**UNI-T UT121A**

# UNI-T UT121A Mini Smart Digital Multimeter Instruction Manual

## 1. Introduction

This manual provides detailed instructions for the safe and effective use of the UNI-T UT121A Mini Smart Digital Multimeter. The UT121A is a compact, True RMS digital multimeter designed for various electrical measurements, featuring automatic range selection, non-contact voltage (NCV) detection, and a clear LCD display. Please read this manual thoroughly before operation to ensure proper usage and to prevent potential hazards.

## 2. Safety Information

Always adhere to the following safety precautions when using the multimeter:

- Read and understand all instructions before use.
- Do not apply voltage or current that exceeds the specified maximum limits.
- Always ensure the test leads are in good condition and properly connected.
- Do not use the meter if it appears damaged or if the battery cover is not properly closed.
- Exercise extreme caution when working with live circuits. Wear appropriate personal protective equipment (PPE).
- Keep fingers behind the finger guards on the test probes during measurements.
- Replace batteries promptly when the low battery indicator appears.

## 3. Product Overview

The UNI-T UT121A is a portable and user-friendly digital multimeter. Below is an illustration of its main components and controls.

| basic function | range | accuracy | | |
|---|---|---|---|---|
| model | | UT121A | UT121B | UT122 |
| DC voltage | 6.000V/60.00V/600.0V | ±(0.7%+3) | ±(0.7%+3) | ±(0.5%+3) |
| | 1000.0V | | ±(1.2%+3) | |
| AC voltage | 6.000V/60.00V/600.0V | ±(1.0%+3) | ±(1.0%+3) | ±(1.0%+3) |
| | 750.0V | | ±(1.5%+3) | |
| High voltage frequency | 10Hz-1kHz | ±(0.5%+2) | ±(0.5%+2) | ±(0.5%+2) |
| resistance | 6000Ω/60.00KΩ/600.0KΩ/6.000MΩ /10.00MΩ | ±(1.0%+5) | | |
| | 600.0Ω/6.000KΩ/60.00KΩ/600.0KΩ/6.00MΩ/60.00MΩ | | ±(0.8%+5) | ±(1.0%+3) |
| capacitance | 60.00nF/600.0nF/6.000μF/60.00μF/600.0μF/6.000mF/60.0mF | | ±(4%+5) ⩾6mF± (10%+5)) | |
| | 99.99nF/999.9nF/9.999μF/99.99uF/999.99uF/9.999mF/99.99mF | | | ±(4%+5) ⩾9.999mF |
| frequency | 10.00Hz-10.00MHz | | ±(0.1%+3) | ±(0.1%+3) |
| temperature | -40°C~1000°C/-40°F~1832°F | | ±3°C/±6°F | ±3°C/±6°F |
| Special functions | | | | |
| Maximum display | | 6199 | 6199 | 6199 |
| Auto Range | | √ | √ | √ |
| Dual display mode | | √ | √ | √ |
| Data retention | | √ | √ | √ |
| Duty cycle | | - | - | √ |
| NCV/LIVE | | √ | √ | √ |
| On off buzzer | | √ | √ | √ |
| diode | Safety level | | √ | √ |
| Automatic shutdown | | √ | √ | √ |
| Flashlight/backlight | | √ | √ | √ |
| High voltage alarm | | √ | √ | √ |
| Safety level | | CATIII 600V | CATIII 600V | CATIII 600V |
| Power Supply | | 1.5V AAA *2 | 1.5V AAA *2 | 3.7V lithium battery |

Figure 3.1: UT121A Interface Introduction. This diagram highlights the LCD display, function switch key, On/Off button, NCV sensing terminal, flashlight, battery cover, and the black and red probe jacks.

The device features a large LCD screen for clear readings, intuitive buttons for function selection, and a compact design for easy portability.

