**VENLAB VM-600M**

# VENLAB Digital Multimeter VM-600M

## User Instruction Manual

### 1. Product Overview

The VENLAB VM-600M is a high-performance True RMS digital multimeter designed for professional and home use. It offers 6000 counts for precise measurements across various electrical parameters, including AC/DC voltage, AC/DC current, resistance, capacitance, frequency, and duty cycle. It also features diode and hFE testing, non-contact voltage (NCV) detection, and continuity testing with an audible buzzer.

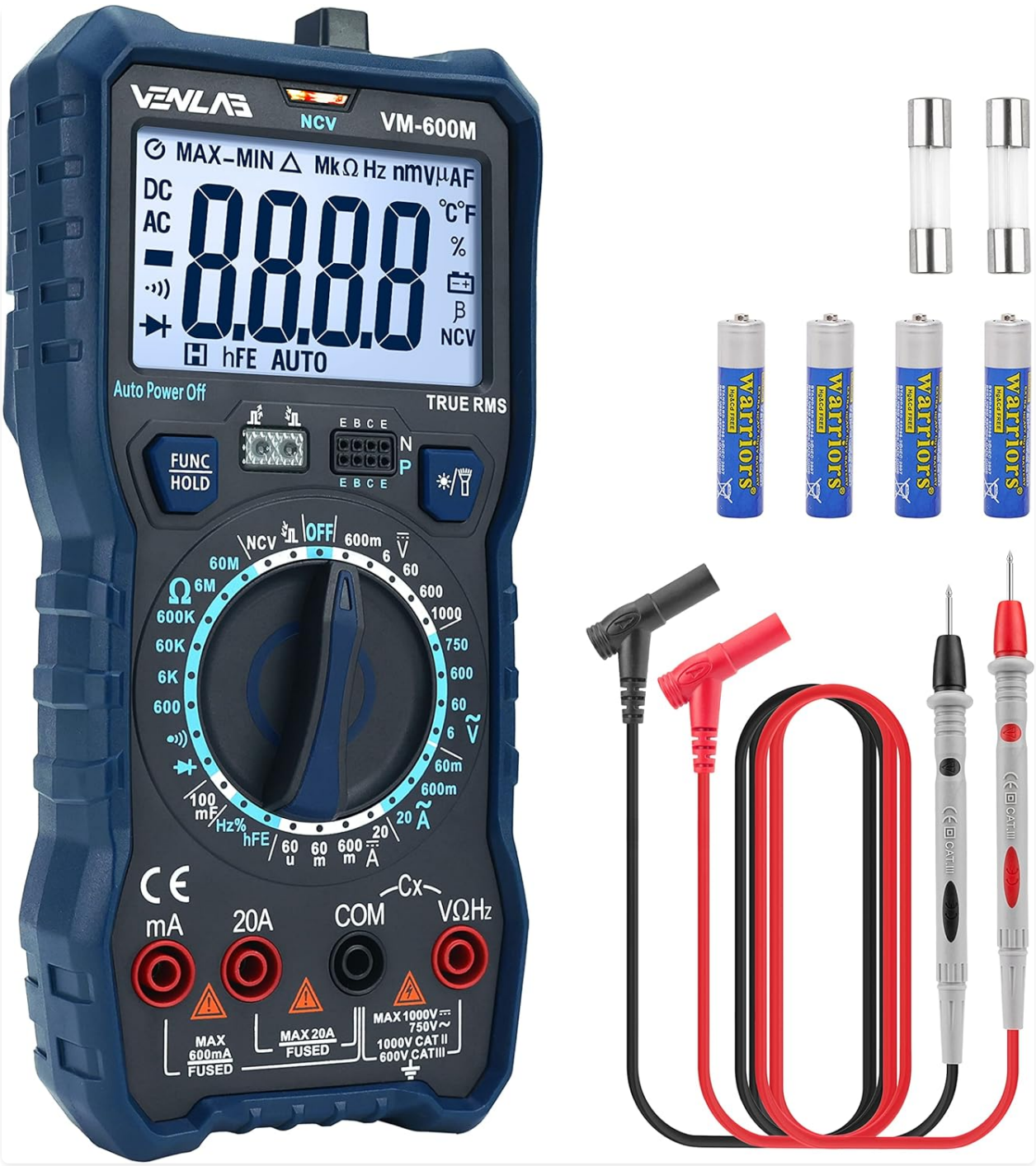


Figure 1.1: VENLAB VM-600M Digital Multimeter and its accessories.

