ANENG SZ301UA3005

ANENG Multimeter and Pen Type Volt Meter Tester

User Manual

1. Introduction

Thank you for choosing the ANENG Multimeter and Pen Type Volt Meter Tester (Models SZ301 and A3005). This comprehensive kit provides versatile tools for electrical measurements, suitable for household, automotive, and professional applications. This manual provides essential information for safe and effective operation, setup, maintenance, and troubleshooting.

2. Safety Information

Always adhere to basic safety precautions when using electrical testing equipment to prevent personal injury or damage to the device or equipment under test.

- **Read the Manual:** Thoroughly read and understand this user manual before operation.
- **Proper Use:** Use the device only as specified in this manual. Any other use may impair the safety features.
- **Voltage Limits:** Do not exceed the maximum input limits for any function. Refer to the specifications section.
- **Insulation:** Ensure your hands are dry and you are standing on an insulated surface when making measurements.
- **Test Leads:** Inspect test leads for damage before each use. Do not use if insulation is cracked or if the leads are exposed.
- **Live Circuits:** Exercise extreme caution when working with live circuits. Always assume circuits are live until proven otherwise.
- **Battery Compartment:** Do not operate the device with the battery compartment cover open.
- **Maintenance:** Refer to the maintenance section for proper cleaning and battery replacement procedures.

3. Product Overview

The ANENG Multimeter kit includes two primary devices: the SZ301 Digital Multimeter and the A3005 Pen Type Multimeter, along with necessary accessories.

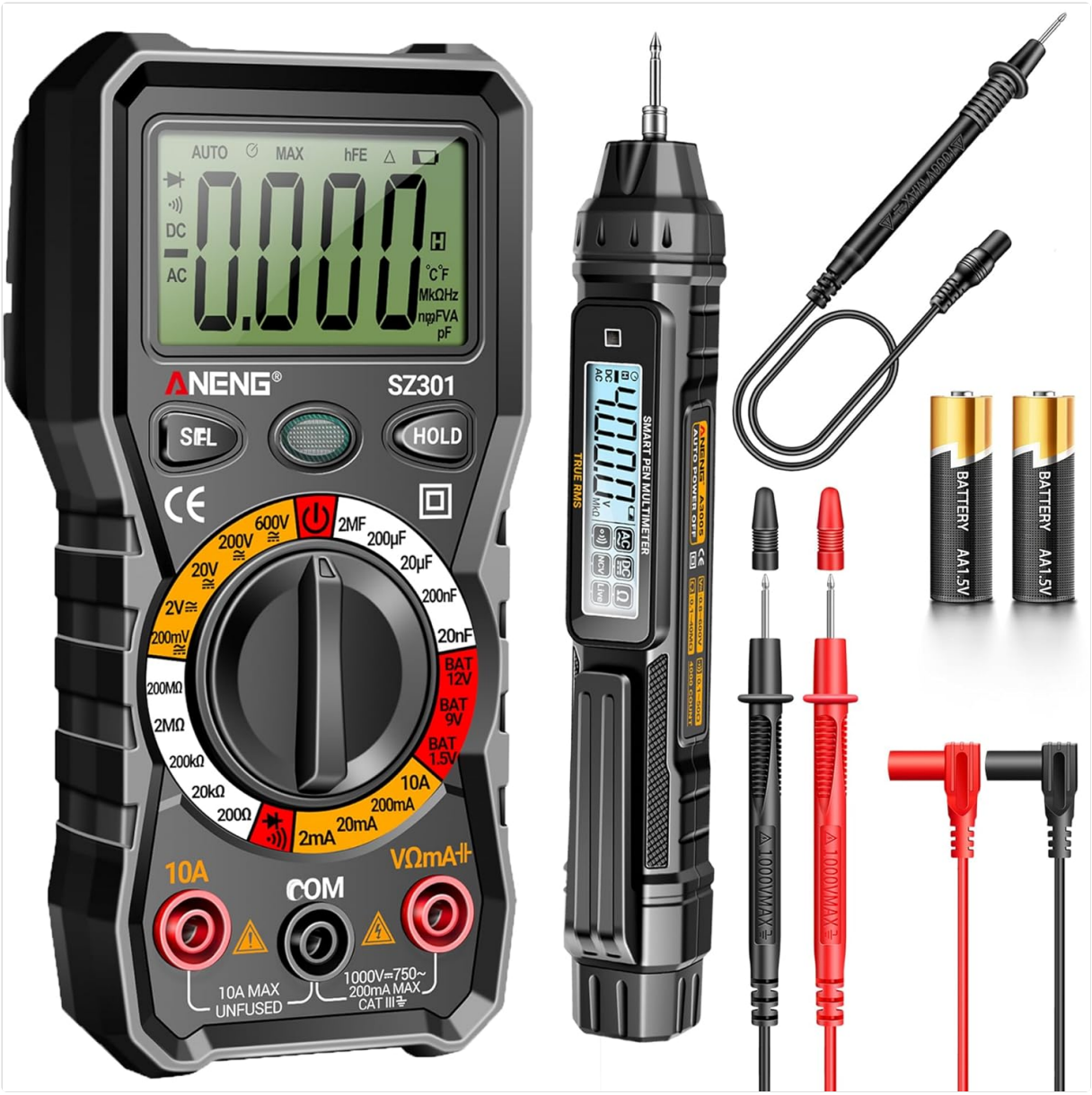

Figure 3.1: ANENG Multimeter Kit (SZ301 and A3005) with test leads and batteries.

