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› [UNI-T](#) /

› UNI-T UT890C Digital Multimeter User Manual

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Professional Digital Multimeter for AC/DC Ammeter, Voltmeter, Resistance, Capacitance, and Frequency Measurement

INTRODUCTION

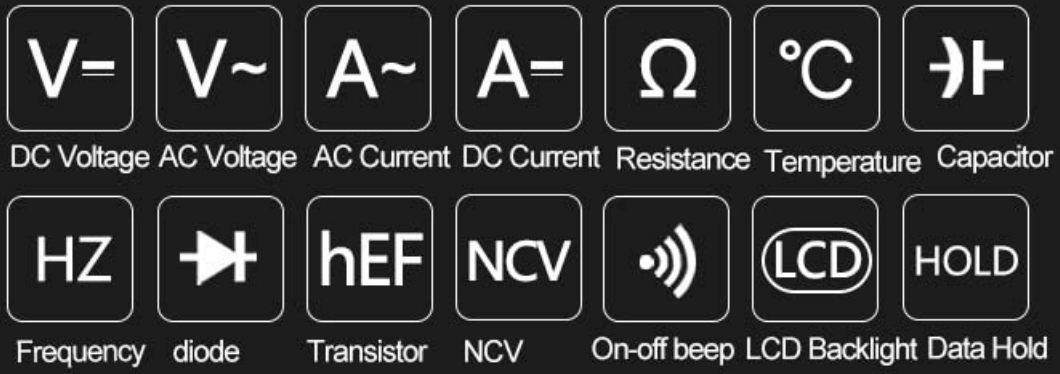
The UNI-T UT890C Digital Multimeter is a versatile and reliable instrument designed for precise electrical measurements. This manual provides essential information for the safe and effective operation, maintenance, and troubleshooting of your UT890C multimeter. It features a 6000-count manual range, True RMS measurement, and advanced safety features like automatic fuse blowing alarm and overload prompts.



Figure 1: Front view of the UNI-T UT890C Digital Multimeter.

PRODUCT OVERVIEW AND COMPONENTS

Familiarize yourself with the main components and functions of the UT890C multimeter.



Product Description



Figure 2: Detailed diagram showing the LCD screen, function button, MAX/MIN switch, insulating protective cover, small current jack, 20A current jack, transistor jack, short press/long press functions, function switch, voltage/resistor/diode/circuit switching, frequency/temperature

measuring jack, and public jack.

- **LCD Screen:** Displays measurement readings, unit symbols, and other indicators.
- **Function Buttons:** Includes SELECT, MAX/MIN, HOLD/LIGHT for various operations.
- **Function Switch:** Rotary dial to select measurement modes (e.g., DC Voltage, AC Voltage, Resistance, Capacitance, Frequency, Temperature).
- **Input Jacks:** Dedicated jacks for current (mA, A), voltage/resistance/diode/temperature, and common (COM) connections.
- **Transistor Jack:** For hFE measurements.
- **Insulating Protective Cover:** Provides protection for the device.

SETUP

1. Battery Installation

The UT890C requires AAA batteries. Ensure proper polarity when installing.

1. Locate the battery compartment on the back of the multimeter.
2. Use a screwdriver to open the battery cover.
3. Insert the batteries, observing the polarity markings (+/-).
4. Securely close the battery cover.



Figure 3: View of the battery compartment, showing battery type (AAA 1.5V x 4) and fuse specifications (FF600mA 1000V, FF11A 1000V).

2. Connecting Test Leads

Always connect the black test lead to the "COM" (common) jack. Connect the red test lead to the appropriate input jack based on the measurement type (e.g., VΩHz for voltage, resistance, frequency; mA/A for current).



Figure 4: The UT890C multimeter, test leads, and K-type temperature probe (for UT890C) included in the standard packaging.

OPERATING INSTRUCTIONS

General Measurement Procedures

1. Turn the rotary switch to the desired measurement function.
2. Connect the test leads to the circuit or component being measured.
3. Read the measurement value on the LCD screen.
4. Press the **SELECT** button to cycle through sub-functions if available (e.g., AC/DC, Diode/Continuity).
5. Press **HOLD/LIGHT** to freeze the display reading or activate the backlight.
6. Press **MAX/MIN** to record maximum and minimum values during a measurement session.

