UNI-T UT202R

UNI-T UT202R Digital Clamp Meter User Manual

Model: UT202R | Brand: UNI-T

1. Introduction

The UNI-T UT202R is a high-precision digital clamp meter designed for accurate electrical measurements. It features automatic ranging, True RMS capabilities, and a clear LCD backlight display. This manual provides essential information for the safe and effective operation of your device.

2. Safety Information

Always adhere to local and national safety codes. Use appropriate personal protective equipment (PPE) such as insulated gloves and eye protection. Do not attempt to measure voltages or currents exceeding the specified maximum ratings. Ensure the device is in good working condition before use. Refer to the safety markings on the device and in the full product documentation.

- **CAT III 300V / CAT II 600V:** Indicates the measurement category and maximum voltage for safe operation.
- **Do not use if damaged:** Inspect the meter and test leads for any damage before each use.
- **Avoid wet conditions:** Do not operate the meter in wet environments.
- **Battery safety:** Replace batteries when the low battery indicator appears.

3. Product Overview

3.1. Components

Image: Detailed view of the UNI-T UT202R Digital Clamp Meter with labels pointing to its various parts, including the clamp head, NCV sensor, NCV warning lamp, function turntable, function switch button, LED display, relative value button, Max/Min button, data hold/backlight button, black probe socket, and red probe socket.

- **Clamp Head:** Used for non-contact current measurement.
- **NCV Sensor:** Non-Contact Voltage detection.
- **NCV Warning Lamp:** Illuminates during NCV detection.
- **Tong Head Trigger:** Opens the clamp jaw.
- **Function Turntable (Dial):** Selects measurement modes.

- **Function Switch Button (SELECT):** Toggles between functions within a dial setting.
- **LED Display:** High-definition display for measurement readings.
- **REL/Zero Button:** For relative measurement or zeroing.
- **MAX/MIN Button:** Records maximum and minimum values.
- **HOLD/Backlight Button:** Freezes the display reading or activates backlight.
- **Probe Sockets (COM, VΩHz):** Connect test leads for voltage, resistance, frequency, and other measurements.

3.2. Display Features

- **LCD HD Display:** Provides clear and easy-to-read measurements.
- **Backlight Function:** Enhances visibility in low-light conditions.
- **Larger Screen and Display Digits:** Improves readability of measurement values.

4. Setup

4.1. Battery Installation

The UNI-T UT202R requires 2 AA batteries (included). To install or replace batteries:

1. Ensure the meter is turned OFF.
2. Locate the battery cover on the back of the device.
3. Use a screwdriver to open the battery cover.
4. Insert the 2 AA batteries, observing correct polarity (+/-).
5. Securely close the battery cover.

5. Operating Instructions

This section details the various measurement functions of the UNI-T UT202R Digital Clamp Meter. Always select the appropriate function on the dial before making any measurements.

5.1. AC Current Measurement

To measure AC current, rotate the function dial to the 'A~' position. Open the clamp jaw using the trigger and enclose a single conductor. The display will show the AC current reading. The meter supports selectable frequency for AC current measurements.

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Video: Demonstration of AC current measurement using the clamp meter on an electrical panel, showing the current reading on the display. The video also highlights selectable frequency.

5.2. AC Voltage Measurement

To measure AC voltage, rotate the function dial to the 'V~' position. Connect the red test lead to the VΩHz input jack and the black test lead to the COM input jack. Apply the test leads across the circuit points to measure AC voltage. The meter supports selectable frequency for AC voltage measurements.

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Video: Demonstration of AC voltage measurement using test leads on an electrical panel, showing the voltage reading on the display. The video also highlights selectable frequency.

5.3. DC Voltage Measurement

To measure DC voltage, rotate the function dial to the 'V=' position. Connect the red test lead to the VΩHz input jack and the black test lead to the COM input jack. Apply the test leads across the circuit points to measure DC voltage. This is demonstrated on a car battery and an electric bicycle battery.

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Video: Demonstration of DC voltage measurement on a car battery and an electric bicycle battery, showing the voltage readings on the display.

5.4. Resistance Measurement

To measure resistance, rotate the function dial to the 'Ω' position. Connect the test leads across the component to be measured. The display will show the resistance value in Ohms (Ω).

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Video: Demonstration of resistance measurement on a circuit board, showing the resistance value on the display.

5.5. Diode Measurement

To test diodes, rotate the function dial to the 'Diode' symbol position. Connect the test leads across the diode. A healthy diode will show a voltage drop in one direction and an open circuit (OL) in the reverse direction.

