

UNI-T



P/N:110401110946X



UT202T/UT202BT Smart Clamp Meter

Preface

Thank you for purchasing this brand new product. In order to use this product safely and correctly, please read this manual thoroughly, especially the safety notes.

After reading this manual, it is recommended to keep the manual at an easily accessible place, preferably close to the device, for future reference.

Limited Warranty and Liability

Uni-Trend guarantees that the product is free from any defect in material and workmanship within one year from the purchase date. This warranty does not apply to damages caused by accident, negligence, misuse, modification, contamination or improper handling. The dealer shall not be entitled to give any other warranty on behalf of Uni-Trend. If you need warranty service within the warranty period, please contact your seller directly.

Uni-Trend will not be responsible for any special, indirect, incidental or subsequent damage or loss caused by using this device.

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I. Overview

UT202T/UT202BT is a handheld 9999-count true-RMS digital clamp meter, with features such as stable performances, novel design, high reliability, high safety, as well as auto range across all functions.

UT202T can automatically identify AC/DC voltage, AC current, resistance and continuity. Capacitance and NCV measurements are selected by pressing buttons.

UT202BT is used to measure AC/DC voltage, AC current, LPF voltage/current, inrush current, peak voltage/current, resistance, continuity, capacitance, temperature and NCV. UT202BT has Bluetooth function, this enables remote data monitoring and control to be achieved via the connection with the APP of mobile phone.

II. Features

1. The measurement interface of automatic signal identification will be displayed after UT202T is powered on.
2. UT202T has dual display function and display voltage/current, voltage/frequency, current/frequency.
3. Bluetooth function (UT202BT), the Bluetooth APP can be downloaded on official website or on mobile phone application store.
4. Multiple functions (UT202BT), such as LPF, inrush current, PEAK voltage/current, temperature measurement and others.
5. UT202BT has temperature sensing function, the meter will automatically alarm if the internal temperature of the clamp is over $80^{\circ}\text{C}\pm 10^{\circ}\text{C}$.
6. Large capacitance measurement (100mF).
7. The meter displays segment “-” to distinguish the intensity of induced electric field (the higher the voltage, the more the number of segment), four segments “- - - -” are set, along with buzzer sound and LED indication.
8. Flashlight and backlight functions enable the measurement to be performed easily in the dark.
9. Overload protection across all ranges, withstanding 600Vrms voltage surge at maximum, overvoltage and overcurrent alarm.



Warning: Please read the “Safety Information” carefully before using the meter.

III. Accessories

Open the package box and take out the meter. Please double check whether the following items are missing or damaged.


1. User manual ----- 1 pc
2. Test lead ----- 1 pair
3. K-type thermocouple sensor — 1 pc (UT202BT)
4. AAA 1.5V battery ----- 2 pcs

If any item above is missing or damaged, please contact your supplier immediately.










IV. Safety Information

The meter is designed according to EN61010-1/61010-2-032 and electromagnetic compatibility EN61326-1/EN61326-2-2 safety standards, and conforms to CAT III 600V, double insulation and pollution grade II. In case that the meter is not used in accordance with the operating instructions, the protection provided by the meter may be weakened or lost.


1. Please check if any damage or abnormality occurring on the meter or test leads. If any abnormal item is found, such as damaged test lead or casing insulation, or if the meter is considered to be malfunctioning, please do not use the meter.
2. Do not use the meter if the rear cover or the battery cover is not covered up, or it will pose a shock hazard.

3. Your fingers must be placed behind the finger guard ring of the test leads during measurement, do not touch exposed wires, connectors, unused inputs, or circuits being measured to prevent electric shock.
4. Never input voltage or current exceeding the specified limit.
5. Use caution when measured voltage is over DC 30V or AC 30Vrms.
6. When the symbol “” appears on the LCD, please replace the batteries in time to ensure measurement accuracy. If the meter is not in use for a long time, please remove the batteries.
7. Do not change the internal circuit of the meter to avoid damage to the meter and user.
8. Do not use or store the meter in high temperature, high humidity, flammable, explosive and strong electromagnetic field environments.
9. Clean the meter casing with a soft cloth and mild detergent. Do not use abrasives or solvents.
10. Measure a known voltage to ensure the meter works normally.
11. Probe assemblies to be used for MAINS measurements should meet IEC/EN 61010-031 standard, rated CAT III 600V or better.