## 4. Setup

### 4.1 Battery Installation

The UT121A model requires two 1.5V AAA batteries. To install or replace batteries:

1. Ensure the multimeter is powered off and disconnect any test leads.
2. Locate the battery compartment on the back of the device.
3. Use a screwdriver to open the battery cover.
4. Insert two 1.5V AAA batteries, observing the correct polarity.
5. Securely close the battery cover.

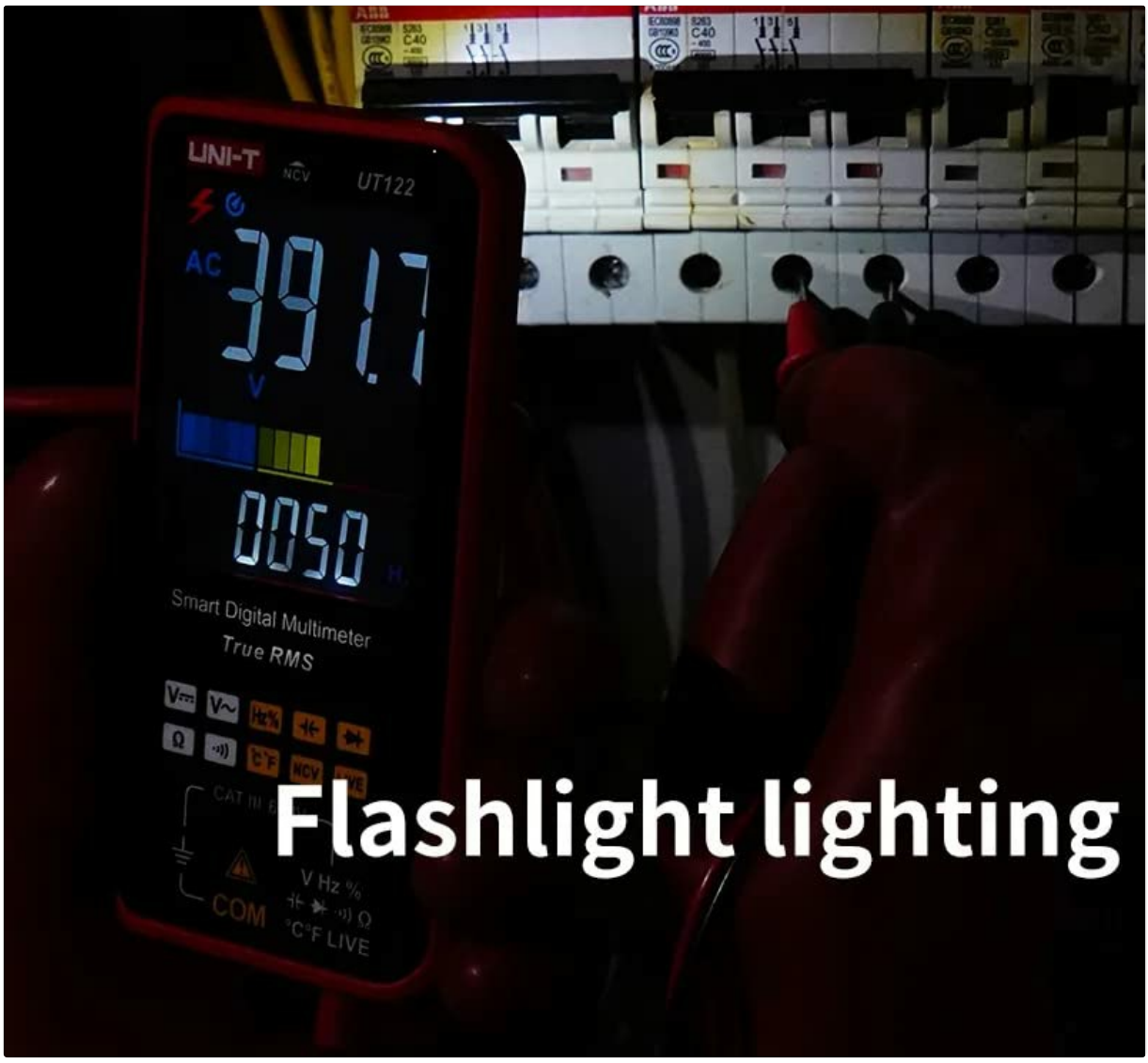


Figure 4.1: Battery Compartment. The UT121A uses two 1.5V AAA batteries, easily accessible via an independent battery compartment for convenient replacement.

