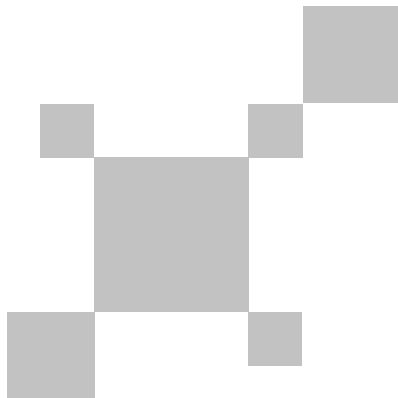


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UNI-T®



UT200A+/UT200B+
Digital Clamp Meter

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I. Overview

UT200A+/UT200B+ is a handheld true RMS AC clamp meter designed with auto range. It has basic electric measurement functions, with the clamp jaws measuring current up to AC 400A (UT200A+)/AC 600A (UT200B+). The meters can also be used to measure high-voltage frequency and identify live wire and continuity/diode. Designed with audible and visible alarm for overvoltage and overcurrent, and with all-featured protection against false detection, UT200A+/UT200B+ is a reliable, safe and cost-effective digital clamp meter in electronic and electrical detection.

II. Features


- LIVE measurement function with audible and visible indication.
- High-voltage frequency (10Hz~10kHz) measurement.
- AC 400A measurement (UT200A+) and AC 600A measurement (UT200B+), with 50Hz~60Hz frequency response.
- The function to identify automatically under 2-in-1 range (continuity and diode).
- True RMS measurement, fast ADC (3 times per second).
- All-featured protection against false detection, the ability to withstand 600V voltage surge; designed with audible and visible alarm for overcurrent and overvoltage.
- Devised with LED flashlight.
- Backlight function to enable operating in dark environments.
- The overall power consumption of the product is about 5.0mA, the circuit is designed with the function to save power automatically, the micro power consumption in sleep state is about 20μA, enabling extending the battery life to 500 hours.

III. Accessories

Please open the package to check if any accessory is missing or damaged.


User Manual ----- 1 pc
 Test leads ----- 1 pair
 Carrying bag ----- 1 pc

Please contact the supplier immediately if any accessory is missing or damaged.

 Warning: Please read the "Safety Information" carefully before using the product.







IV. Safety Information

Note the "Warning labels and sentences". A Warning identifies conditions and procedures that are dangerous to the user and that can cause damage to the Product or the equipment under test.



1. The product is designed in accordance with IEC/EN61010-1/61010-2-032, Electromagnetic Radiation EN61326-1 Standard, and conforms to Double Insulation, Overvoltage CAT III 600V and Pollution Class 2. Failure to follow operating instructions can impair the protection provided by the product.
2. Safety instructions and precautions
 - 1) It is forbidden to use if the rear cover is not closed in place, otherwise it can pose a risk of electric shock!
 - 2) Please check if the product or the test lead insulation is damaged or broken. If the insulation of product casing is damaged, or the product cannot work normally, please stop using the product.
 - 3) Keep fingers behind the finger guard during use.
 - 4) Use caution when working with voltages over 60V DC or 30Vrms AC.
 - 5) Do not measure signal over the specified limit to avoid electric shock or product damage.
 - 6) The rotary switch shall be set to corresponding measurement range.
 - 7) It is forbidden to turn the rotary switch during measurement.
 - 8) Do not alter the internal wiring to avoid product damage and safety hazard.
 - 9) Please use the same nominal fast-acting fuse to replace the damaged fuse.
 - 10) If the symbol "" appears on the LCD, please replace the battery immediately to ensure measurement accuracy.
 - 11) Do not use the product in environments with high temperature and humidity; do not store in damp environment

especially, damped product may degrade the performance.
12) Clean the casing with wet cloth and mild detergent, do not use abrasives or solvents.