Specific Measurement Functions

Voltage Measurement (AC/DC)

- Set the rotary switch to V~ (AC Voltage) or V- (DC Voltage).
- Connect the red lead to VΩHz and the black lead to COM.
- Connect the test leads in parallel to the circuit or component.



Figure 5: Measuring voltage from a power outlet using the UT890C multimeter.

Current Measurement (AC/DC)

- Set the rotary switch to A~ (AC Current) or A- (DC Current).
- Connect the red lead to the appropriate current jack (mA or 20A) and the black lead to COM.
- Connect the multimeter in series with the circuit.

Accurate measurement

Detailed function verification

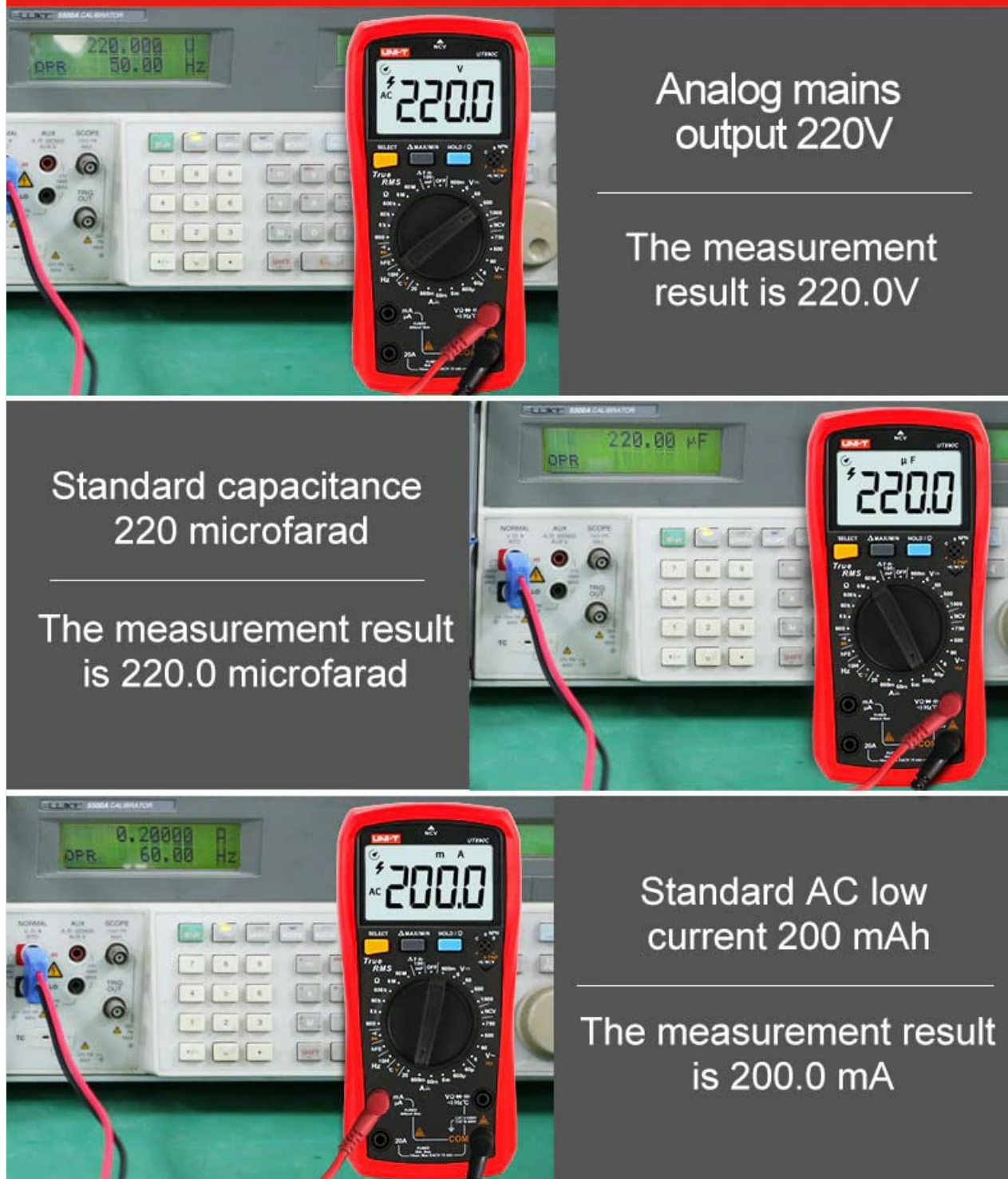


Figure 6: Examples of accurate measurements: Analog mains output 220V, Standard capacitance 220 microfarad, and Standard AC low current 200 mA.