## Key Features:

- True RMS 6000 Counts Display
- Measures AC/DC Voltage (up to 750V AC, 1000V DC)
- Measures AC/DC Current (up to 20A)
- Resistance Measurement (up to 60MΩ)
- Capacitance, Frequency, Duty Cycle, Diode, and hFE Testing
- Non-Contact Voltage (NCV) Detection with audible and light alarm
- Continuity Buzzer
- Data Hold Function
- Backlight LCD Display and Flashlight for low-light conditions
- Auto Power Off
- Built-in Dual Ceramic Fuses for safety

- Integrated Stand, Silicone Protective Cover, and Strong Magnet for versatile use

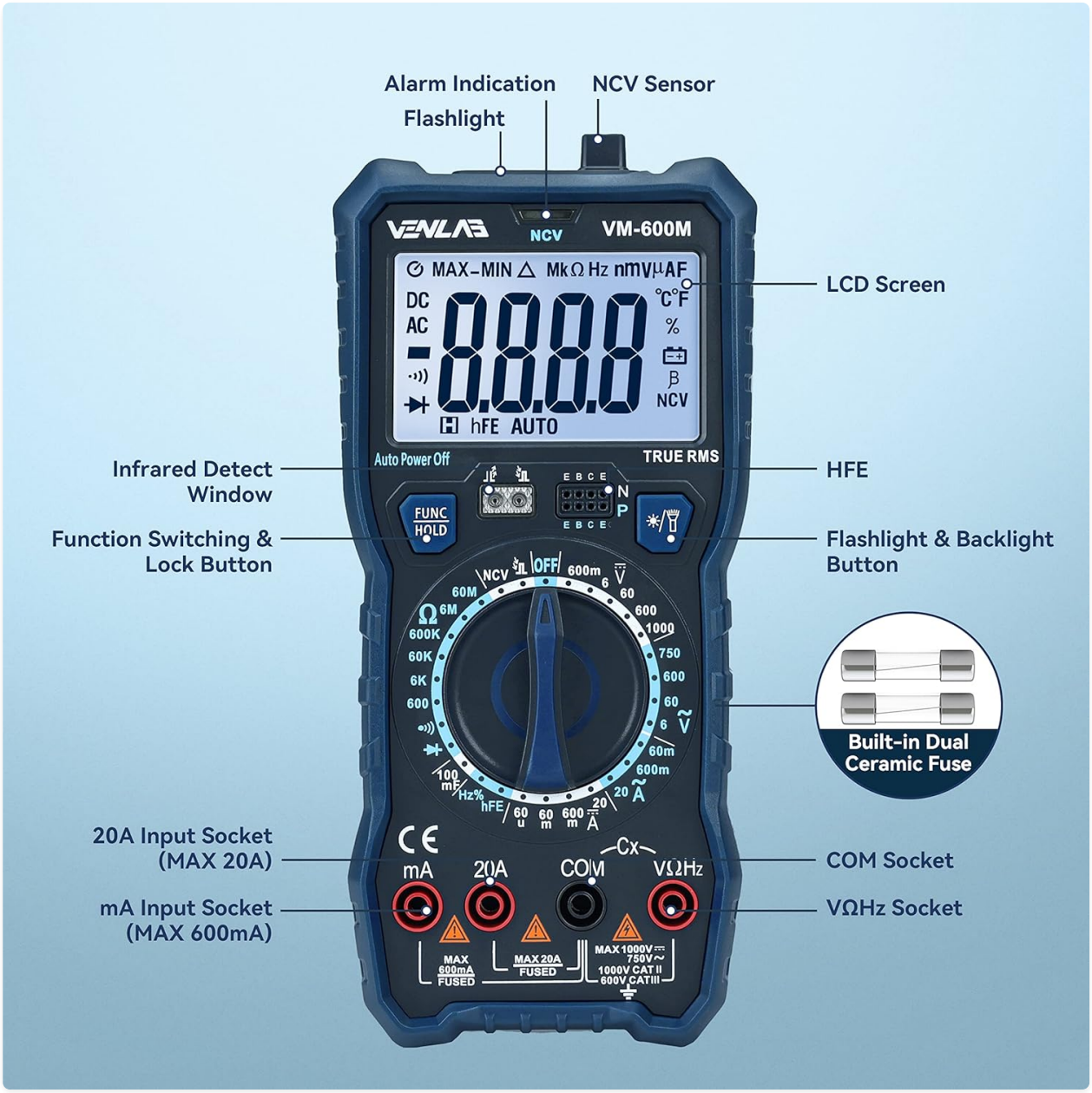


Figure 1.2: Front panel layout and components of the VM-600M.