V. Electrical Symbols

Symbol	Description
	High voltage hazard
	AC
	DC
	Double insulated
	Grounding
	Warning
	Conforms to EU standards
	Conforms to UK standards
	Conforms to UL STD 61010-1, 61010-2-032. CSA STD C22.2 NO. 61010-1, 61010-2-032, certified.
CAT III	Measurement category III is applicable to test and measure circuits connected to the distribution part of the building's low-voltage MAINS installation.

VI. General Specifications

1. Max display: 9999
2. Polarity display: Auto
3. Overload display: "OL" or "-OL"
4. Low battery indication: The "  " is displayed.
5. Test position error: Test position error: If the source under test is not placed at the center of the clamp jaws when measuring current, $\pm 1.0\%$ additional error in reading will be produced
6. Drop protection: 1m
7. Battery: AAA 1.5V $\times 2$
8. Auto power off: The meter will automatically power off if no button is pressed within 15 minutes. This function can be disabled as needed.
9. Dimension: 201.5mm $\times 47$ mm $\times 28.5$ mm
10. Weight: UT202T: about 241g (including batteries);
UT202BT: about 251g (including batteries)
11. Altitude: 2000m
12. Operating temperature and humidity: 0 $^{\circ}$ C~30 $^{\circ}$ C ($\leq 80\%$ RH), 30 $^{\circ}$ C~40 $^{\circ}$ C ($\leq 75\%$ RH), 40 $^{\circ}$ C~50 $^{\circ}$ C ($\leq 45\%$ RH)
13. Storage temperature and humidity: -20 $^{\circ}$ C~+60 $^{\circ}$ C ($\leq 80\%$ RH)
14. Electromagnetic compatibility:
RF=1V/m, overall accuracy=specified accuracy +5% of range
RF>1V/m, no specified calculation
15. Recommended use environment: Indoor use.

VII. External Structure:

1. UT202T

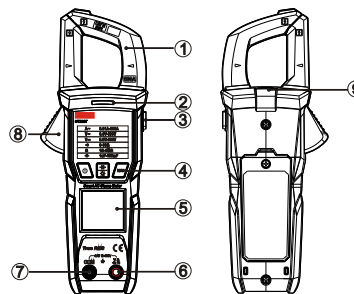


Figure 1

1. Clamp jaws
2. LED indicator
3. Side button
4. Function buttons
5. LCD display
6. Signal input terminal (Connect red test lead)
7. COM terminal (Connect black test lead)
8. Jaw opening trigger
9. Flashlight

2. UT202BT

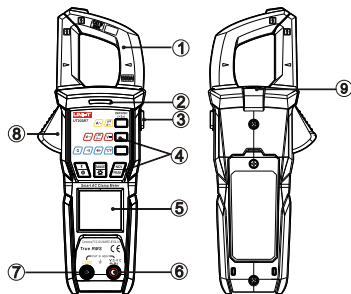


Figure 2

1. Clamp jaws
2. LED indicator
3. Side button
4. Function buttons
5. LCD display
6. Signal input terminal (Connect red test lead)
7. COM terminal (Connect black test lead)
8. Jaw opening trigger
9. Flashlight

VIII. Button Description

Short press < 2s

Long press \geq 2s

1): UT202T buttons:



1: Long press to power on/off.

2: a. Short press to enter/exit capacitance measurement mode. Enter auto scanning measurement mode when capacitance measurement mode exits.

b. Long press to turn on/off backlight function. The backlight will be automatically turned off if there is no any operation within 30 seconds after the backlight is on.