3.1 SZ301 Digital Multimeter

The SZ301 is a versatile digital multimeter designed for a wide range of electrical measurements. It features a large LCD display, a rotary dial for function selection, and input jacks for test leads.

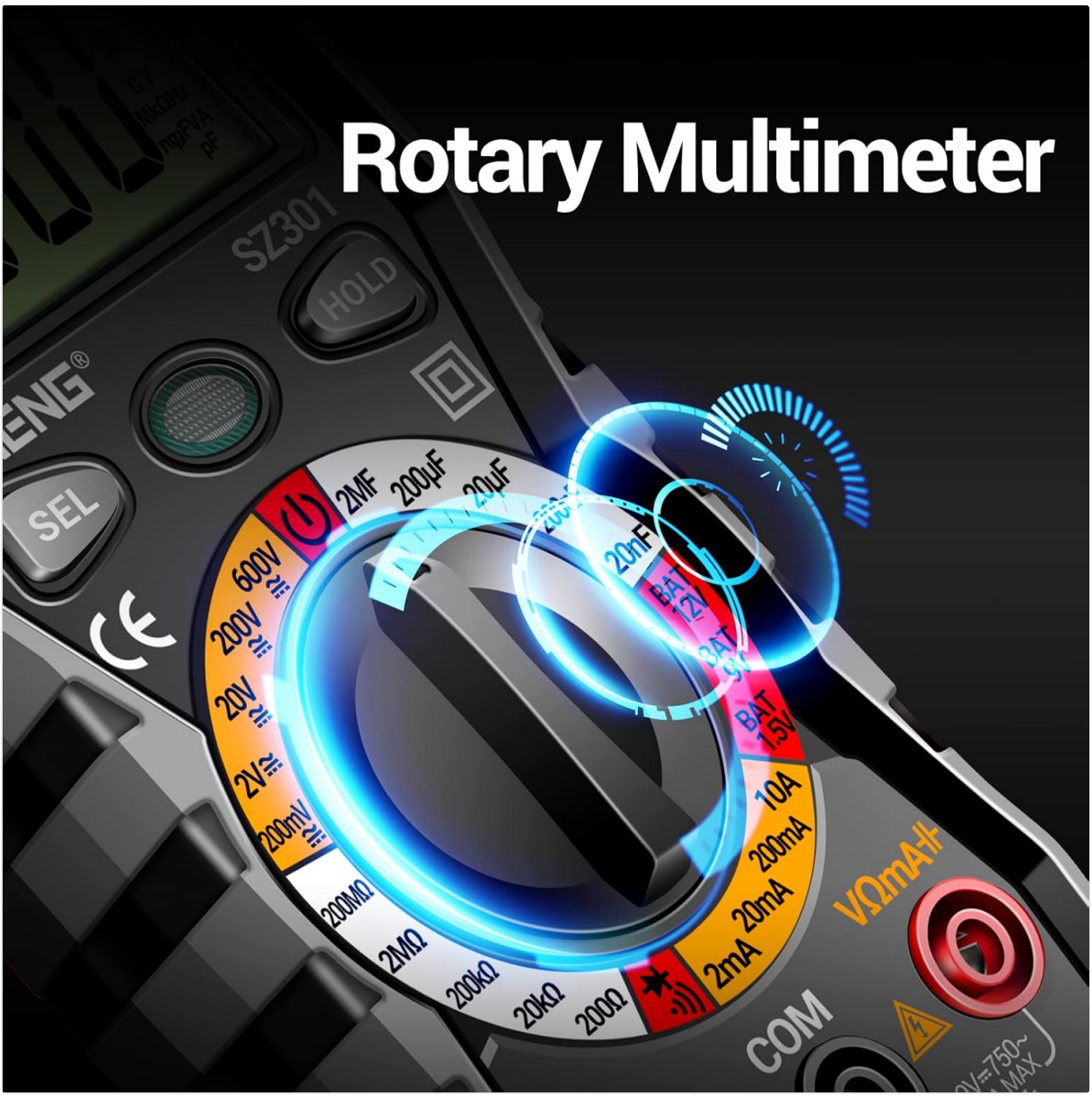

Figure 3.2: Close-up view of the SZ301 Digital Multimeter's rotary function dial.

3.2 A3005 Pen Type Multimeter

The A3005 is a compact, pen-style multimeter offering convenience and portability for quick checks. It integrates multiple functions including voltage detection, continuity, and NCV sensing.