## 2. Safety Information

**Always read and understand this manual before using the multimeter. Failure to follow safety instructions can result in electric shock, fire, or serious injury.**

- Do not exceed the maximum input values for any function.
- Do not use the multimeter if it or the test leads appear damaged.
- Ensure the function switch is in the correct position before making measurements.
- Use caution when working with voltages above 30V AC RMS, 42V peak, or 60V DC. These voltages pose a shock hazard.
- Always disconnect the test leads from the circuit before changing functions.
- Replace batteries and fuses only with the specified type and rating.
- Do not operate the multimeter in explosive gas, vapor, or dust environments.

- Wear appropriate personal protective equipment (PPE), such as safety glasses and insulated gloves, when necessary.

## 3. Setup

### 3.1 Battery Installation

The VENLAB VM-600M requires two AAA batteries (included). To install or replace batteries:

1. Ensure the multimeter is turned OFF and disconnect all test leads.
2. Locate the battery compartment cover on the back of the multimeter.
3. Use a screwdriver to loosen the screw(s) on the battery cover.
4. Remove the cover and insert the two AAA batteries, observing the correct polarity (+/-) as indicated inside the compartment.
5. Replace the battery cover and tighten the screw(s).

### 3.2 Connecting Test Leads

To connect the test leads:

1. Insert the black test lead into the 'COM' (common) input jack.
2. Insert the red test lead into the 'VΩHz' input jack for voltage, resistance, frequency, capacitance, diode, and continuity measurements.
3. For current measurements, insert the red test lead into the 'mA' input jack (for milliamps) or the '20A' input jack (for up to 20 Amps).

## 4. Operating Instructions

### 4.1 Power On/Off and Auto Power Off

Turn the rotary switch from 'OFF' to any desired function to power on the multimeter. The multimeter will automatically power off after approximately 15 minutes of inactivity to conserve battery life. To disable auto power off, refer to the full instruction manual.

### 4.2 Function Selection

Rotate the central dial to select the desired measurement function. Press the 'FUNC/HOLD' button to cycle through sub-functions (e.g., AC/DC for voltage, or different modes within a single dial position).

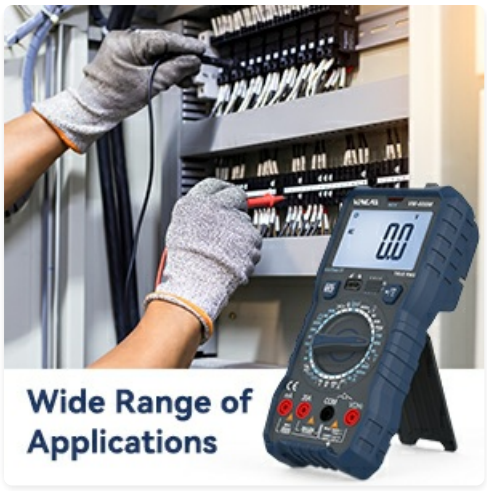


Figure 4.1: Overview of measurement capabilities.

### 4.3 Measurement Modes

- **DC Voltage Test:** Set the rotary switch to 'V' (DC symbol). Connect the red lead to the positive side and the black lead to the negative side of the circuit. The reading will appear on the LCD.