Resistance Measurement

- Set the rotary switch to Ω .
- Connect the red lead to V Ω Hz and the black lead to COM.
- Connect the test leads across the resistor or component.

Capacitance Measurement

- Set the rotary switch to the capacitance symbol (e.g., -||-).
- Connect the red lead to VΩHz and the black lead to COM.
- Connect the test leads across the capacitor.

Frequency Measurement

- The UT890C supports both low-voltage (below 30V, 10Hz~10MHz) and high-voltage (5V~750V, 10Hz~10kHz) frequency measurements.
- Set the rotary switch to Hz.
- Connect the red lead to VΩHz and the black lead to COM.
- Connect the test leads to the circuit where frequency is to be measured.

Frequency response 45Hz~1KHz

Can be compatible with general power frequency voltage measurement, as well as inverters, high frequencies, Measurement of high frequency voltage such as high frequency inverter;
Voltage measurement under 200Hz frequency variable frequency motor



Low-voltage frequency measurement and high-voltage frequency measurement

With low-voltage frequency measurement and high-voltage frequency measurement function, it can better cope with the frequency measurement of power frequency voltage. Due to the influence of the protection circuit, the single frequency file measurement is only applicable to the circuit below 30V. The circuit frequency for measuring the high voltage needs to be switched to the frequency file corresponding to the voltage file. The high frequency voltage frequency file can measure the power frequency voltage or even the 750V voltage. Frequency of.



300V 60Hz high voltage and low frequency measurement



3V 10MHz low voltage high frequency measurement

Figure 7: Demonstrates frequency response (45Hz~1KHz) and both low-voltage (3V 10MHz) and high-voltage (300V 60Hz) frequency measurements.

NCV (Non-Contact Voltage) Function

- Set the rotary switch to NCV.
- Move the top of the multimeter near a live wire. The meter will beep and the display will show the sensed electric

field strength.