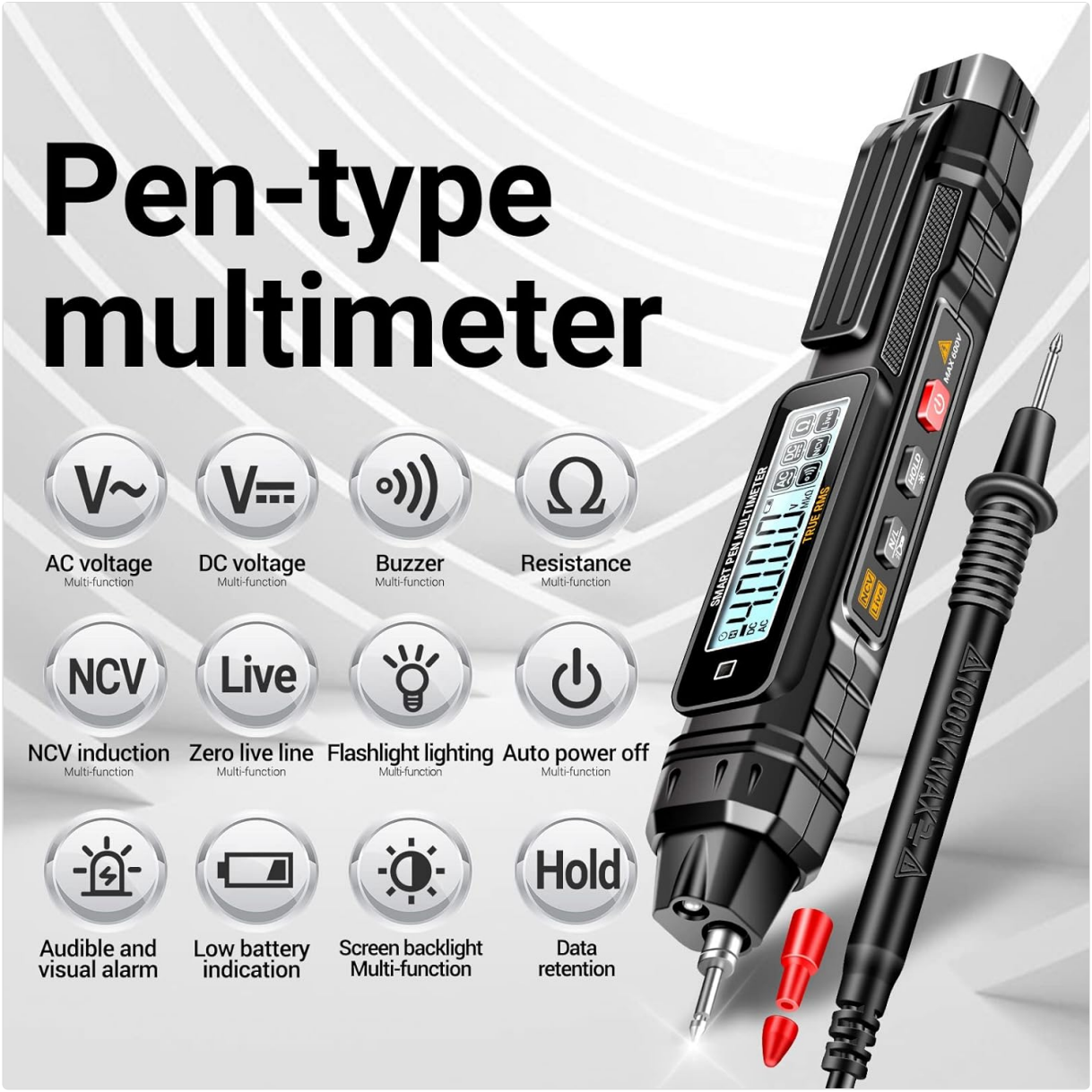

Figure 3.3: The A3005 Pen Type Multimeter highlighting its multi-function capabilities.