## 4.2 Application Areas

The UT121A is suitable for various applications, including electrical school training, electrical maintenance, circuit maintenance, automobile maintenance, and general equipment maintenance.

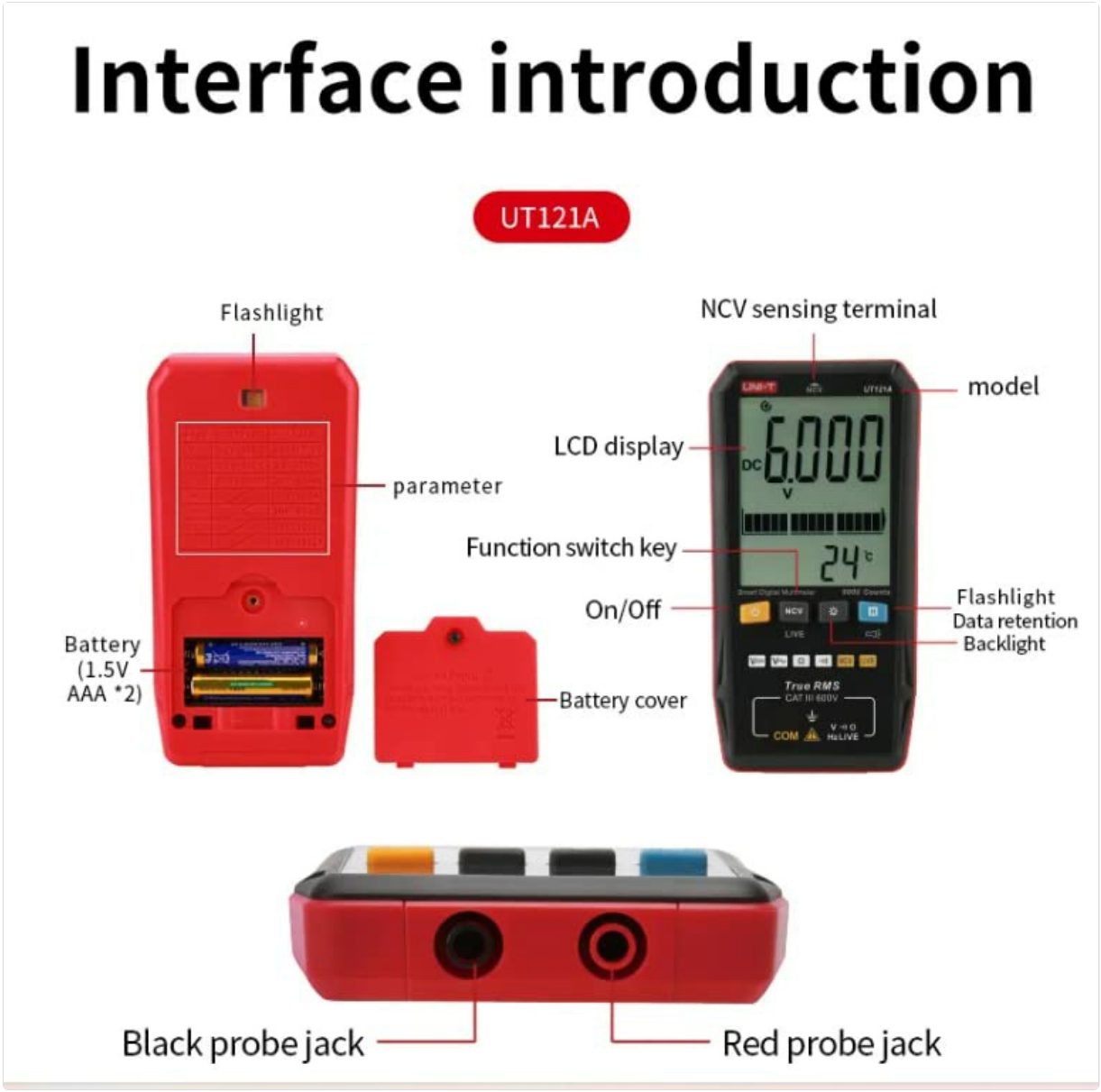


Figure 4.2: Multimeter Application Areas. This image shows the versatility of the UT121A across different fields, along with a visual of its battery configuration.

## 5. Operating Instructions

### 5.1 Power On/Off

Press the power button (usually marked with a power symbol) to turn the multimeter on or off. The device will typically enter Auto mode upon startup.

### 5.2 Auto Mode and Function Selection

In Auto mode, the multimeter intelligently identifies the measurement type (voltage, resistance, continuity) and automatically selects the appropriate range. To manually select or cycle through functions (e.g., DC Voltage, AC Voltage, Resistance, Capacitance, Frequency, Diode, Continuity, NCV, LIVE), press the 'SEL' button or the dedicated function buttons as indicated on the device.

### 5.3 Backlight and Flashlight

The UT121A features a backlit display for improved visibility in low-light conditions and a built-in flashlight for illuminating the work area.