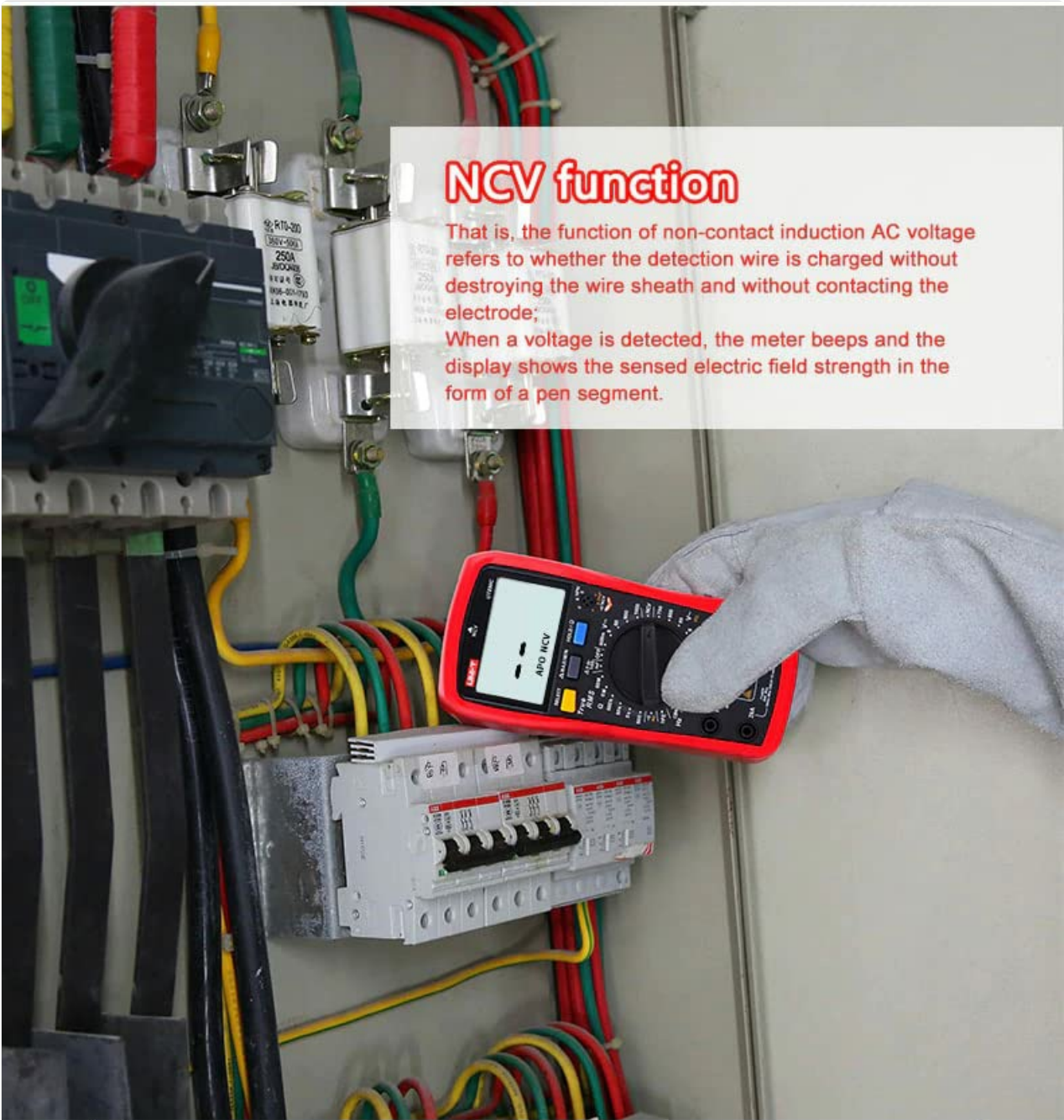


Figure 8: Using the NCV function to detect live wires without direct contact, enhancing safety.

Zero Fire Line Measurement (UT890C)

- For UT890C, use the NCV function to distinguish between live and neutral wires.
- When the NCV function is active, the display will indicate "EF" for electric field detection, helping identify the live wire.

Zero fire line measurement

UT890D+ hits the Live file, inserts the measurement with a single test pen, and can distinguish the zero fire line.

UT890C hits the NCV file, inserts the measurement with a single test pen, and can distinguish the zero fire line.