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Video: Demonstration of diode measurement on a circuit board, showing the voltage drop reading on the display.

5.6. Continuity Test

To perform a continuity test, rotate the function dial to the 'Continuity' symbol position. Connect the test leads across the circuit or component. The meter will emit an audible beep if continuity is detected (low resistance).

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Video: Demonstration of a continuity test using test leads on a wire, showing the audible beep and display reading for continuity.

5.7. Capacitance Measurement

To measure capacitance, rotate the function dial to the 'Capacitance' symbol position. Connect the test leads across the capacitor. The display will show the capacitance value. The UT202R supports capacitance measurement up to 4mF.

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Video: Demonstration of capacitance measurement on a capacitor, showing the capacitance value on the display.

5.8. Temperature Measurement

To measure temperature, rotate the function dial to the 'Temperature' symbol position. Connect a K-type thermocouple (not included) to the meter. Place the thermocouple tip on the object or area to be measured. The display will show the temperature reading. The UT202R supports temperature measurement from -40°C to 1000°C.

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Video: Demonstration of temperature measurement using a thermocouple on an air conditioning unit, showing the temperature reading on the display.

5.9. Frequency Measurement

To measure frequency, rotate the function dial to the 'Hz%' position. Connect the test leads to the circuit. The display will show the frequency value. The UT202R supports frequency measurement up to 10MHz.

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Video: Demonstration of low voltage frequency measurement using a signal generator, showing the readings on the display.

5.10. Non-Contact Voltage (NCV) Measurement

To detect AC voltage without contact, rotate the function dial to the 'NCV' position. Bring the NCV sensor near the conductor. The NCV warning lamp will illuminate, and the meter will beep, indicating the presence of AC voltage. The UT202R features 4-level NCV measurement for varying signal strengths.

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Video: Demonstration of 4-level NCV measurement on electrical busbars, showing the NCV indicator and audible alerts.

5.11. Current Usage with Splitter (Optional Accessory)

For convenient measurement of home appliance current usage, the UT200+ series can be used with a splitter (e.g., UNI-T UT-LS15-US, sold separately). This accessory separates the live and ground wires, allowing the clamp meter to accurately measure the current of a plugged-in appliance.

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Video: Demonstration of measuring current usage of a home appliance using the clamp meter with a UT-LS15-US splitter.

6. Specifications

The following table outlines the key specifications for the UNI-T UT202R Digital Clamp Meter.

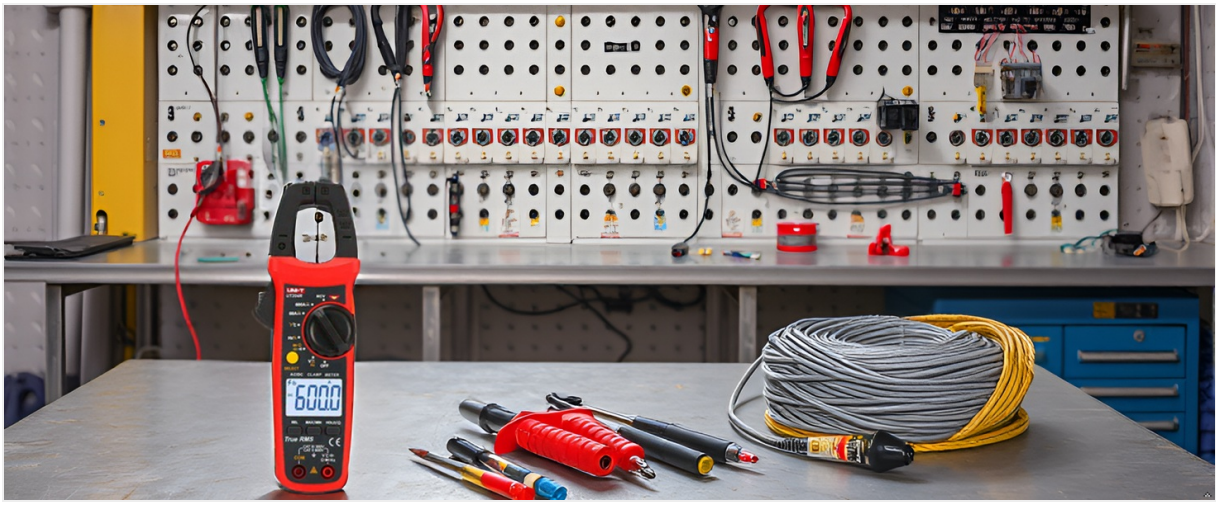

Image: Detailed specifications table for the UT200+ and UT200R series, including AC current, AC current frequency response, DC current, AC voltage, AC voltage frequency response, high voltage frequency, DC voltage, resistance, capacitance, temperature, frequency, display count, jaw opening, relative mode, zero mode, and category ratings.