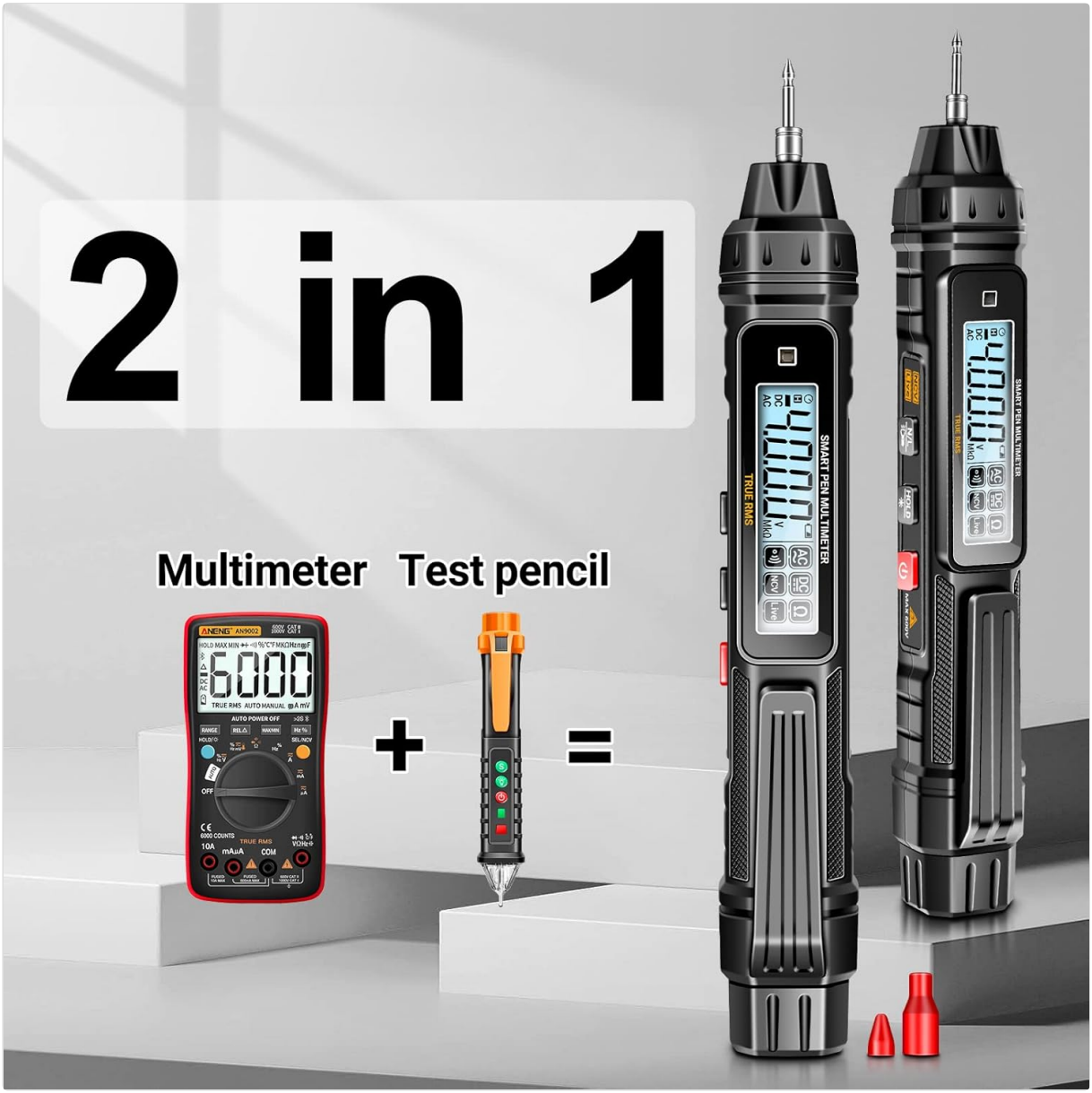

Figure 3.4: The combined utility of the SZ301 Multimeter and A3005 Pen Type Multimeter.

4. Setup

4.1 Battery Installation

Both multimeters require battery installation before first use.

- **SZ301 Multimeter:** Requires 2x 1.5V AA batteries. Open the battery compartment on the back, insert batteries observing polarity, and close the cover securely.
- **A3005 Pen Type Multimeter:** Requires 2x 1.5V AAA batteries. Open the battery compartment, insert batteries observing polarity, and close the cover securely.

4.2 Connecting Test Leads (SZ301)

For most measurements with the SZ301, test leads must be connected to the appropriate input jacks.

- Insert the red test lead into the VΩmA+ jack.
- Insert the black test lead into the COM (common) jack.
- For high current measurements (10A), insert the red test lead into the 10A jack.

5. Operating Instructions

5.1 General Operation (SZ301)

- **Power On/Off:** Rotate the dial from the OFF position to any desired function to power on. Rotate back to OFF to power off.
- **Function Selection:** Use the rotary dial to select the desired measurement function (e.g., V~ for AC Voltage, V- for DC Voltage, Ω for Resistance).
- **HOLD Function:** Press the 'HOLD' button to freeze the current reading on the display. Press again to release.
- **SEL Function:** Press the 'SEL' button to switch between different modes within a single dial position (e.g., AC/DC voltage, Diode/Continuity).

5.2 AC Voltage Measurement (SZ301)

To measure AC voltage:

1. Set the rotary dial to the V~ (AC Voltage) range.
2. Connect the red test lead to the VΩmA+ jack and the black test lead to the COM jack.
3. Carefully touch the test probes to the points where AC voltage is to be measured (e.g., wall outlet terminals).
4. Read the voltage value on the display.