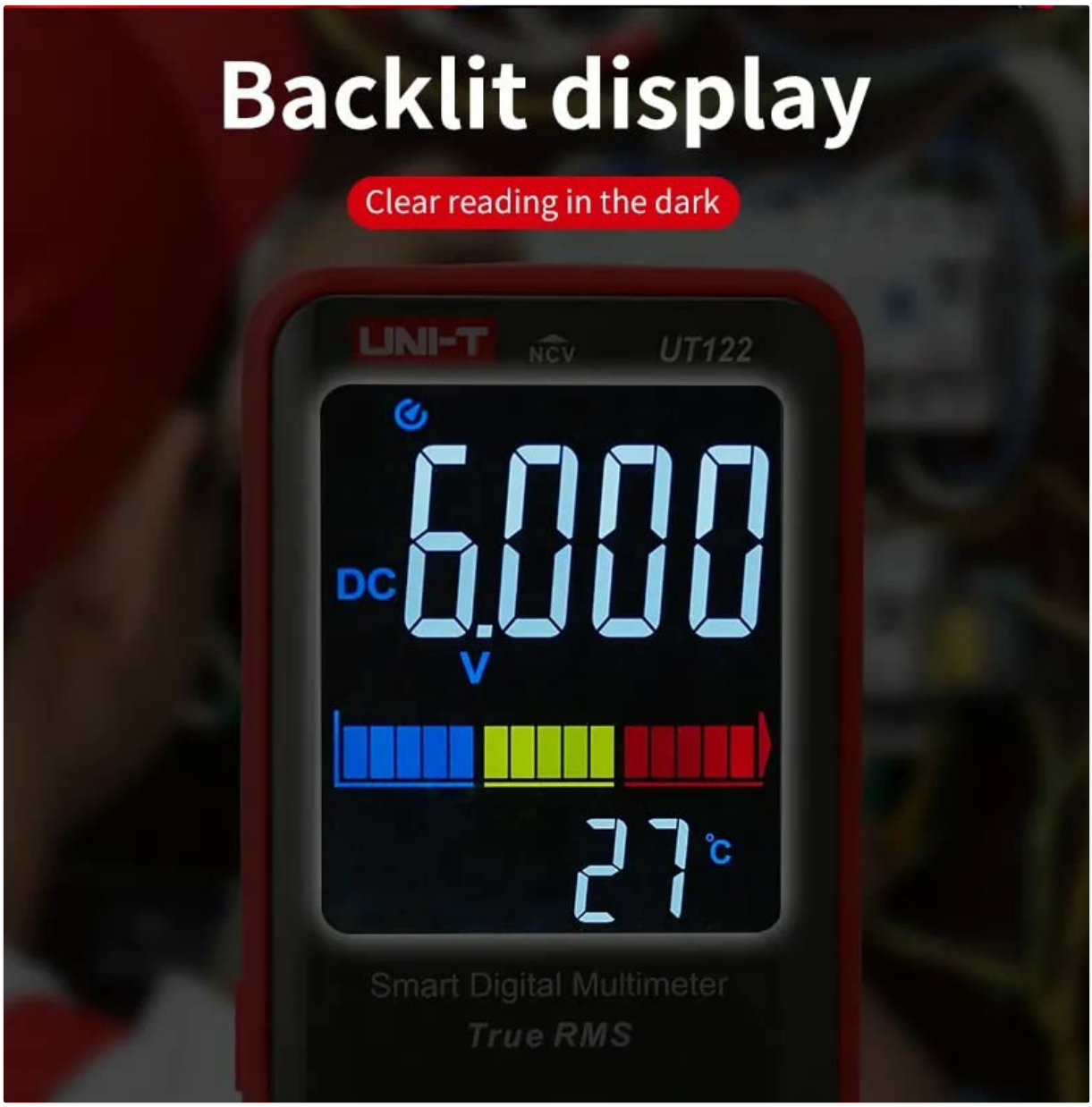


Figure 5.1: Backlit Display. The clear backlit display ensures readability even in dark environments.