V. Electrical Symbols

Symbol	Description	Symbol	Description
	High voltage		Double insulated
	AC (Alternating Current)		Grounding
	DC (Direct Current)		Warning

VI. General Specification

- Maximum voltage between input terminal and grounding: 600Vrms.
- Display count: UT200A+ (3099 counts), UT200B+ (3099 counts), the overload indication is "OL", update 3 times per second.
- Range selection: Auto
- Backlight function: Light up manually, light off automatically after about 1 minute.
- Polarity: The symbol "—" is displayed for input under negative polarity.
- Data hold function: The symbol " " appears at the bottom left corner of the LCD.
- Low battery: The symbol " " appears at the bottom left corner of the LCD.
- Battery: AAA zinc-manganese battery (1.5V×2)
- Operating temperature: 0°C~40°C (32°F~104°F)
Storage temperature: -10°C~50°C (14°F~122°F)
Relative humidity: ≤75% (0°C~30°C below); ≤50% (30°C~40°C)
Operating altitude: 0~2000m
External dimension: (194.2*75.1*35) mm
- Weight: About 226g (including battery)
- Electromagnetic compatibility (EMC):
Under radio frequency field of 1V/m, overall accuracy = specified accuracy + 5% of range.

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Under radio frequency field over 1V/m, there is no specified specification.

VII. External Structure (Figure 1)

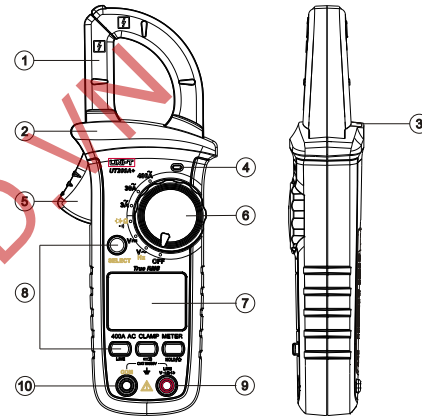





Figure 1

Function	Description	Function	Description
1	Clamp jaws	6	Rotary switch
2	Meter body	7	LCD display screen
3	Flashlight	8	Functional buttons
4	LED indicator light	9	Signal input terminal
5	Trigger	10	COM input terminal



VIII. Button Functions

- SELECT button: Short press this button under composite function to switch corresponding function.
- " " button: Short press this button to enter/exit data hold

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- mode; long press for ≥ 2 seconds to turn on/off the backlight.
- LIVE button: Short press this button at voltage mode to enter /exit neutral and live measurement.
- “” button (UT200B+): Under voltage, resistance and capacitance modes, when this button is short pressed, the product enters relative measurement mode and the symbol “ Δ ” is displayed. Long press this button to turn on/off the flashlight, the flashlight turns off automatically after it is lit up for 5 minutes.
- “” button (UT200A+): Short press this button to turn on/off the flashlight, the flashlight turns off automatically after it is lit up for 5 minutes.

IX. Operating Instructions

Please check the battery before measurement, if the low battery symbol “” appears on the LCD when powering on the product, please replace the battery immediately. The symbol “” near input terminals warns that the measured voltage or current cannot exceed the specified value in order to ensure safety!

1. AC Current Measurement (Figure 2)

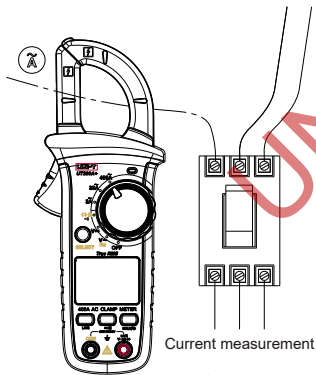



Figure 2

- 1) Select AC currents: 3A~, 30A~(UT200A+), 400A~(UT200A+), 30/600A(UT200B+).
- 2) Open the jaws to clamp one cable, make sure the clamp jaws are closed in place.
- 3) The clamp meter can measure only one current conductor at a time, if two or more conductors are measured at the same time, the measurement result can be incorrect.

