

USER'S MANUAL

I . SUMMARIZE

This instrument is a hand-held automatic range True RMS clamp digital meter. The circuit design of the meter takes the large-scale integrated circuit Σ/Δ analog-to-digital converter (ADC) as the core. It can be used to measure AC and DC voltage, AC current, low impedance Low Z voltage, resistance, diode, continuity test and other parameters, and has data hold, backlight display, Max. or Min. measurement, torch function, NCV or live wire judgment, under-voltage display and automatic shutdown function.

II . OPEN PACKING FOR CHECKING

Open the box, take out the meter, checking the items below if they are missing or damaging:

Manual	1pc
Test lead	1pair

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1.5VAAA battery 2pcs
 Carrying bag 1pc
 Please contact with your supplier if you find out any problems.

III. SAFETY NOTES

The meter's design is in accordance with the CE certification, IEC61010 related terms, in conformity with double insulation, Safety standard for overvoltage CAT III 600V. If you fail to use the clamp meter in accordance with the relevant operating instructions, the protection provided by the clamp meter will be weakened or lost.

1. Check the clamp meter and test lead before use to prevent any damage or abnormal phenomenon. If you find test lead and housing insulation is obviously damaged, and the LCD has no display, etc., or you think the clamp meter cannot work properly, please do not use it again.
2. Do not use clamp meter before the back cover and battery cover are not properly covered to

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- avoid electric shock.
3. Remember that the fingers do not exceed the hand part of the test lead range when measuring, do not contact exposed electricity wires, connectors, unused inputs or measured circuits to prevent electric shock.
 4. The function switch must be placed in the correct position before measurement. It is strictly forbidden to change range during measurement to prevent damage to the clamp meter.
 5. Do not apply more than DC1000V/AC750V voltage between the terminal of the clamp meter and the ground to avoid electric shock and damage to the clamp meter.
 6. Be careful when measuring voltage higher than 36V DC, 25V AC to avoid electric shock,.
 7. Use the clamp meter according to the instructions of manual, and it is forbidden to measure the voltage or current higher than the allowable input value. Before making online resistance, capacitance, diode, or circuit on-off measurements, you must first cut off all power

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- supplies in the circuit and discharge all capacitors to avoid the measurement results is not accurate.
8. When the LCD displays the " " sign, please replace the battery in time to ensure the measurement accuracy. When you not plan to use this clamp meter for a long time, you should remove the battery.
 9. Do not change the internal wiring of the clamp meter to avoid damage of the instrument and hidden danger of the user.
 10. Do not store or use the clamp meter in a high temperature, high humidity, flammable, explosive and strong electromagnetic field environment.
 11. Please use a soft cloth and neutral detergent to clean the case of the clamp meter for maintenance, do not use abrasive and solvent to prevent the case from being corroded, damaging the instrument and endangering safety.

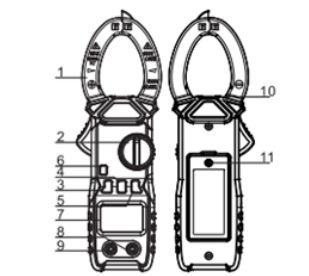
IV. ELECTRIC SYMBOL

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	Warning		DC
	High Voltage danger		AC
	Ground		AC and DC
	Dual insulation		Accord with order of the European Union
	Low battery Voltage		Fuse

- 5.10. Size: 230×75×40 mm
- 5.11. Weight: approx.313g (including batteries)

VI. APPEARANCESTRUCTURE

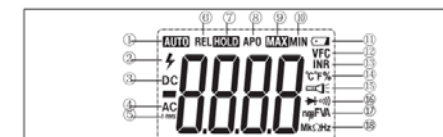


1. Clamp jaw
2. Range knob
3. Torch switch
4. Data hold and backlight
5. Max./Min.
6. Select key

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7. LCD
8. Input terminal
9. COM terminal
10. Torch
11. Battery cover screw

VII. DISPLAY SCREEN



①	Auto range	⑩	Minimum measurement
②	High voltage	⑪	Low battery
③	DC measurement	⑫	Low-pass filter measurement
④	AC measurement	⑬	Surge current measurement
⑤	True effective value	⑭	Celsius, Fahrenheit, duty cycle

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⑥	Relative value measurement	⑮	Torch
⑦	Data hold	⑯	Diode, continuity test
⑧	Auto shut-down	⑰	Capacitance, voltage, current.
⑨	Maximum measurement	⑱	Ohm, Kilo ohm, Mega ohm, Frequency