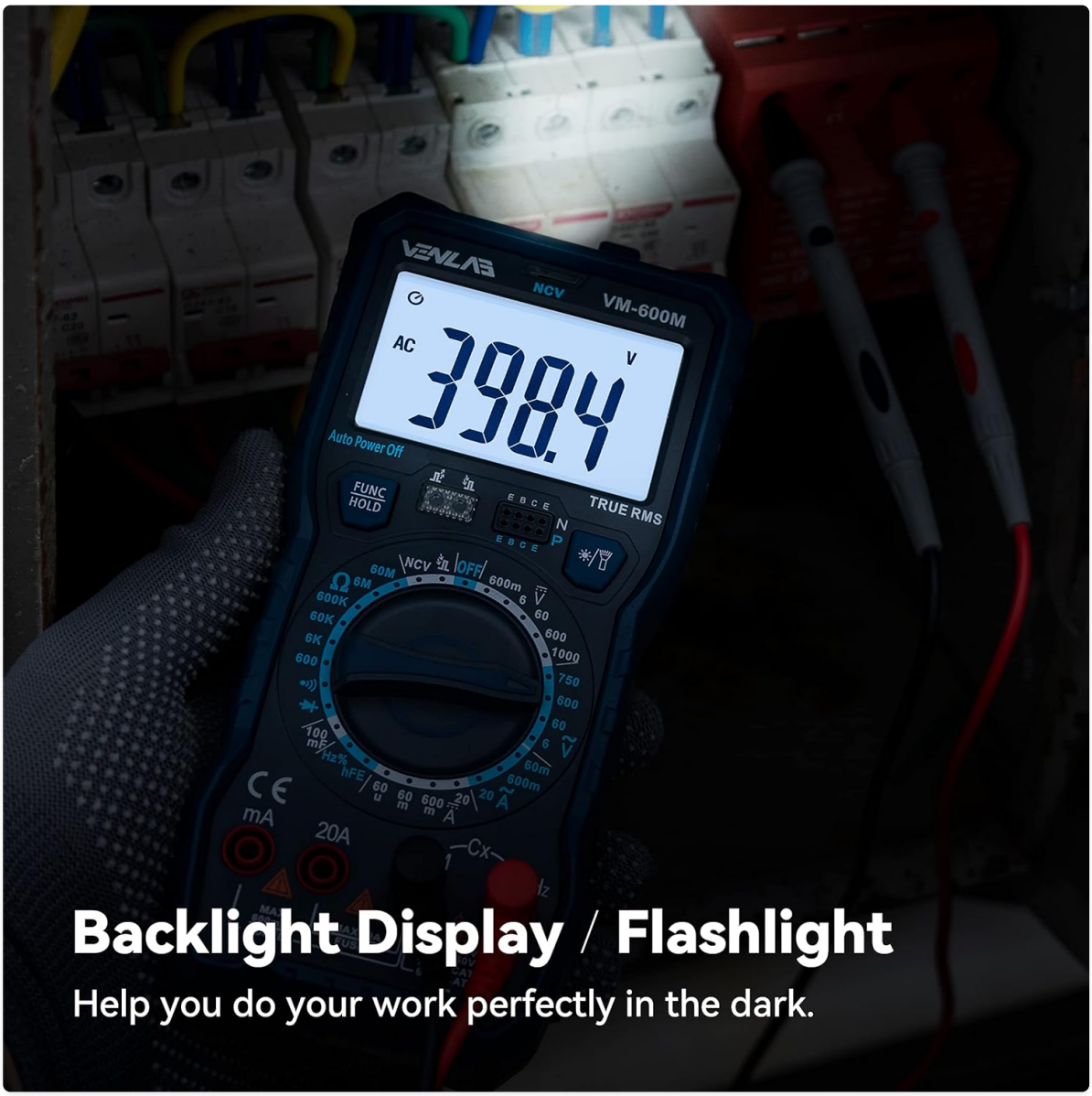


Figure 4.2: Measuring DC Voltage.

- **AC Voltage Test:** Set the rotary switch to 'V~' (AC symbol). Connect the test leads across the AC source. The reading will appear on the LCD.