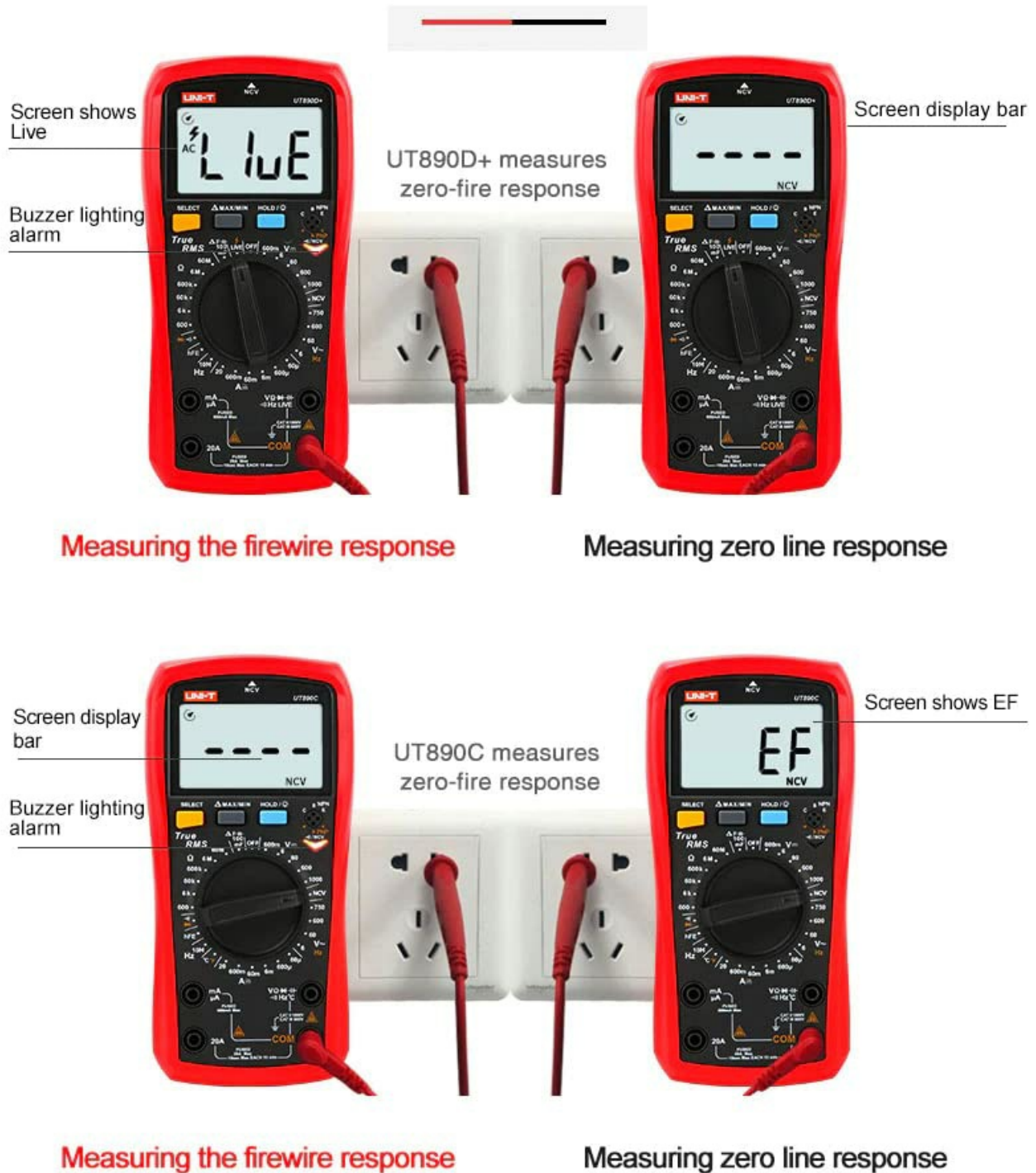


Figure 9: Illustrates how the UT890C (bottom) and UT890D+ (top) measure fire and zero line responses, with the UT890C showing "EF" for electric field detection.

Cleaning

Wipe the multimeter casing with a damp cloth and mild detergent. Do not use abrasive cleaners or solvents. Ensure the device is off and disconnected from any circuits before cleaning.

Battery Replacement

When the low battery indicator appears on the LCD, replace the batteries promptly to ensure accurate measurements and proper operation. Refer to the "Battery Installation" section for instructions.

Fuse Replacement

The UT890C features an automatic fuse blowing alarm. If a fuse blows, the device will alert you. Replace blown fuses with specified types only (FF600mA 1000V and FF11A 1000V) to maintain safety and functionality. Refer to the battery compartment image for fuse specifications.

The UT890C/D+ 6000-count true RMS digital multimeters are designed with large LCD display. The maximum measurable capacitance is 100mF, with fast response time of less than 12s. The NCV and continuity measurement have acousto-optic indications. UT890D+ has a LIVE function for distinguishing between live and neutral wires. In addition, it is equipped with the automatic fuse blown detection and high voltage protection.

Applications:

- Electrical switchboards; HVAC systems;
- Electrical circuit faults detection;
- Installation or maintenance of electronics/ factory equipment;
- Electronics component;
- development, circuit board design;
- Users who need to distinguish between neutral/ live wire frequently.



Live and nature wires identification



UT890D+

Specifications	Range	UT890C	UT890D+
DC voltage	600mV/6V/60V/600V/1000V	±(0.7%+3)	±(0.7%+3)
AC voltage	6V/60V/600V/750V	±(0.8%+3)	±(0.8%+3)
ACV Frequency	10Hz~10kHz	±(0.1%+5)	±(0.1%+5)
DC current	60μA/600μA/6mA/60mA/600mA/20A	±(0.8%+8)	±(0.8%+8)
AC current	60μA/600μA/6mA/60mA/600mA/20A	±(1%+12)	±(1%+12)
Resistance	600Ω/6kΩ/60kΩ/600kΩ/6MΩ/60MΩ	±(0.8%+3)	±(0.8%+3)
Capacitance	100mF	±(3%+10)	±(3%+10)
Frequency	9.999Hz~9.999MHz	±(0.1%+5)	±(0.1%+5)
Temperature	-40°C~1000°C/-40°F~1832°F	±(1%+3)	
Display count		6000	6000
Live			√
Category ratings	CAT II 1000V, CAT III 600V		