3: Short press to enable/disable NCV function. Enter auto identification mode when NCV function is disabled.

4: a. Short press to enter/exit data hold mode.

b. Long press to enable/disable flashlight function.

2): UT202BT buttons:



1

2

3

4

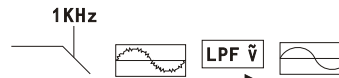


- 1: a. Short press to turn on/off Bluetooth.
b. Long press to power on/off.
- 2: a. Short press to switch between auto range and manual range, or switch between different manual ranges.
b. Long press to turn on/off backlight function. The backlight will be automatically turned off if there is no any operation within 30 seconds after the backlight is on.
- 3: a. Short press to enter NCV measurement mode
b. Long press to enter/exit AC peak capturing function. Under peak capturing function, short press to cycle through P-MAX and P-MIN (Only for ACV/ACA).
- 4: a. Short press to cycle through ACA->ACA->LPF
b. Long press to turn on/off inrush current measurement (Only for ACA)
- 5: Short press to cycle through ACV->ACV-LPF->DCV.
- 6: Short press to cycle through resistance->continuity->capacitance->temperature
- 7: a. Short press to enter/exit data hold mode.
b. Long press to turn on/off flashlight.

IX. Operating Instructions

1. AC/DC Voltage Measurement

- 1) Connect red test lead to signal input terminal, and black test lead to COM terminal.
 - 2) a. UT202T: When powered on, the meter enters auto measurement mode and the LCD displays "AUTO".
b. UT202BT: Short press (Red) to switch between ACV, ACV-LPF and DCV. Connect test leads to the measured power source or the load in parallel.
 - 3) Read the measurement result from the display.
 - 4) The displayed AC measurement value is true-RMS; the auxiliary display is frequency value.
 - 5) UT202BT: For ACV measurement, long press to enter AC peak capturing function, short press to cycle through P-MAX and P-MIN. Long press again to exit peak capturing function. (Capturing function is enabled only at maximum range, no decimal is displayed.)
- UT202BT: Composite signals, generated by inverter and variable-frequency motor, can be measured through ACV-LPF function. (As shown below)



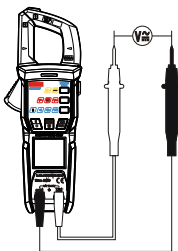


Figure 3

Warning:

- Do not input voltage over DC/AC 600V. Although it is possible to measure higher voltage, it may damage the meter.
- Be cautious to avoid electric shock when measuring high voltage.
- When the measured voltage is $\geq 30V$ (AC/DC), the LCD will display the high voltage alarm prompt “ H ”. When the measured voltage is $\geq 600V$ (AC/DC), the meter will automatically sound an alarm and the red light will turn on.
- The frequency measurement is auxiliary display, input amplitude is $\geq 5V$ rms when the frequency is 40Hz~1000Hz, the voltage value of primary display is not for reference.
- LPF – Attenuate (3dB), turning point (1KHz).

2. Continuity Test

- 1) Connect red test lead to signal input terminal, and black test lead to COM terminal.
- 2) a. UT202T: When powered on, the meter enters auto measurement mode and the LCD displays “AUTO”.
b. UT202BT: Short press \square (ON/OFF) (Blue) to select continuity measurement. Connect test leads to both ends of the measured resistance in parallel.
- 3) If measured resistance is $\leq 30\Omega$, the circuit is in good conduction status, the buzzer beeps and the LED lights up green. If measured resistance is $\geq 70\Omega$, the buzzer makes no sound and the LED lights up red.

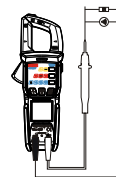


Figure 4

Warning:

- $30\Omega < \text{Measured resistance} < 70\Omega$, Undefined.
- Before measuring the continuity online, switch off the power supply of the circuit, and fully discharge all capacitors.
- Do not input voltage higher than 30V to avoid personal injury.