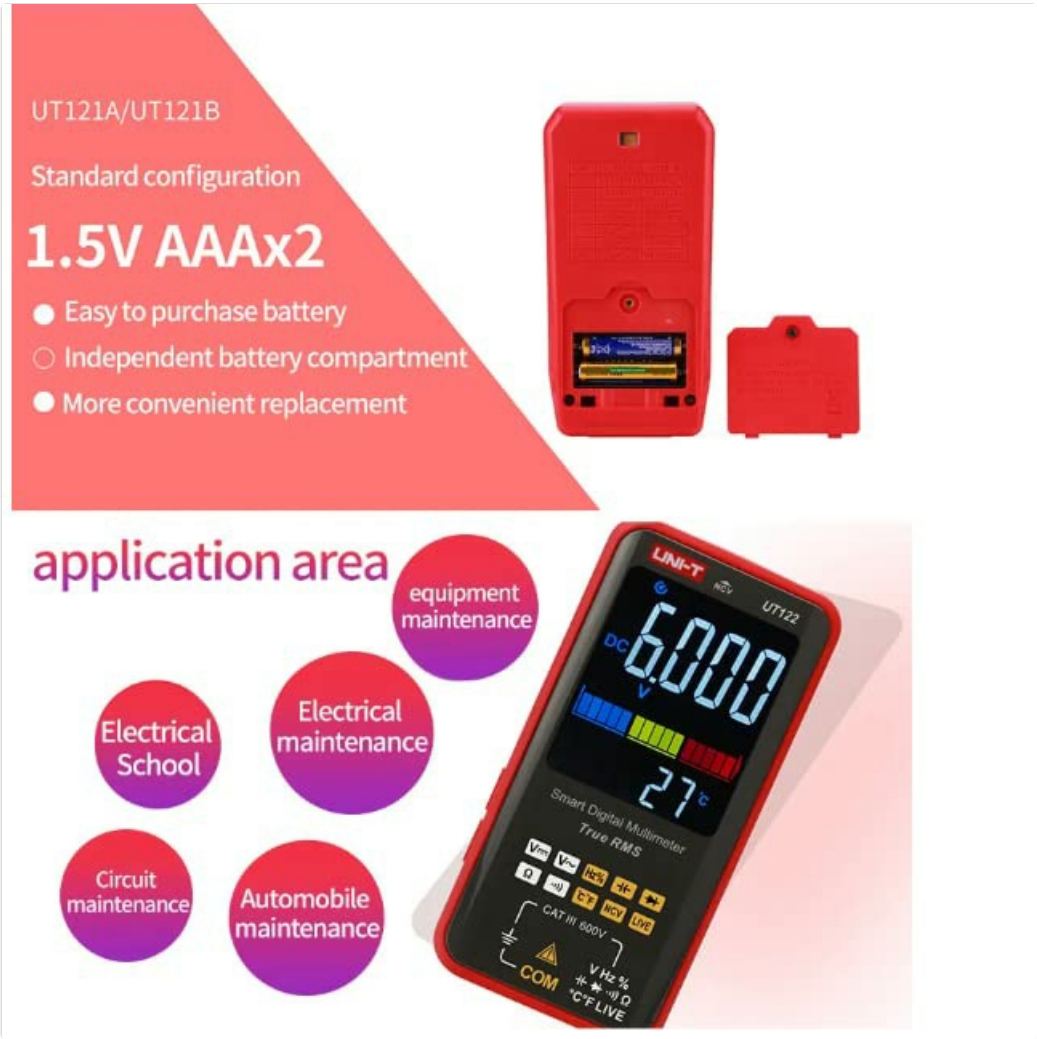


Figure 5.2: Flashlight Lighting. The integrated flashlight assists in working in poorly lit areas.

## 5.4 Taking Measurements

Connect the test leads to the appropriate input jacks (COM and VΩHz for most measurements). Select the desired function and range (if not in Auto mode) before making contact with the circuit.