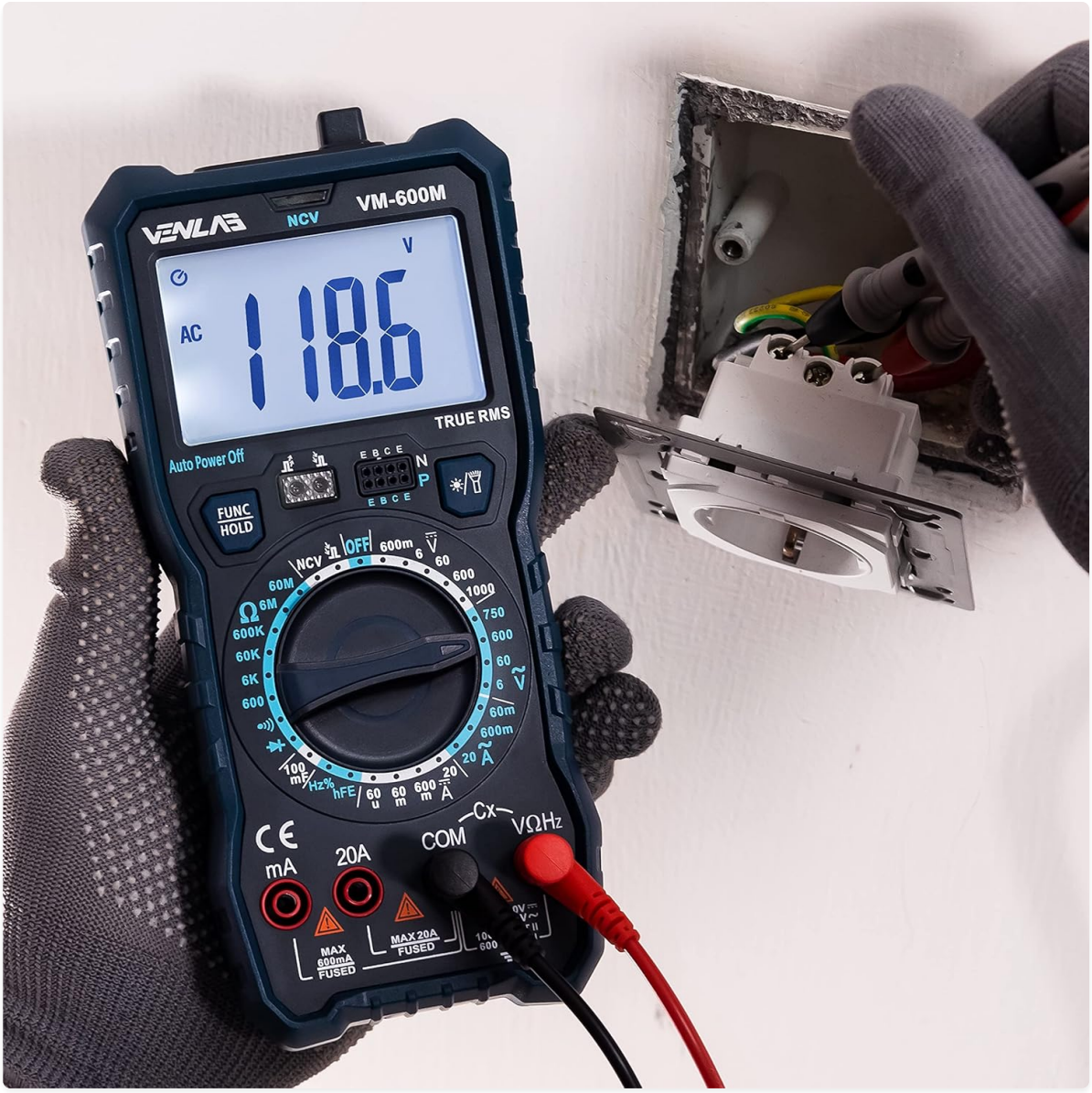


Figure 4.3: Measuring AC Voltage.

- **Resistance Test (Ω):** Set the rotary switch to 'Ω'. Connect the test leads across the component to measure its resistance.
- **Continuity Test:** Set the rotary switch to the continuity symbol (speaker icon). Touch the test leads to the two points to be tested. An audible buzzer indicates continuity (low resistance).