VIII. BUTTON FUNCTION

1. Data hold button (HOLD B/L)
 Press the HOLD B/L key to enter the reading hold measurement mode, and press the HOLD B/L button again to exit it.
 Long press the HOLD B/L key to turn on the backlight, and then long press the HOLD B/L key to turn it off. The backlight will be turned off automatically after 15 seconds since you turned it on.
2. Select key
 Short press: At the range selection, it can

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V. GENERALSPECIFICATION

- 5.1. Max. Indication: 5999, 3 times / sec.
- 5.2. Polarity indication: The positive and negative polarities automatically display.
- 5.3. Over range indication: LCD displays OL or -OL
- 5.4. Low battery indication: " " symbol displays
- 5.5. Operation temperature: 0~40℃, relative humidity <75%
- 5.6. Storage environment:-10℃~50℃, relative humidity <80%RH;
- 5.7. Power: Two 1.5V AAA battery LR03
- 5.8. The Max. opening size of the clamp head: Diameter 40mm
- 5.9. Max. measuring current wire: Diameter 40mm

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perform switch resistance/diode/continuity range, and switch non-contact electromagnetic induction and live line judgment functions at NCV/Live range.

3. Maximum value MAX/Minimum value MIN key

Short press: Press the MAX/MIN key, the LCD will display the "MAX" symbol and enter the maximum measurement mode, then short press the MAX/MIN key, the LCD will display the "MIN" symbol and enter the minimum measurement mode.

Long press: Long press the MAX/MIN key to exit the maximum value / minimum value measurement mode. MAX/MIN tests are only available at ACV/DCV, ACA, LowZ, resistance, diode, continuity test.

4. Torch

Short press to turn on(Normally open) /off the torch.

5. Automatic shutdown function

In order to save power consumption and prolong

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range, please wait 3 minutes before perform LowZ (low impedance $\leq 3k\Omega$) voltage measurement, in order to eliminate false voltages, the LowZ function of the meter will provide a low impedance on the entire wire circuit to obtain more accurate measurements.

►When the measured voltage is higher than 24V AC safe voltage, the LCD of this meter displays the high-voltage prompt " ⚡ " for warning.

3. AC current measurement

(1). Turn the dial knob to the AC current range, press and hold the trigger to open the clamp head and use the clamp head to grab the measured conductor, then slowly release the trigger until the clamp head is completely closed, please make sure whether the measured conductor is clamped in the center of the clamp head, otherwise, it will occur additional errors. The clamp meter can only measure one current conductor at a time. If two or more current conductors are measured at the same time, the

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battery life, the meter will turn on the APO automatic shutdown function by default after it is turned on. If the user does not operate the meter within 14 minutes, the meter will beep 3 times to prompt. If there is still no operation, after another 1 minute, the meter will have a long beep before automatically turn off the power. When starting up again, you need to turn the range switch to the OFF range, and then turn it to the required function range again or press the V. F. C key to wake it up.

At the shutdown state, hold down the SELECT button while turning the range switch. After the meter enters the normal measurement state, the automatic shutdown function can be canceled, and the "APO" symbol will no longer be displayed on the LCD screen. When the meter is at the automatic shutdown mode, if the user does not operate the meter within 15 minutes, the meter will still beep every 15 minutes to remind the user to shut down.

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measurement readings will be wrong.

(2). Read the True RMS of AC current directly from the display.

⚠ Note:

- The current measurement function must be operated between 0°C C~40°C.
- In order to ensure the accuracy of the measurement data, the measured conductor must be placed in the center of the clamp head. Otherwise, $\pm 1.0\%$ additional error of the reading will occur.
- When the measured current is higher than 500A, the continuous test time cannot exceed 60 seconds.

4. Resistance measurement

(1). Turn the knob to the " Ω " range, the meter defaults to the resistance range when turn it on.
(2). Insert the red test lead into the "V Ω Live" jack and the black test lead into the COM jack.
(3). Connect the test lead wire to both ends of the measured resistance.

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IX. OPERATE INSTRUCTIONS

1. AC and DC voltage measurement

(1) .Turn the meter knob to the AC voltage or DC voltage range, Insert the red test lead into the "V Ω Live" jack and the black test lead into the COM jack.

(2) .Connect the red and black test lead to the measured circuit and read the reading directly from the display.

⚠ Note:

- Do not input voltage higher than DC1000V/AC750V to avoid damage of the instrument.
- When measuring high voltage, pay special attention to avoid electric shock.
- Disconnect the test lead from the measured circuit after all measurement operations are completed.
- When the measured voltage is higher than 24V DC/AC safe voltage, the LCD of this meter displays the high-voltage prompt " ⚡ " for warning.

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(4). Read the measured resistance directly on the LCD.

