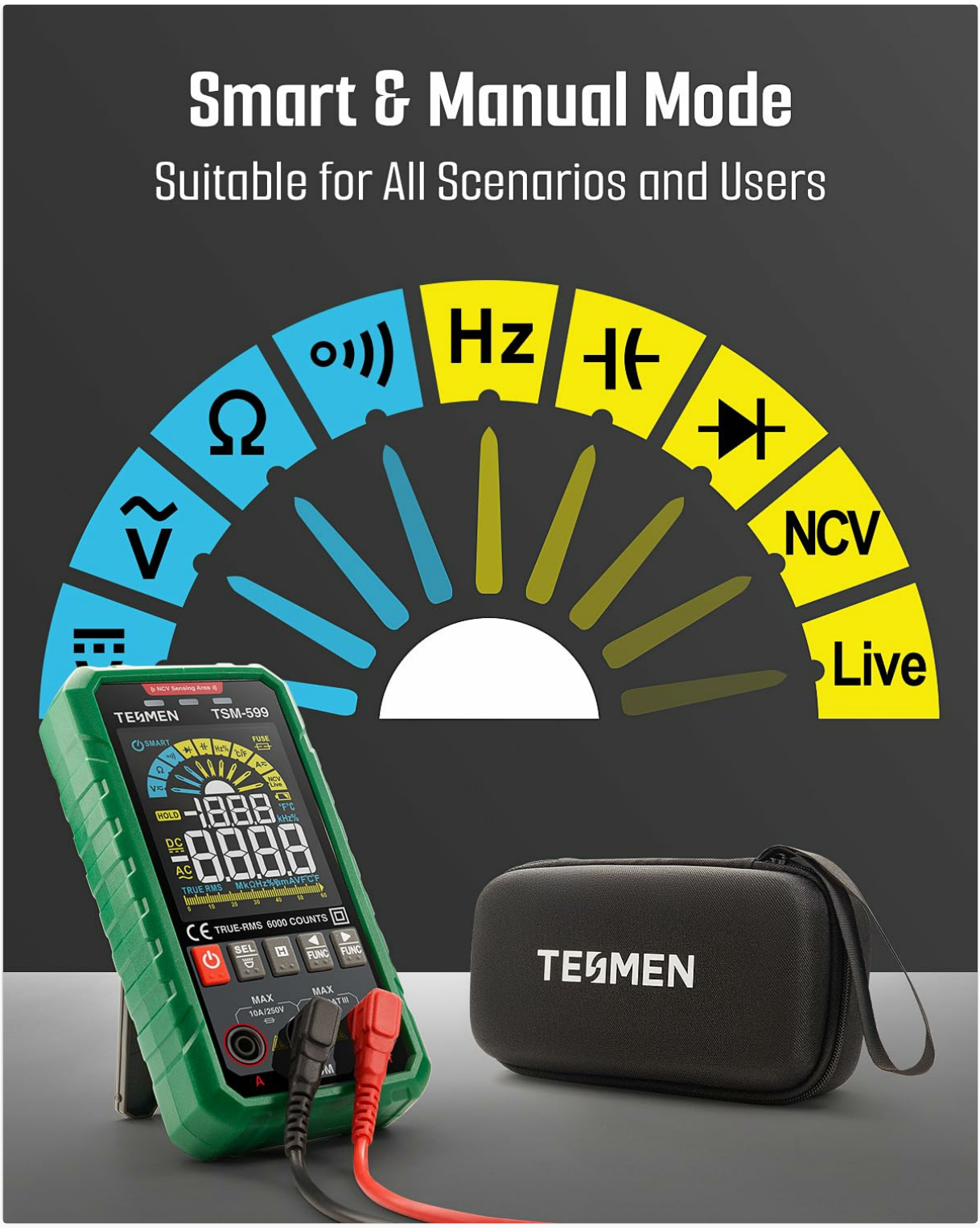

Image: The multimeter detecting non-contact AC voltage near a wall outlet, showing low and high voltage indicators.

5.3.10. Live Wire Detection

- Set the rotary switch to **Live**.
- Insert the red test lead into the **INPUT** jack and touch the probe to the wire. The display will indicate if the wire is live.

5.4. Additional Functions

- **Data Hold:** Press the **HOLD** button to freeze the current reading on the display. Press again to release.
- **Flashlight:** Long press the flashlight button to turn the built-in flashlight on/off.
- **Backlight:** The large color LCD screen has a backlight for improved visibility in low-light conditions.

6. Maintenance

6.1. Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Keep the terminals free of dirt and moisture.

6.2. Battery Replacement

When the low battery indicator appears on the display, replace the 4 AAA batteries as described in the Battery Installation section (4.1). Always use new batteries of the specified type.

6.3. Fuse Replacement

If the current measurement function stops working, the fuse may need replacement. Refer to the detailed instructions in the full user manual for fuse replacement procedures. Always use a fuse of the specified type and rating (10A/250V).

Image: An internal view of the multimeter highlighting the fuse for comprehensive safety protection.

6.4. Storage

When not in use for extended periods, remove the batteries to prevent leakage. Store the multimeter in its provided storage bag in a cool, dry place away from direct sunlight and extreme temperatures.

7. Troubleshooting

Problem	Possible Cause	Solution
No display or dim display	Dead or low batteries; incorrect battery installation.	Replace batteries; check battery polarity.

Problem	Possible Cause	Solution
Incorrect readings	Incorrect function/range selected; poor test lead contact; low battery.	Verify function/range; ensure good contact; replace batteries.
Current measurement not working	Blown fuse.	Replace the fuse (refer to full manual).
No continuity beep	Circuit is open; continuity function not selected.	Check circuit; ensure continuity function is active.

For more detailed troubleshooting, please refer to the complete user manual.

8. Specifications

Feature	Detail
Model	TSM-599
Display	TRMS 6000 Counts, Large Color LCD
Power Source	4 AAA batteries (included)
AC Voltage	Yes
DC Voltage	Yes
AC Current	Yes
DC Current	Yes
Resistance	Yes
Continuity	Yes
Diode	Yes
Capacitance	Yes
Frequency/Duty Cycle (Hz%)	Yes
Temperature	Yes (up to 500°C)
NCV (Non-Contact Voltage)	Yes
Live Wire Detection	Yes
Auto-Off	15 minutes inactivity
Dimensions	18.4 x 10 x 7.9 cm
Weight	490 g
Safety Compliance	CSA, ETL

9. Warranty and Support

For warranty information, technical support, or service inquiries, please contact TESMEN customer service. Refer to the product packaging or the official TESMEN website for contact details.

Keep your purchase receipt as proof of purchase for warranty claims.

Related Documents - TSM-599

	TESMEN TSM-599 Smart Digital Multimeter User Manual Comprehensive user manual for the TESMEN TSM-599 Smart Digital Multimeter, covering safety instructions, specifications, operation, measurement functions, and maintenance. Includes detailed guides for various electrical measurements.
	Tesmen TBF-200 Brake Fluid Tester User Manual User manual for the Tesmen TBF-200 Brake Fluid Liquid Tester, providing instructions on operation, safety, technical specifications, and maintenance.
	Agrowplow AP81 Spare Parts Manual Comprehensive spare parts manual for the Agrowplow AP81 plough, detailing all assemblies, components, and part numbers for various configurations including 17x529, 19x529, and 23x522 models. Includes hydraulic system diagrams and part listings.
	PCE-TSM 5 Sound Level Meter User Manual | PCE Instruments Comprehensive user manual for the PCE-TSM 5 Sound Level Meter by PCE Instruments. Learn about its features, specifications, operation, safety, and maintenance.