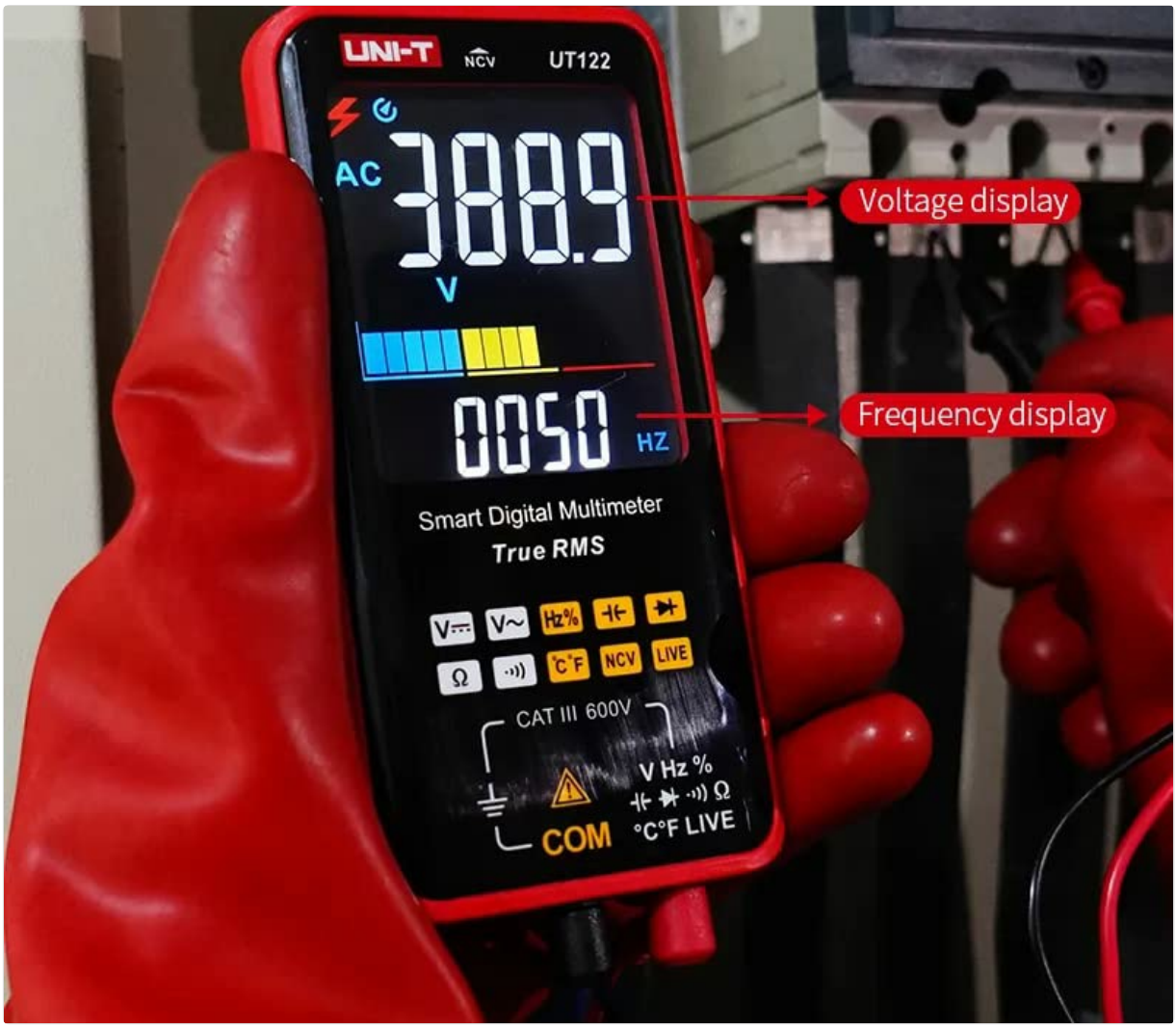


Figure 5.3: Voltage and Frequency Display. The multimeter can simultaneously display voltage and frequency, as shown here with AC 388.9V and 50Hz.

### 5.5 NCV (Non-Contact Voltage) and LIVE Wire Detection

The NCV function allows for non-contact detection of AC voltage, providing an audible and visual indication of live wires without direct contact. The LIVE function helps identify live and neutral wires in a circuit.

Video 5.1: NCV Function Demonstration. This video demonstrates the non-contact voltage detection feature of the UNI-T UT122 multimeter, showing how it alerts the user to the presence of AC voltage near a power strip.

## 6. Specifications

The UT121A offers a range of measurement capabilities. Key specifications include True RMS measurement, AC/DC 600V voltage measurement, and a 6000-count display. For a comprehensive list of specifications, refer to the table below.