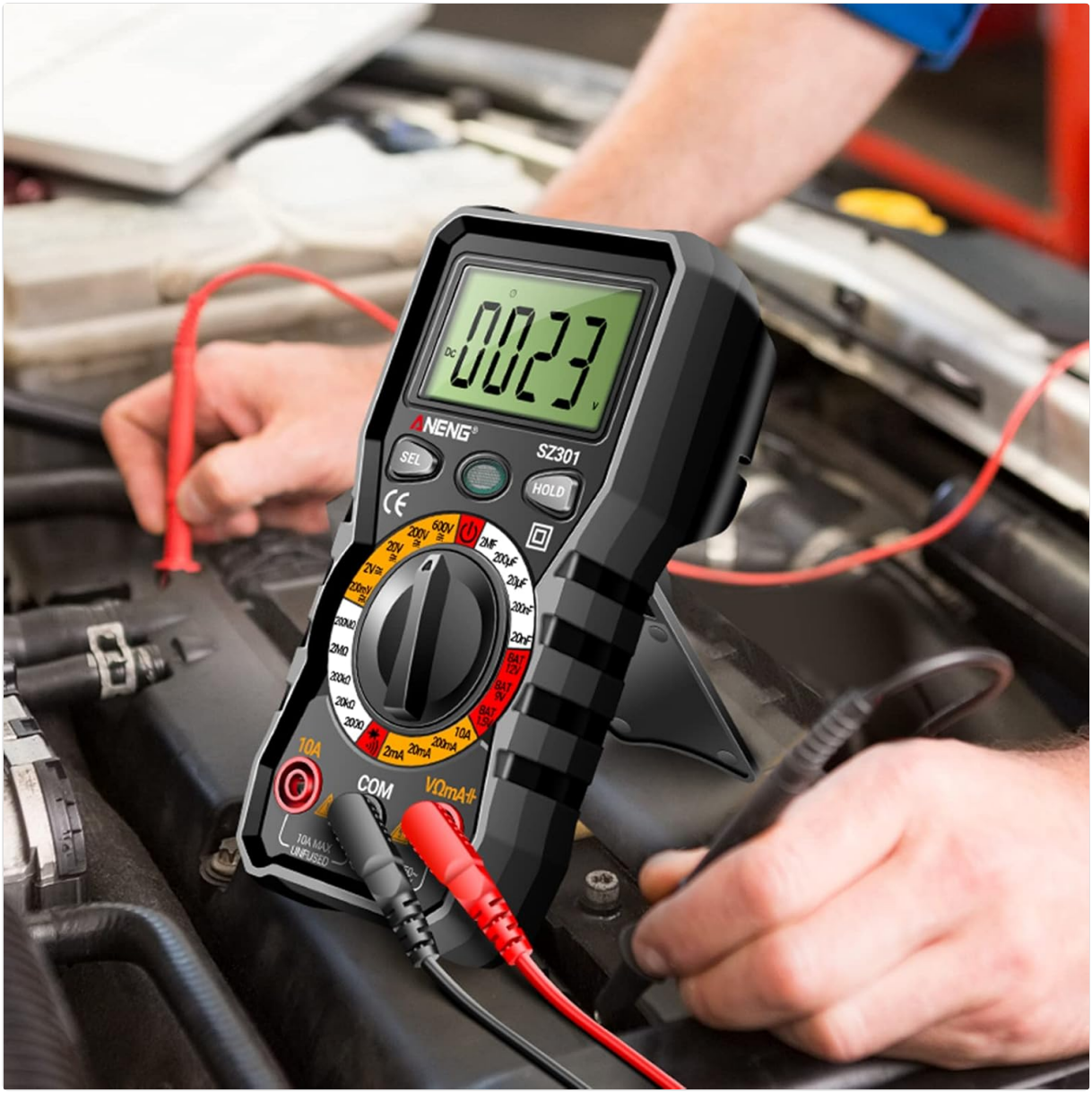

Figure 5.1: Measuring AC voltage with the SZ301 Multimeter.

5.3 DC Voltage Measurement (SZ301)

To measure DC voltage:

1. Set the rotary dial to the V- (DC Voltage) range.
2. Connect the red test lead to the VΩmA+ jack and the black test lead to the COM jack.
3. Touch the red probe to the positive terminal and the black probe to the negative terminal of the DC source.
4. Read the voltage value on the display.

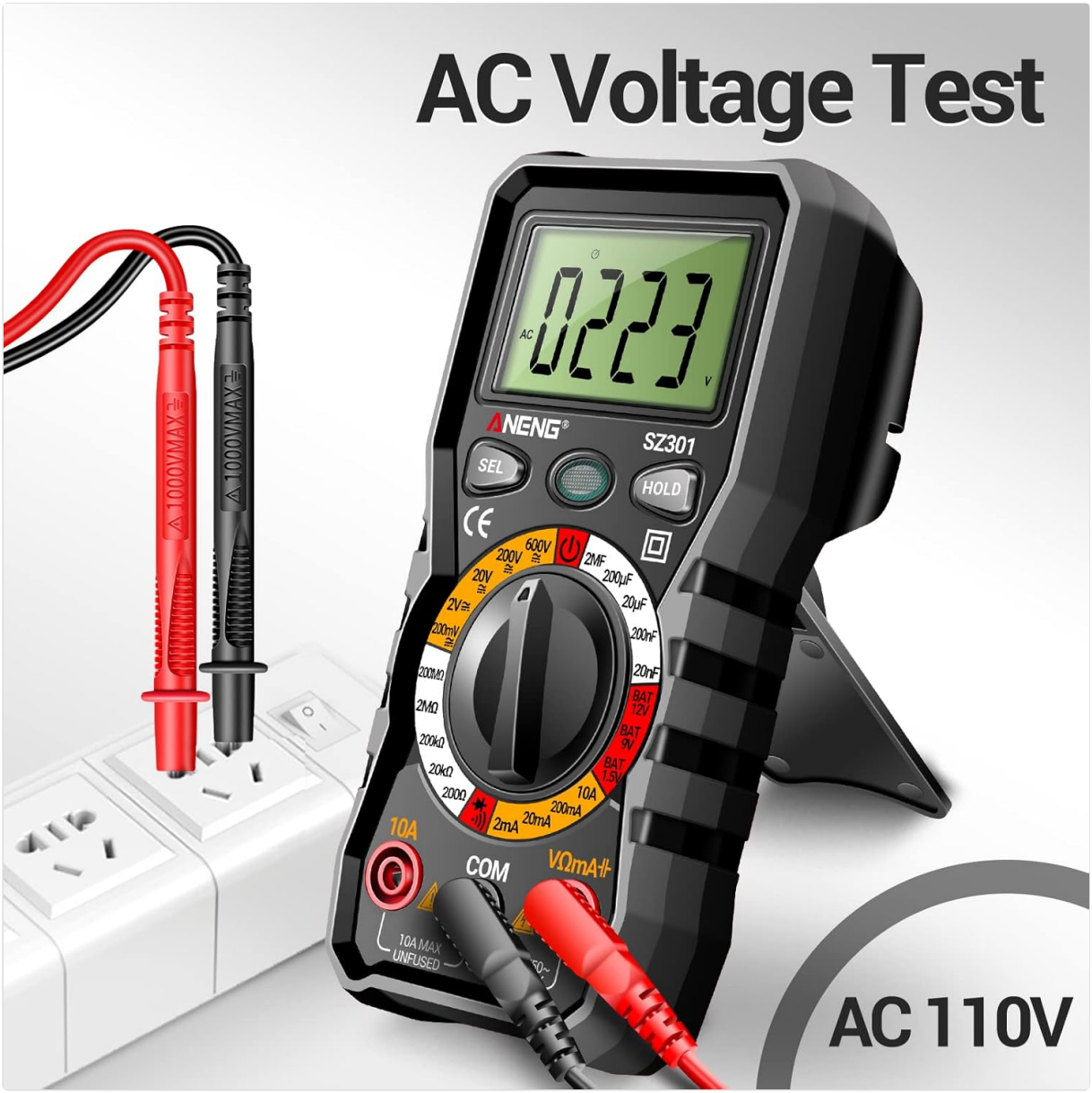

Figure 5.2: Measuring DC voltage with the SZ301 Multimeter in an automotive application.

