

UNI-T UT210E

UNI-T UT210E True RMS AC/DC Mini Clamp Meter User Manual

Model: UT210E

1. INTRODUCTION

The UNI-T UT210E is a highly reliable, safe, and compact auto-ranging mini clamp meter designed for precise electrical measurements. It features True RMS measurement for both AC voltage and current, ensuring accuracy even with non-sinusoidal waveforms. Its VFC (Variable Frequency Control) mode allows for accurate measurements in environments with variable frequency interference, making it suitable for a wide range of applications.

This manual provides detailed instructions for the safe and effective operation, maintenance, and troubleshooting of your UT210E clamp meter. Please read this manual thoroughly before use to ensure proper functionality and to prevent damage or injury.

2. PRODUCT FEATURES

- **True RMS Measurement:** Provides accurate readings for AC voltage and current, regardless of waveform distortion.
- **AC/DC Current Measurement:** Capable of measuring both AC and DC currents with a minimum resolution of 1mA and a maximum range of 100A.
- **Non-Contact Voltage (NCV) Detection:** Safely detects AC voltage without direct contact, enhancing user safety.
- **VFC Function:** Measures AC voltage and current accurately in variable frequency environments.
- **Full Overload Protection:** Designed with comprehensive overload protection for enhanced safety and durability.
- **Compact and Portable Design:** Small size for easy handling and transport.
- **Applications:** Ideal for inspection, maintenance, and repair in electrical equipment, foundries, telecommunications, manufacturing, power systems, and more.

3. PACKAGE CONTENTS

Upon opening the package, please verify that all items listed below are present and in good condition:

- UNI-T UT210E Mini Clamp Meter
- Test Leads (one red, one black)
- Carrying Pouch
- User Manual (this document)
- Batteries (2 x AAA, typically included but may vary by region)



Image: Contents of the UNI-T UT210E package, including the clamp meter, test leads, carrying pouch, and product box.

4. PRODUCT COMPONENTS

Familiarize yourself with the different parts of the UNI-T UT210E clamp meter:



Image: Detailed diagram showing the key components of the UT210E, including the NCV Induction Clamp Head, NCV indicator, Clamp head trigger, Function selector knob, Zero key, Hold key, Backlight switch key, HD display, and Test lead jack.

- **NCV Induction Clamp Head:** Used for non-contact current measurement and NCV detection.
- **NCV Indicator:** Illuminates when non-contact voltage is detected.
- **Clamp Head Trigger:** Opens and closes the clamp jaws.
- **Function Selector Knob:** Rotates to select different measurement functions (e.g., AC/DC current, voltage, resistance).
- **ZERO Key:** Used for zeroing DC current measurements or for relative value measurements.
- **SELECT/VFC Key:** Toggles between different sub-functions within a mode (e.g., AC/DC, resistance/continuity) and activates VFC mode.

- **HOLD/ Key:** Freezes the current display reading (Data Hold) and activates the backlight.
- **HD Display:** Digital display showing measurement readings, units, and function indicators.
- **Test Lead Jacks:** Input terminals for connecting test leads for voltage, resistance, continuity, and capacitance measurements.
- **Battery Compartment:** Located on the back, holds the AAA batteries.

5. SETUP

5.1. Battery Installation

1. Ensure the meter is turned OFF.
2. Locate the battery compartment cover on the back of the meter.
3. Use a screwdriver to loosen the screw securing the battery cover.
4. Remove the cover.
5. Insert two (2) AAA batteries, observing the correct polarity (+/-) as indicated inside the compartment.
6. Replace the battery cover and tighten the screw.



Image: A close-up view of the UNI-T UT210E showing the battery compartment and the test lead input jacks.

5.2. Connecting Test Leads

For measurements requiring test leads (voltage, resistance, continuity, capacitance):

- Insert the black test lead into the "COM" (common) jack.
- Insert the red test lead into the "VΩHz" jack.

6. OPERATING INSTRUCTIONS

Always ensure the meter is set to the correct function before making any measurements. Refer to the safety information before proceeding.

6.1. AC/DC Current Measurement (Clamp)

1. Rotate the function selector knob to the desired current range (e.g., 100A, 20A, 2A).
2. Press the **SELECT/VFC** button to toggle between AC and DC current measurement if necessary.
3. For DC current measurement, press the **ZERO** button to zero the display before clamping.
4. Press the clamp head trigger to open the jaws.
5. Enclose only one conductor (wire) within the clamp jaws. Ensure the jaws are fully closed.
6. Read the current value on the display.