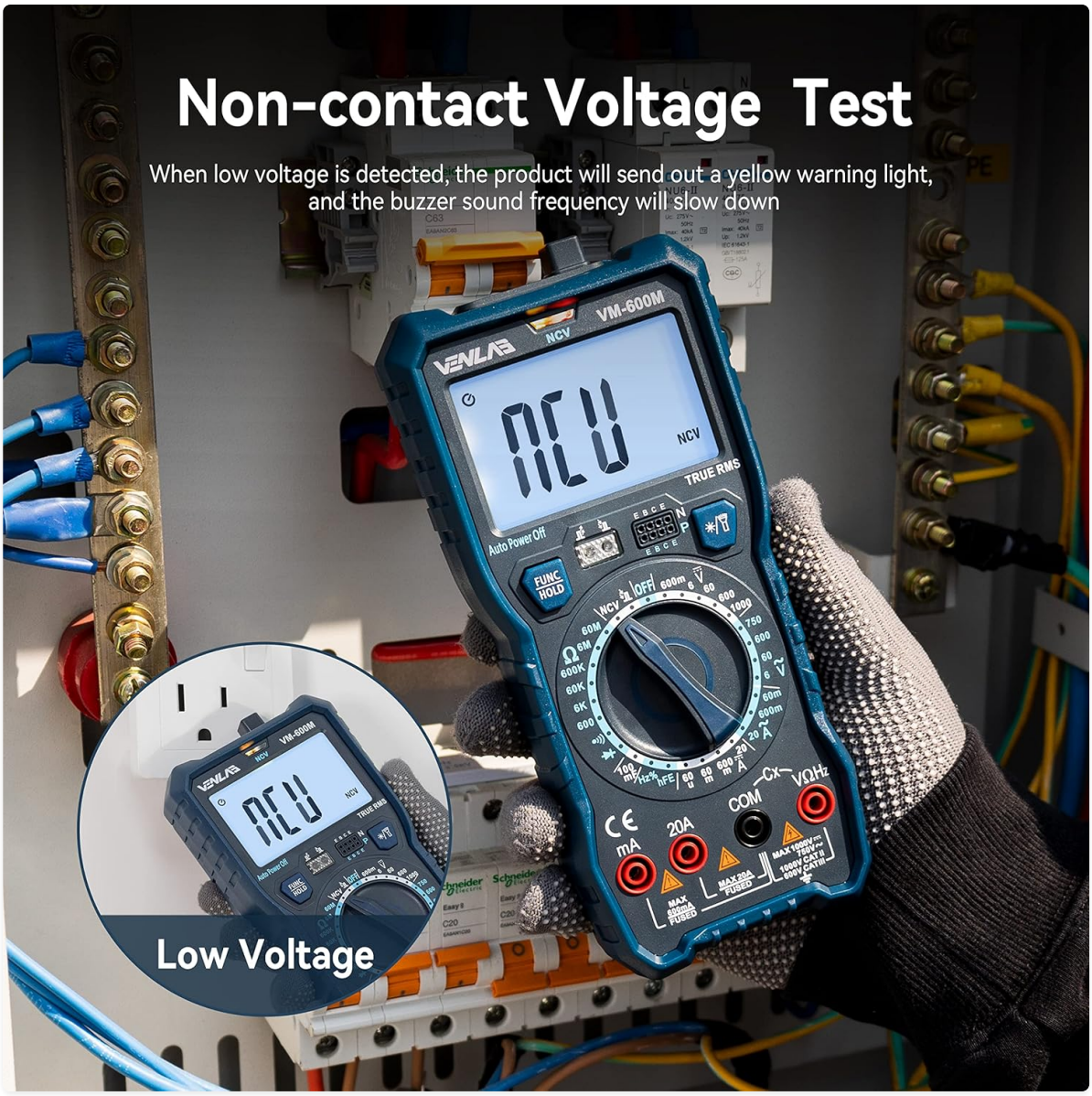


Figure 4.4: Performing a Continuity Test.

- **Non-Contact Voltage (NCV) Test:** Set the rotary switch to 'NCV'. Move the top of the multimeter near a live AC voltage source. The NCV sensor will detect the voltage, indicated by an audible alarm and flashing lights.