5.4 AC/DC Current Measurement (SZ301)

To measure current, the multimeter must be connected in series with the circuit. Ensure the circuit is de-energized before connecting the multimeter.

1. Set the rotary dial to the appropriate current range (e.g., 200mA, 10A).
2. Connect the red test lead to the mA or 10A jack and the black test lead to the COM jack.
3. Open the circuit where current is to be measured and connect the multimeter in series.
4. Energize the circuit and read the current value.

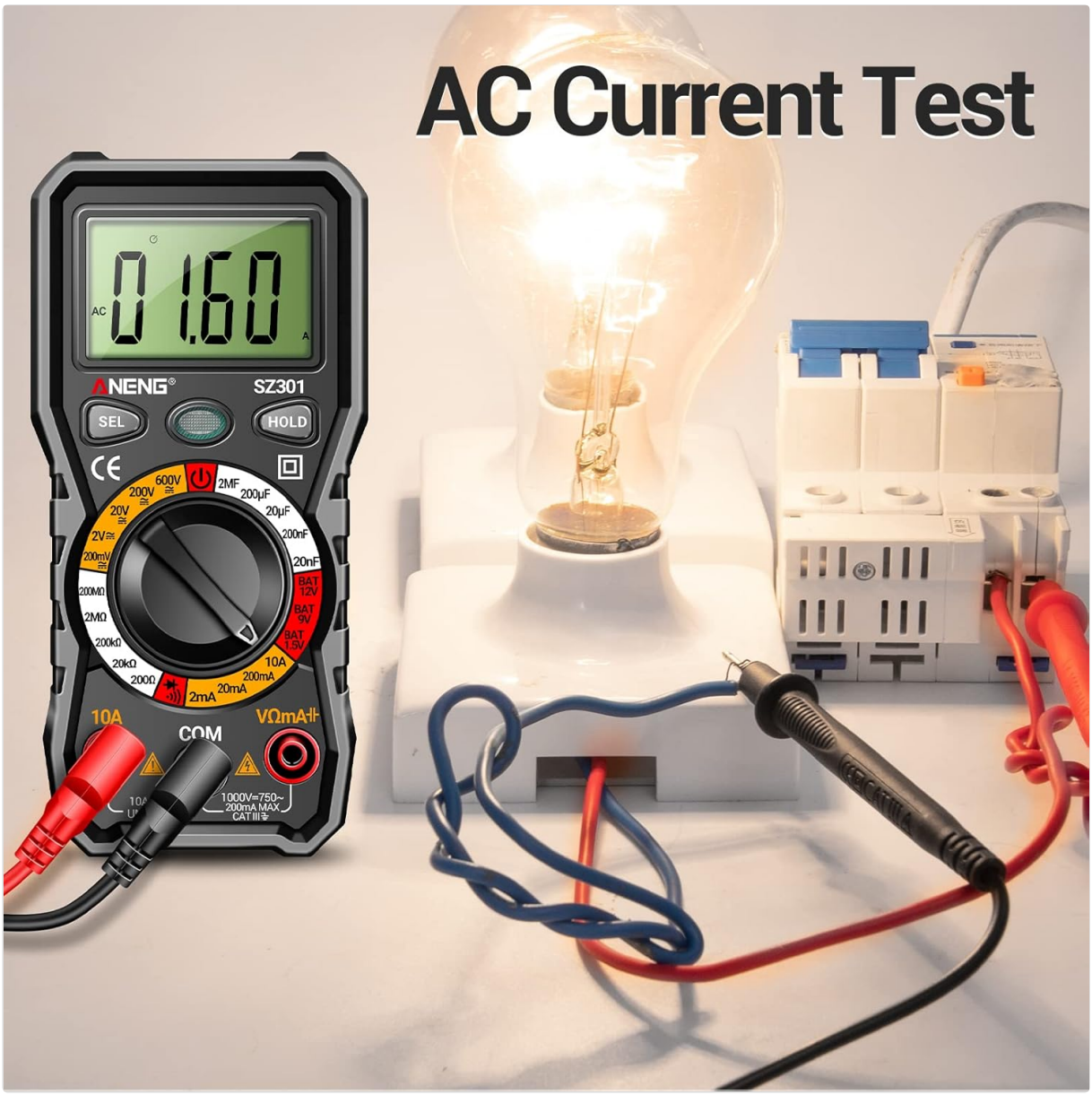

Figure 5.3: Measuring AC current with the SZ301 Multimeter.

5.5 Resistance, Continuity, and Diode Measurement (SZ301)

These functions are typically performed on de-energized circuits.