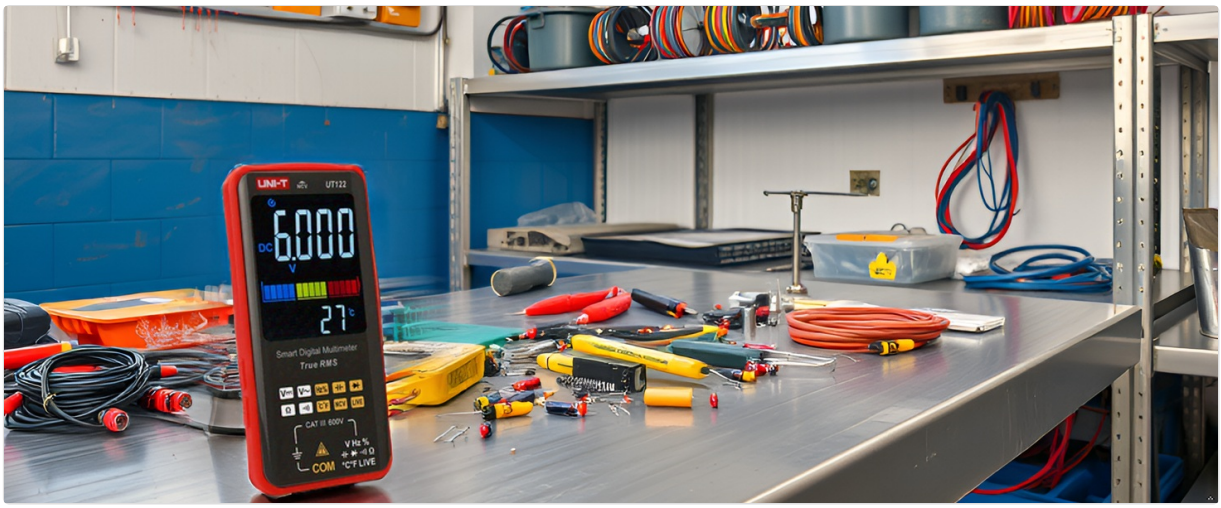


Figure 6.1: Detailed Specifications Table. This table provides a comprehensive overview of the technical specifications for the UT121A, UT121B, and UT122 models, including measurement ranges, accuracy, and special features like True RMS, Auto Range, Dual Display, and NCV/LIVE.

## 7. Maintenance

### 7.1 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.

### 7.2 Battery Replacement

Refer to Section 4.1 for instructions on battery replacement. Always use new batteries of the specified type (1.5V AAA) and dispose of old batteries responsibly.

## 8. Troubleshooting

If the multimeter does not function correctly, consider the following common issues:

- **No Display:** Check if the batteries are correctly installed and have sufficient charge. Replace if necessary.
- **"OL" Display:** This indicates an overload or out-of-range measurement. Ensure the correct function and range are selected, or that the measured value is within the device's limits.
- **Inaccurate Readings:** Verify that the test leads are properly connected and not damaged. Ensure the correct measurement function is selected.

For persistent issues, contact customer support.

## 9. Warranty and Support

For warranty information and technical support, please refer to the documentation included with your purchase or visit the official UNI-T website. Keep your purchase receipt as proof of purchase for any warranty claims.

**Related Documents - UT121A**

| | |
|---|---|
|  | [UNI-T UT123D Smart Digital Multimeter - Specifications and Features]<br>Detailed information on the UNI-T UT123D smart digital multimeter, including its functions, LED descriptions, technical specifications, and product details. This multimeter automatically identifies AC/DC voltage, resistance, diode, and continuity. |