Note:

- The current measurement must be performed in 0°C~40°C.
- Do not release the trigger abruptly, the clamp meter is sensitive to mechanical stress to some extent, impact can cause reading variation in a short time.
- Please place the measured conductor at the center of the clamp jaws, otherwise it can cause an error of $\pm 1.5\%$ of the reading.
- If the measured current is \geq AC 400A (UT200A+) or AC 600A (UT200B+), the product will sound an alarm and the high-voltage alarm symbol “” is displayed.
- Do not continue testing if “OL” is displayed (when the measured current is over AC 410A for UT200A+ or AC 610A for UT200B+), otherwise it may cause product damage.

2. AC/DC Voltage and Frequency Measurement

- 1) Set the rotary switch to AC/DC voltage position
- 2) Connect red test lead with V terminal, and black with COM, then the tips of both test probes respectively make contact with both ends of the measured voltage (connect with the load in parallel).
- 3) At AC voltage position, short press “SELECT” to enter voltage frequency (10 Hz~10 kHz) measurement.

Note:

- Do not measure voltage over 600Vrms for ACV/DCV measurement. It is possible to measure higher voltage, but it may cause product damage and personal injury! The input

- impedance is about 10MΩ, this load effect may result in error
- for measuring high-resistance circuit. If the measured impedance is $\leq 10k\Omega$, the error (0.1% or less) can be neglected.
 - Avoid electric shock when measuring high voltage.
 - Test a known voltage before use to check if the product functions well.

3. Resistance Measurement

- 1) Set the rotary switch to resistance position.
- 2) Connect red test lead with "Ω" terminal, and black with "COM", then the tips of both test probes respectively make contact with both ends of the measured resistor (connect with measured resistor in parallel).

Note:

- Before measuring on-line resistance, please disconnect all powers in the measured circuit and discharge all capacitors completely, to avoid product damage and personal injury.
- If the resistance of shorted test lead is less than 0.5Ω, please check if the test lead is loose or any defect occurs.
- "OL" will appear on the display screen if the measured resistor is open or its resistance is over the specified range.
- For low resistance measurement, the test leads can cause an error of 0.1Ω~0.2Ω. To obtain accurate measurement result, please subtract the resistances of both shorted test leads by the measured resistance.
- For high resistance measurement, it is normal to take several seconds to stabilize the reading.
- Do not input voltage over DC/AC 30V to avoid personal injury. seconds to stabilize the reading.

4. Continuity Measurement

- 1) Set the rotary switch to continuity position.
- 2) Connect red test lead with "•)⌋" terminal, and black with "COM", then the tips of both test probes respectively make contact with both ends of the measured object (connect with

- the measured object in parallel).
- 3) If the resistance between both measured ends is $\geq 50\Omega$, the circuit is determined as open and the buzzer keeps silent; if $\leq 30\Omega$, the circuit is connected well and the buzzer beeps continuously.

Note:

- Before measuring on-line continuity, please disconnect all powers in the measured circuit and discharge all capacitors completely, to avoid product damage and personal injury.

5. Diode Measurement

- 1) Set the rotary switch to diode position.
- 2) Connect red test lead with "▶|—" terminal, and black with "COM", then the tips of both test probes respectively make
- 3) "OL" is displayed if the measured diode is open or the polarity is reversed. The normal voltage of silicone PN junction is generally about 500~800mV (0.5~0.8V).

Note:

- Before measuring on-line PN junction, please disconnect all powers in the measured circuit and discharge all capacitors completely, to avoid product damage and personal injury.
- The voltage range of testing diode is about 2.2V/1.0mA.