Features

Manual range/True RMS	NCV/hFE/Max/Min
Data hold/REL	Diode test/Continuity test
Audible/visual alarm (NCV/continuity)	High voltage false detection: 1000Vrms
Current (AC/DC) mode memory	Over-current alarm: ≥20A
Low battery indication: ≤2.5V	Auto power off/LCD Backlight
Fuse blowing alarm (mA only): Input overload or misoperation	



Fuse blowing alarm (mA only)

Characteristics

Standard accessories	Batteries, test lead, k-type temperature probe (UT890C), English manual
Power	1.5V battery (R03) x 2
Display	60 x 35mm
Product size	183 x 88 x 56mm
Product net weight	346g
Standard individual packing	Gift box
Standard quantity per carton	40pcs
Standard carton measurement	645 x 450 x 340mm
Standard carton gross weight	23.3kg

Figure 10: Displays the fuse blowing alarm (mA only) and detailed specifications for UT890C and UT890D+ models.

Storage

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

TROUBLESHOOTING

Problem	Possible Cause	Solution
No display or dim display	Low battery; Batteries incorrectly installed; Device off.	Replace batteries; Check battery polarity; Turn on the device.
Incorrect readings	Wrong function selected; Test leads not properly connected; Blown fuse; Overload.	Select correct function; Ensure secure connections; Check and replace fuses; Ensure measurement is within range.
Fuse blowing alarm	Overcurrent; Incorrect measurement range.	Disconnect from circuit immediately; Replace fuse with correct rating; Select higher current range if necessary.
Multimeter does not turn on after auto shutdown	Automatic shutdown activated.	Press and hold SEL/REL to turn it on again.

SPECIFICATIONS

The following table details the technical specifications for the UNI-T UT890C Digital Multimeter.

Specification	Range (UT890C)	Accuracy (UT890C)
DC Voltage	600mV/6V/60V/600V/1000V	$\pm(0.7\%+3)$
AC Voltage	6V/60V/600V/750V	$\pm(0.8\%+3)$
AC Frequency	10Hz~10kHz	$\pm(0.1\%+5)$
DC Current	60 μ A/600 μ A/6mA/60mA/600mA/20A	$\pm(0.8\%+8)$
AC Current	60 μ A/600 μ A/6mA/60mA/600mA/20A	$\pm(1\%+12)$
Resistance	600 Ω /6k Ω /60k Ω /600k Ω /6M Ω /60M Ω	$\pm(0.8\%+2)$
Capacitance	100mF	$\pm(3\%+10)$
Frequency	9.999Hz~9.999MHz	$\pm(0.1\%+5)$
Temperature	-40°C~1000°C / -40°F~1832°F	$\pm(1\%+3)$
Display Count	6000	-
Category Ratings	CAT II 1000V, CAT III 600V	-

General Characteristics

- **Power:** 1.5V Battery (AAA) x 4
- **Display:** 60 x 35mm
- **Product Size:** 183 x 88 x 56mm
- **Product Net Weight:** 346g
- **Standard Accessories:** Batteries, test lead, K-type temperature probe (UT890C), English manual.
- **Features:** Manual range/True RMS, NCV/hFE/Max/Min, Data hold/REL, Diode test/Continuity test, Audible/visual alarm (NCV/continuity), High voltage false detection: 1000Vrms, Current (AC/DC) mode memory, Over-current

alarm: $\geq 20\text{A}$, Low battery indication: $\leq 2.5\text{V}$, Auto power off/LCD backlight, Fuse blowing alarm (mA only): Input overload or misoperation.

WARRANTY AND SUPPORT

UNI-T products are manufactured to high-quality standards. For warranty information and technical support, please refer to the official UNI-T website or contact their customer service. Keep your purchase receipt as proof of purchase for warranty claims.

For further assistance, you may visit the [UNI-T Store on Amazon](#) or their official website www.uni-trend.com.

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Model: UT890C | Document Version: 1.0