- **Resistance (Ω):** Set the dial to the Ω range. Connect probes across the component.
- **Continuity:** Set the dial to the continuity mode (often shared with diode or resistance, use SEL to switch). A beep indicates continuity.
- **Diode:** Set the dial to the diode mode. Connect probes across the diode to measure forward voltage drop.

5.6 Pen Type Multimeter (A3005) Functions

The A3005 offers quick and convenient testing capabilities.

- **AC/DC Voltage:** Touch the probe to the test point. The display will show the voltage.
- **NCV (Non-Contact Voltage) Sensing:** Bring the tip of the pen close to an AC voltage source without direct contact. The device will indicate the presence of voltage through audible and visual alarms.

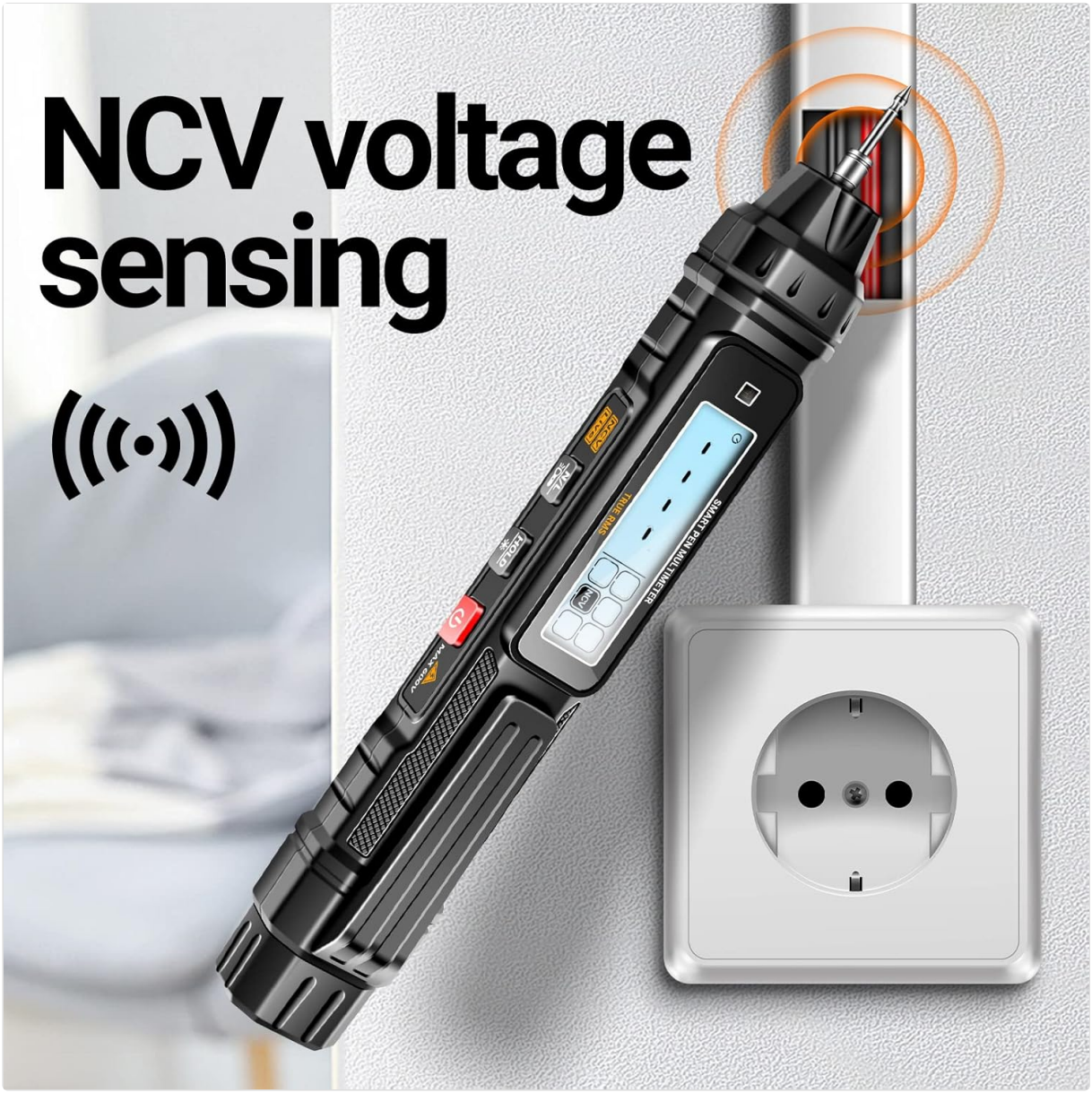

Figure 5.4: NCV voltage sensing with the A3005 Pen Type Multimeter.

- **Live Wire Detection:** Use the dedicated live wire detection function to identify live conductors.