6. Capacitance Measurement (UT200B+)

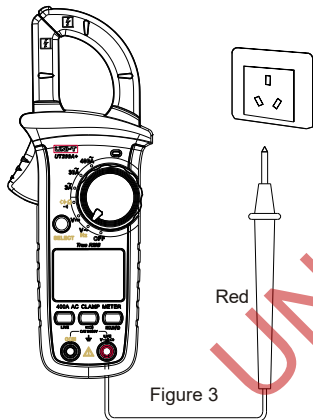
- 1) Set the rotary switch to capacitance position.
- 2) Connect red test lead with "←|—" terminal, and black with "COM", then the tips of both test probes respectively make contact with both ends of the measured capacitor.
- 3) Read the testing result from the display screen. If there is no input, the clamp meter will display a fixed reading, which is the intrinsic compensation capacitance of the clamp meter. When measuring capacitor with small capacitance, the measured capacitance shall subtract the intrinsic compensation capacitance, so as to ensure measurement accuracy. Thus,

for capacitor with small capacitance, please perform measurement by using the relative function (Δ), the clamp meter will subtract the intrinsic capacitance.

Note:

- “OL” is displayed if the measured capacitor is shorted or its capacitance is over the maximum range.
- For large capacitance measurement, it is normal to take several seconds to stabilize the reading.
- To avoid product damage and personal injury, please discharge the capacitor (especially capacitor with high voltage) completely before measurement.

7. Live/Neutral Wire Measurement (Figure 3)




- 1) Short press LIVE at voltage position to enter function measurement.
- 2) Connect the red test lead with “LIVE” terminal, suspend the black test lead, then the red test lead makes contact with outlet or bare wire, to identify live wire or neutral wire.

- 3) “- - -” is displayed when neutral wire is detected.
- 4) If AC live wire with voltage of $\geq 70V$ is detected, “LIVE” is displayed along with audible and visual indication.

Note:

- To avoid affecting the accuracy of identifying live/neutral wire, please remove the black test lead from COM terminal when performing LIVE measurement.

8. Other Functions

- The product enters normal measurement state when all symbols are displayed after the product is powered on.
- If the rotary switch is not turned in 15 minutes during measurement, the product will enter “Auto-off” state to save power. If any button is short pressed or the rotary switch is turned in auto-off state, the product will be awakened and the buzzer beeps once. To disable the auto-off function, please set the rotary switch at “OFF” and hold down SELECT at the same time to power on the product.
- About one minute before the product powers off automatically, the buzzer continuously makes sound for 5 times. The buzzer makes a long sound for once before the product powers off.
- The buzzer beeps about 0.25 second for once when any functional button is pressed.
- The buzzer makes warning sound during measurement: If the voltage is $\geq 600V$ under DC and AC voltage functions, the buzzer intermittently beeps to warn the range is at extreme limit.
- Low voltage detection: The internal voltage of battery is detected when the batteries supply power. The low battery symbol “” is displayed if the battery voltage is lower than about 2.5V (the product can still work normally). If the battery voltage is lower than 2.4V, the symbol “Lbt” appears on the VLCD and flashes for 5 seconds, with buzzer making sound for 3 times, then the product powers off automatically.

X. Technical Specifications

Accuracy: \pm (a% of reading + b digits), one-year warranty period
 Ambient temperature and humidity: 23°C \pm 5°C (73.4°F \pm 9°F)
 Relative humidity: \leq 75%

Note:

- Temperature condition of measurement accuracy: 18°C~28°C, the fluctuation range of ambient temperature stabilizes within \pm 1°C. If the temperature is 18°C or >28°C, the additional error of temperature coefficient is "0.1 \times (Specified accuracy)°C".

1. AC Current

Range		Resolution	Accuracy
UT200A+	UT200B+		
3.000A	3.000A	0.001A	\pm (4%+10)
30.00A	/	0.01A	\pm (3%+5)
400.0A	/	0.1A	
/	30.00A	0.01A	\pm (4%+5)
/	600.0A	0.1A	

- Frequency response: 50Hz~60Hz
- Overload protection: 600V (DC/AC)
- "OL" is displayed if the maximum value is \geq 410A for UT200A+ or \geq 610A for UT200B+.
- Range to ensure accuracy: 5~100% of range

2. DC Voltage Measurement

Range	Resolution	Accuracy
3.000V	0.001V	\pm (1.0%+5)
30.00V	0.01V	
300.0V	0.1V	
600V	1V	\pm (1.0%+3)

Input impedance:

- The input impedance is about 10M Ω , "OL" is displayed if the maximum value is \geq 610V.