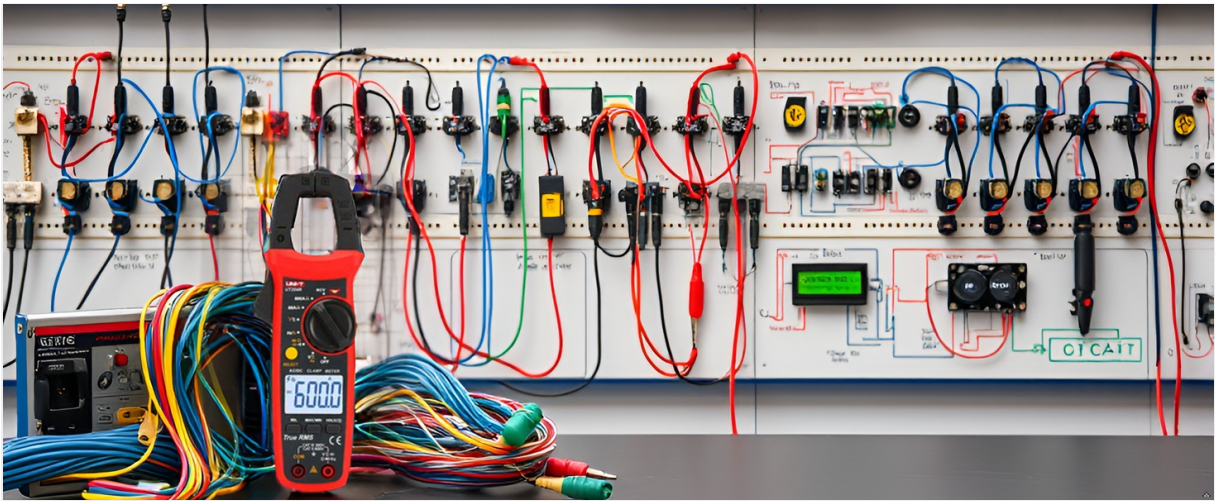

Image: Table outlining features such as auto range, True RMS, continuity test, diode, low battery indication, data hold, Max/Min, and auto power off. Also includes characteristics like standard accessories, batteries, display, product size, product net weight, standard individual packing, standard quantity per carton, standard carton measurement, and standard carton gross weight.

Key Specifications (UT202R)

Parameter	Value
Model Number	UT202R
AC Current (A)	400A
DC Current (A)	Not Available
AC Voltage (V)	600V
DC Voltage (V)	600V
Resistance (Ω)	40MΩ
Capacitance (F)	4mF
Temperature (°C)	-40°C~1000°C
Frequency (Hz)	10Hz~10MHz
Display Count	4000
Jaw Opening	28mm
True RMS	Yes
Backlight	Yes
Power Source	2 AA batteries (included)
Certifications	CE, UKCA, cETLus

7. Maintenance

To ensure the longevity and accuracy of your UNI-T UT202R Digital Clamp Meter, follow these maintenance guidelines:

- **Cleaning:** Wipe the meter with a dry, soft cloth. Do not use abrasives or solvents.
- **Storage:** Store the meter in a cool, dry place away from direct sunlight and extreme temperatures.

Remove batteries if storing for extended periods.

- **Calibration:** For professional applications, periodic calibration by qualified personnel is recommended to maintain accuracy.
- **Test Leads:** Inspect test leads regularly for cuts, cracks, or damaged insulation. Replace immediately if any damage is found.

8. Troubleshooting

If you encounter issues with your UNI-T UT202R, refer to the following common troubleshooting steps:

- **No Display/Faint Display:** Check battery installation and replace batteries if necessary. Ensure the meter is turned ON.
- **Incorrect Readings:**
  - Ensure the correct measurement function is selected.
  - Verify test lead connections are secure and undamaged.
  - Check for proper contact with the circuit or component.
  - For current measurements, ensure only one conductor is within the clamp jaw.
- **"OL" (Overload) Display:** The measured value exceeds the selected range. Switch to a higher range or ensure the measurement is within the meter's capabilities.
- **No Continuity Beep:** Check if the circuit is truly continuous or if the resistance is too high for the continuity threshold.

If problems persist, contact UNI-T customer support or a qualified technician.

9. Warranty and Support

For warranty information and technical support, please refer to the official UNI-T website or contact your local distributor. Keep your purchase receipt as proof of purchase for warranty claims.