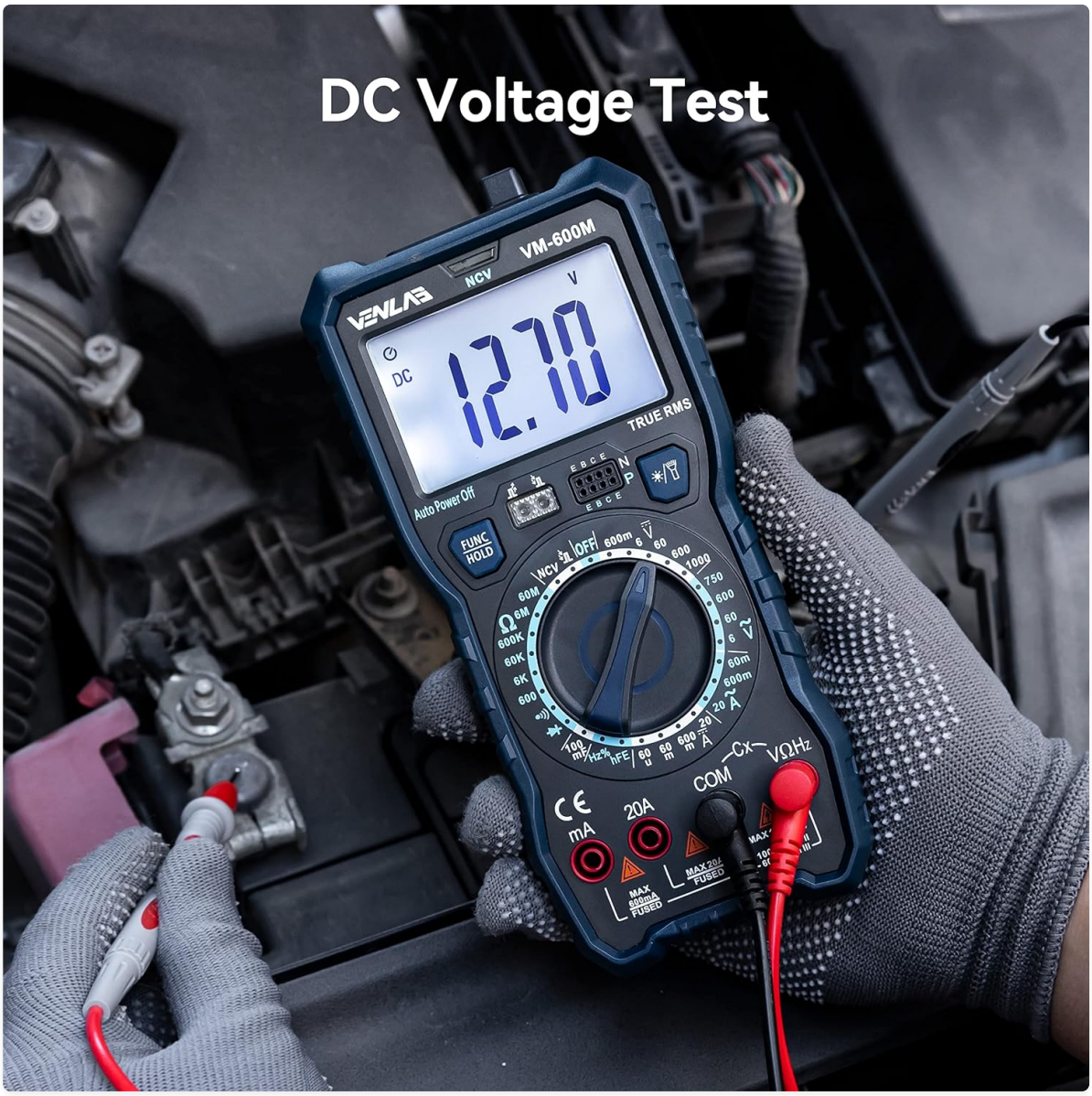


Figure 4.5: Non-Contact Voltage (NCV) detection in action.

- **Backlight Display / Flashlight:** Press the button with the light bulb symbol to turn on the LCD backlight or the integrated flashlight. This feature is useful for working in dimly lit environments.