- Overload protection: 600Vrms (DC/AC)
- Range to ensure accuracy: 1~100% of range

3. AC Voltage Measurement

Range	Resolution	Accuracy
3.000V	0.001V	\pm (1.0%+5)
30.00V	0.01V	
300.0V	0.1V	
600V	1V	
Monitoring frequency: 10Hz~10kHz	0.01Hz~0.01kHz	\pm (1.0%+5)




- The input impedance is about 10M Ω , "OL" is displayed if the maximum value is \geq 610V.
- Frequency response: 45Hz~400Hz, the RMS value of sinusoidal wave (response of true RMS)
- Overload protection: 600Vrms (DC/AC)
- Input amplitude of monitoring frequency: >5Vrms
- Range to ensure accuracy: 5~100% of range

4. Resistance Measurement

Range	Resolution	Accuracy
300.0 Ω	0.1 Ω	\pm (1.0%+5)
3.000k Ω	0.001k Ω	
30.00k Ω	0.01k Ω	
300.0k Ω	0.1k Ω	
3.000M Ω	0.001M Ω	\pm (2.0%+5)

- 300 Ω range: Measured value = Displayed value – Value of shorted test lead
- Overload protection: 600Vrms (DC/AC)
- Range to ensure accuracy: 5~100% of range

5. Continuity and Diode Measurement

Range	Resolution	Accuracy
 Automatic identification	0.1Ω/0.001V	This is the 2-in-1 range (continuity and diode) used for automatic measurement, the product can identify automatically as per the measured signal.
	0.1Ω	Under open circuit, the resistance is set as $\geq 50 \Omega$, the buzzer keeps silent. Under well-connected circuit, the resistance is set as $\leq 30 \Omega$, the buzzer makes sound continuously.
	0.001V	Open-circuit voltage: About 2.2V Testing current: About 1.0mA Normal voltage of silicone PN junction: About 0.5~0.8V

- Overload protection: 600Vrms (DC/AC)

6. Capacitance Measurement (UT200B+)

Range	Resolution	Accuracy
30.00nF	0.01nF	± (4.0%+10)
300.0nF	0.1nF	
3.000μF	0.001μF	
30.00μF	0.01μF	± (4.0%+5)
300.0μF	0.1μF	
1.000mF	0.001mF	± (5.0%+10)

- Overload protection: 600Vrms (DC/AC)
- Range to ensure accuracy: 5~100% of range


XI. Maintenance

Warning: Before opening the rear cover, please the power is the test leads are removed from input terminals and disconnected with measured circuit).

1. General Maintenance

- Clean the casing with wet cloth and mild detergent, do not use abrasives or solvents.
- In case of any abnormal situation, please stop use immediately and perform maintenance.
- Calibration or maintenance must be performed by qualified professionals or designated technical department.

2. Battery Replacement

- If low battery symbol " appears on the LCD, please replace the battery immediately, otherwise it can affect the measurement accuracy.

Battery specification: AAA 1.5V×2

- Set the power switch at "OFF", remove the test leads from input terminals.

Loosen the screw (pictured), remove the battery cover, and replace the battery. Note the polarity when installing new batteries.

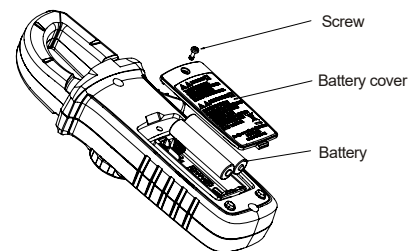


Figure 4