AC current measurement



Resistance measurement



Non-contact measurement



Image: The UNI-T UT210E clamp meter measuring AC current by clamping around a single conductor.

6.2. Resistance Measurement

1. Ensure the circuit or component to be measured is de-energized.
2. Rotate the function selector knob to the Ω (Ohms) position.
3. Connect the test leads to the component or circuit points.

4. Read the resistance value on the display.



AC current measurement



Resistance measurement



Non-contact measurement



Image: The UNI-T UT210E measuring resistance on a circuit board using its test leads.

6.3. Non-Contact Voltage (NCV) Detection

1. Rotate the function selector knob to the NCV position.
2. Move the NCV induction clamp head close to the conductor or outlet.
3. If AC voltage is detected, the NCV indicator will light up and an audible alarm will sound.



AC current measurement



Resistance measurement



Non-contact measurement



Image: The UNI-T UT210E detecting non-contact voltage near an electrical outlet, indicated by the NCV symbol.

6.4. Other Functions

- **Voltage Measurement (AC/DC):** Select the V~ (AC) or V— (DC) range. Connect test leads in parallel to the circuit.
- **Capacitance Measurement:** Select the capacitance function. Ensure capacitors are discharged before testing.
- **Continuity Test:** Select the continuity function (often combined with resistance). A buzzer sounds if continuity is detected.
- **Data Hold:** Press the **HOLD** button to freeze the current reading on the display. Press again to release.
- **Backlight:** Press and hold the **HOLD/** button to turn the display backlight on/off.

7. MAINTENANCE

7.1. Cleaning

Wipe the meter's casing with a damp cloth and mild detergent. Do not use abrasives or solvents. Ensure the meter is dry before storage or use.

7.2. Battery Replacement

When the battery indicator appears on the display, replace the batteries as described in Section 5.1. Prompt battery replacement ensures accurate readings and proper operation.

7.3. Storage

If the meter is not used for an extended period, remove the batteries to prevent leakage and damage. Store the meter in its carrying pouch in a cool, dry place, away from direct sunlight and extreme temperatures.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
Meter does not turn on.	Dead or incorrectly installed batteries.	Replace batteries, ensuring correct polarity.
Inaccurate readings.	Incorrect function selected; poor test lead connection; external interference.	Verify function setting; ensure secure connections; move away from strong electromagnetic fields.
"OL" or "OVER" displayed.	Measurement exceeds the selected range.	Select a higher range or ensure the measured value is within the meter's capabilities.
DC current reading drifts or is unstable.	Requires zeroing before measurement.	Press the ZERO button before clamping the conductor.

9. SPECIFICATIONS

Parameter	Value
Model	UT210E
Brand	UNI-T
AC Current Range	2A/20A/100A (True RMS)
DC Current Range	2A/20A/100A
AC Voltage Range	2V/20V/200V/600V (True RMS)
DC Voltage Range	200mV/2V/20V/200V/600V

Parameter	Value
Resistance Range	200Ω/2KΩ/20KΩ/200KΩ/2MΩ/20MΩ
Capacitance Range	2nF/20nF/200nF/2μF/20μF/200μF/2mF/20mF
Display Count	2000 Counts
Power Source	2 x AAA Batteries
Dimensions (L x W x H)	17.5 x 3.4 x 6 cm (approx. 6.9 x 1.3 x 2.4 inches)
Weight	170 Grams (approx. 0.37 lbs)
Safety Compliance	CE, IEC 61010-1:2000-1

10. SAFETY INFORMATION

WARNING: To avoid possible electric shock, fire, or personal injury, please read all safety information before using the product.

- Do not use the meter if it is damaged or if the test leads are damaged. Inspect the meter and test leads before each use.
- Do not apply more than the rated voltage, as marked on the meter, between the terminals or between any terminal and earth ground.
- Use caution 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.
- Do not use the meter in explosive gas, vapor, or dusty environments.
- When measuring current with the clamp, ensure only one conductor is within the jaws.
- Ensure the battery compartment is securely closed before operation.
- Do not attempt to repair or service the meter unless you are qualified to do so.

11. WARRANTY AND SUPPORT

UNI-T products are designed and manufactured to the highest quality standards. For specific warranty terms and conditions, please refer to the warranty card included with your product or contact UNI-T customer support directly. For technical support, troubleshooting assistance, or service inquiries, please contact your local distributor or visit the official UNI-T website for contact information.

Note: Warranty terms may vary by region and retailer. Please retain your proof of purchase for warranty claims.

Ask a question about this manual

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question