|  | [UNI-T UT890C Digital Multimeter - Features and Specifications]<br>Detailed information on the UNI-T UT890C Digital Multimeter, including its features, specifications, and applications. This true RMS multimeter offers a 6000-count display, NCV, continuity testing, and more. |
|  | [UNI-T UT201+/UT202+/UT202A+ AC Clamp Meter User Manual]<br>Comprehensive user manual for the UNI-T UT201+, UT202+, and UT202A+ AC Clamp Meters. Covers features, safety instructions, operating procedures, technical specifications, and maintenance for these True RMS clamp meters. |
|  | [UNI-T UT161E True RMS Digital Multimeter - Specifications and Features]<br>Detailed information on the UNI-T UT161E True RMS digital multimeter, including its features, specifications, safety ratings, and package contents. Ideal for accurate AC/DC voltage, current, resistance, frequency, and capacitance measurements. |
|  | [UNI-T UT118C Pen Type Meter User Manual - Features, Safety, and Specifications]<br>Official user manual for the UNI-T UT118C Pen Type True-RMS Multimeter. Details its features, safety precautions, operating instructions for various measurements (voltage, resistance, capacitance, etc.), NCV/LIVE wire detection, technical specifications, and maintenance procedures. |
|  | [UNI-T UT181A Intelligent Multimeter Operating Manual]<br>Comprehensive operating manual for the UNI-T UT181A handheld auto-range true RMS intelligent multimeter, covering specifications, measurement operations, maintenance, and safety precautions. |