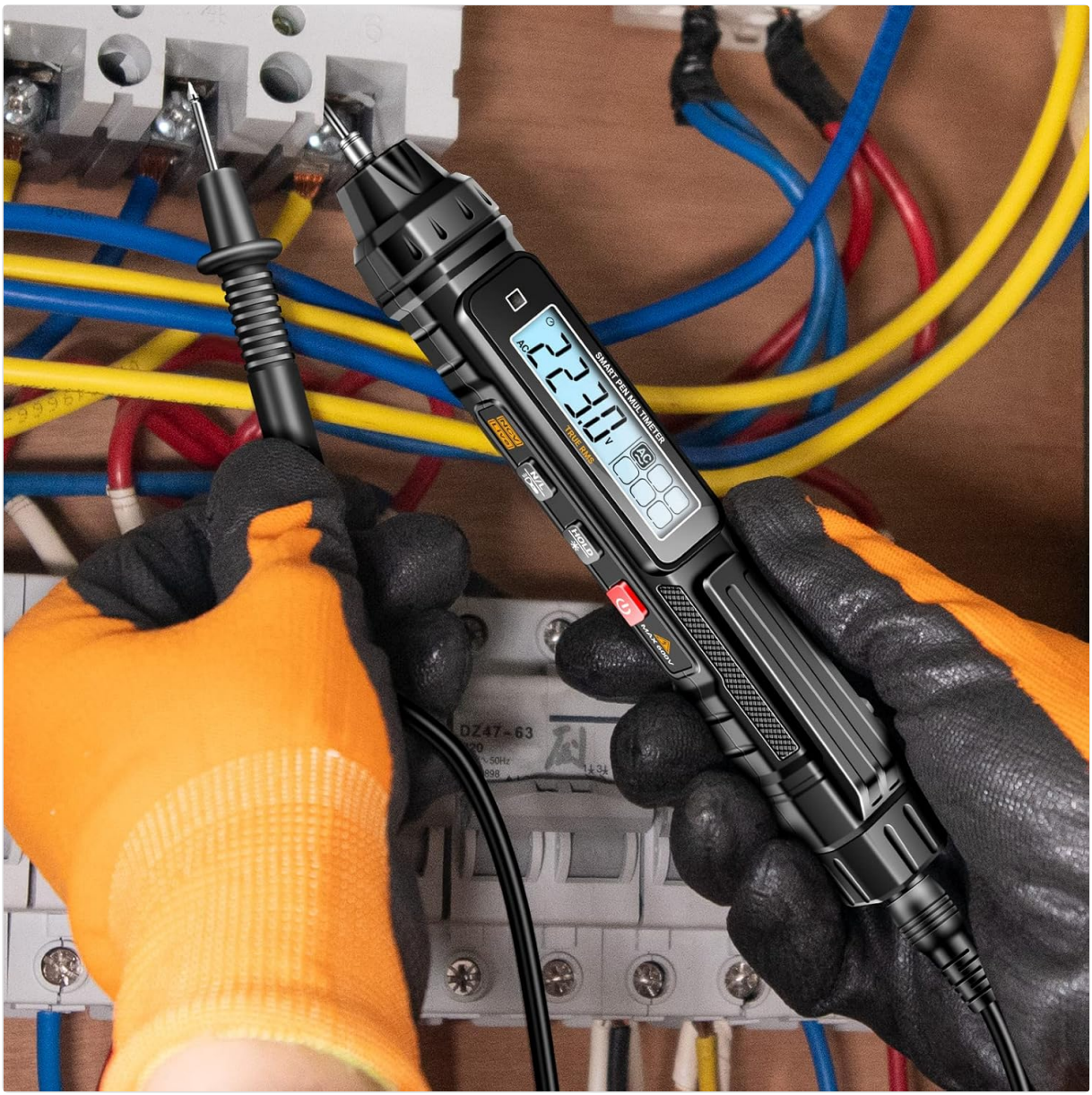

Figure 5.5: Live wire detection using the A3005 Pen Type Multimeter.

6. Maintenance

6.1 Battery Replacement

When the low battery indicator appears on the display, replace the batteries promptly to ensure accurate readings.

- Power off the device.
- Open the battery compartment cover on the back of the device.
- Remove the old batteries and dispose of them properly.
- Insert new batteries (2x 1.5V AA for SZ301, 2x 1.5V AAA for A3005) observing correct polarity.
- Close the battery compartment cover securely.

6.2 Cleaning

To clean the device, wipe the case with a damp cloth and mild detergent. Do not use abrasives or solvents. Ensure the device is powered off and disconnected from any circuits before cleaning.

6.3 Storage

If the device is not to be used for an extended period, remove the batteries to prevent leakage and store the multimeter in a cool, dry place away from direct sunlight and extreme temperatures.

7. Troubleshooting

If you encounter issues with your ANENG Multimeter, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No display or dim display	Dead or low batteries; Incorrect battery polarity	Replace batteries; Check battery polarity
Incorrect readings	Incorrect function selected; Damaged test leads; Exceeding input limits	Select correct function; Inspect/replace test leads; Ensure measurement is within range
No continuity beep	Circuit not continuous; Incorrect mode selected	Check circuit; Ensure continuity mode is active (use SEL)
Device does not power on	Batteries not installed; Power switch/dial not engaged	Install batteries; Turn dial to a function position

8. Specifications

The following table outlines key specifications for the ANENG Multimeter kit.

Feature	Detail
Brand	ANENG
Model	SZ301UA3005 (SZ301 Multimeter & A3005 Pen Multimeter)
Power Source	Battery Powered (2x 1.5V AA for SZ301, 2x 1.5V AAA for A3005)
Color	Black
Functions (SZ301)	AC/DC Voltage, AC/DC Current, Resistance, Continuity, Diode, Capacitance, Frequency, Temperature (depending on model variant)
Functions (A3005)	AC/DC Voltage, Resistance, Continuity, Diode, NCV Induction, Live Wire Detection, Flashlight
Automatic Shutdown	Yes (after 5 minutes of inactivity)

9. Warranty and Support

ANENG provides service and technical support for this electrical tester. For any inquiries or assistance, please refer to the contact information provided with your purchase documentation or visit the official ANENG website.