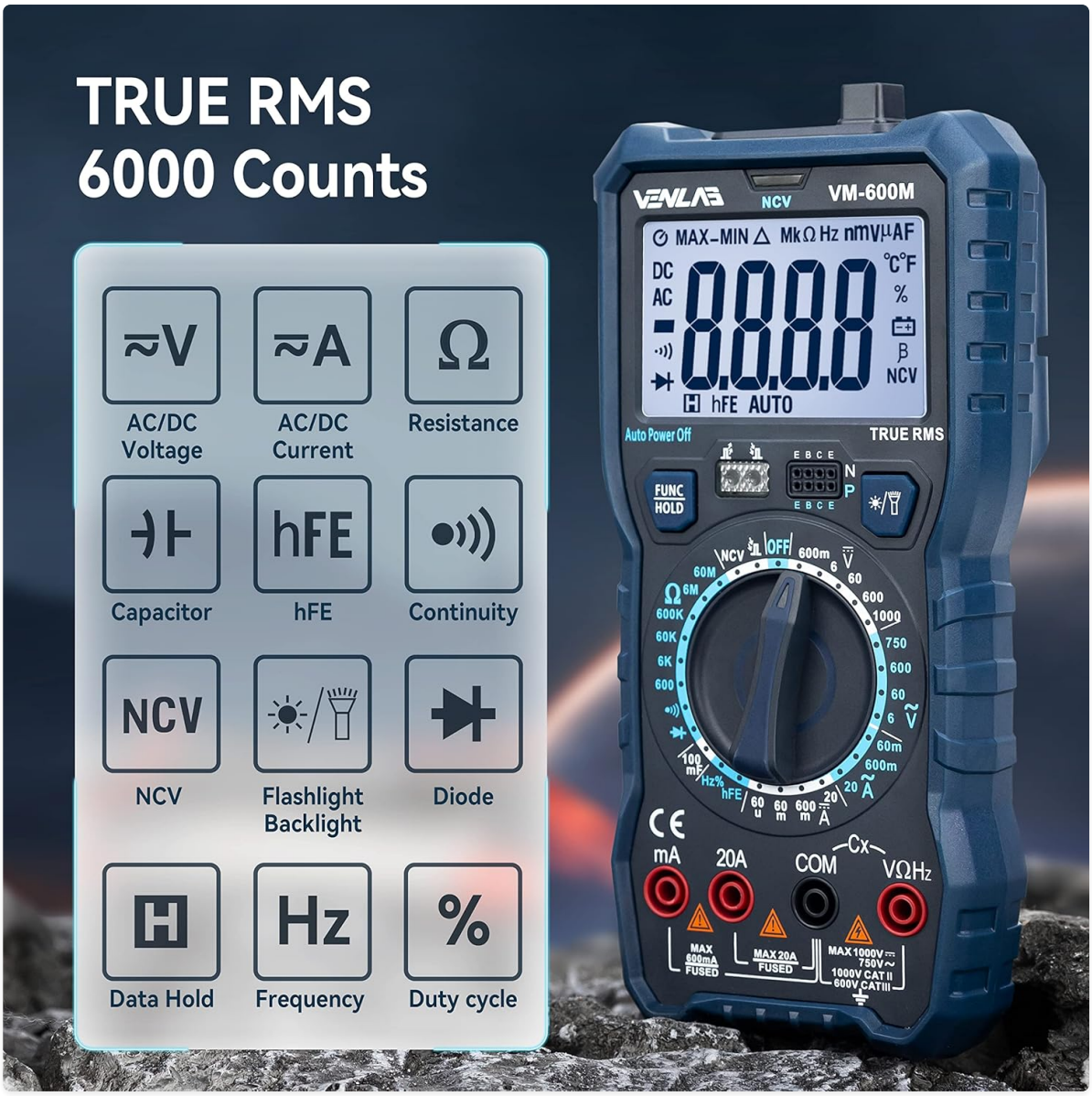


Figure 4.6: Backlight and Flashlight in use.

## 5. Maintenance

### 5.1 Cleaning

To clean the multimeter, wipe the case with a damp cloth and a mild detergent. Do not use abrasives or solvents. Ensure the device is completely dry before use.

### 5.2 Battery Replacement

When the battery indicator appears on the LCD, replace the batteries as described in Section 3.1.

### 5.3 Fuse Replacement

The multimeter is equipped with double fuses to prevent overload. If the multimeter fails to measure current or other functions, the fuse may need replacement. Refer to the detailed diagram in Section 1 for fuse location. Use only specified fuse types (e.g., 600mA/250V and 20A/250V fast-blow fuses).

## 6. Troubleshooting

- **No Display:** Check battery installation and ensure batteries are not depleted. Replace if necessary.
- **Incorrect Readings:** Ensure test leads are properly connected to the correct input jacks and the rotary switch is set to the appropriate function. Verify the component or circuit is within the multimeter's measurement range.
- **No Current Measurement:** Check if the current fuse is blown. Replace if needed.
- **NCV Not Responding:** Ensure the NCV function is selected and the multimeter is brought close enough to a live AC source.

For further assistance, please contact VENLAB customer service.

## 7. Specifications

| Specification | Value |
|---|---|
| Model Number | VM-600M |
| Manufacturer | VENLAB |
| Product Dimensions | 21.4 x 13.3 x 6 cm |
| Item Weight | 570 g |
| Power Source | Battery Powered (2 AAA batteries, included) |
| Measurement Accuracy | 0.5% (typical) |
| Certification | CE, RoHS |
| Included Components | Multimeter, Test Leads, Batteries, Fuse, Instruction Manual |

## 8. Warranty and Support

VENLAB offers lifetime customer service and technical support for the VM-600M Digital Multimeter. If you encounter any issues or have questions regarding the product, please do not hesitate to contact our support team. Refer to the product packaging or the VENLAB official website for contact details.