⚠ Note:

- If the tested resistor is under open circuit or the resistance of the measured resistor exceeds the maximum range of the meter, the display will show "OL"
- When measuring on-line resistance, all power supplies in the measured circuit must be turned off before the measurement, and all capacitors are released completely. In order to ensure the measurement is correct.
- When measuring low resistance, the test leads will have about 0.1 Ω -0.2 Ω measurement error. In order to obtain accurate readings, you can perform relative value measurement. First, subtract the short-circuit display value of the test lead, then perform low resistance measurement.
- If the resistance value is higher than 0.5 Ω when the test leads are short-circuited, you need to check whether the test leads are loose or other reasons.

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e. When measuring voltage above 36V, pay attention to wear safety protection equipment.

2. LowZ low impedance AC voltage measurement

(1). Insert the red test lead into the "V Ω Live" jack and the black test lead into the COM jack.

(2). Turn the meter knob to the low impedance AC voltage measurement range, and connect the test leads in parallel to the measured power supply or load.

(3). Read the True RMS of AC voltage directly from the display.

⚠ Note:

- Do not input voltage higher than AC300V. Although it is possible to measure higher voltage, it may easily damage the meter.
- When measuring high voltage, pay special attention to avoid electric shock.
- Test a known voltage before use the meter, it is to confirm whether the product function is correct.
- After using LowZ low impedance function

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►When measuring resistance above 1M Ω , it may take a few seconds for the reading to stabilize. It is normal for high resistance measurements. In order to obtain stable readings, you can buy an extra short alligator clip test line instead of our standard test leads to do the measurement.

►Disconnect the test lead from the measured circuit after all measurement operations are completed.

5. Diode and continuity test

(1) Insert the red test lead into the "V Ω Live" jack and the black test lead into the COM jack.

(2) Turn the knob to the resistance range, short press "SELECT" key to switch diode or continuity measurement mode.

(3) When under continuity test, if the resistance of the tested circuit is less than 50 Ω , the built-in buzzer will sound.

(4) In the diode measurement mode, connect the red test lead and black test lead to the positive and negative pole of the diode respectively, and

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the LCD will display the forward voltage drop of the diode.

⚠Note:

►If the open circuit or polarity of the measured diode is reversely connect, the display will show "OL".

►The open circuit voltage of the diode test is about 3.9V, the open circuit voltage of the continuity test is about 2V, and the range of the measurement range is 600Ω.

►Do not input voltage higher than DC 42V or AC 30V to avoid personal safety injury.

►Disconnect the test lead from the measured circuit after all measurement operations are completed.

6. Live Wire Recognition Live

(1).Turn the knob to the NCV range, the meter defaults to NCV measurement, short press the SELECT/V.F. C button to switch the Live function, and the LCD displays Live.

(2).Insert the red test lead into the "

Range	Accuracy	Resolution	Overload protection
6A	±(4.0%+10)	0.001A	1000A
60A		0.01A	
600A		0.1A	
1000A		1A	

⚠ Frequency response: 50Hz~60Hz;

Display: the current True RMS;

The accuracy is 5% to 100% of the range, and the open circuit of the current range allows ≤10 words of remaining readings;

When the measured current is higher than 500A, the continuous test time cannot exceed 60 seconds.

4. Low impedance AC voltage LowZ V~

Range	Accuracy	Resolution	Overload protection
6V	± (1.0%+10)	0.001V	300V DC/AC
60V		0.01V	
300V	± (1.0%+12)	0.1V	

⚠Display: AC voltage True RMS;

Input impedance: ≤3kΩ;

Frequency response: sine wave and triangle

VΩ-HLive°C°F, jack, and touch the measured

position with the red test lead.

(3).If meter has audible and visual alarm, the tested wire connected to the red test lead is a live wire. If it is no change, the tested wire is not a live line.

⚠Note:

►The range must be operated in accordance with safety rules.

►This function only detects AC standard main live wire (AC 110V~AC 380V).

7. Non-contact AC voltage induction measurement NCV

(1). Turn the knob to NCV range, the meter defaults to NCV measurement, and the LCD displays NCV.

(2).The NCV induction voltage range is 48V~250V.Put the upper part of the clamp head of the instrument close to the measured charged electric field (AC power line, socket, etc.), when the instrument sensing AC voltage electric field,

wave 40Hz~1k Hz;

The accuracy is 5% to 100% of the range, and the voltage range short-circuit allows ≤5 words of remaining readings.

5. Resistance

Range	Accuracy	Resolution	Overload protection
600Ω	± (1.0%+5)	0.1Ω	250V DC/AC
6kΩ		0.001kΩ	
60kΩ		0.01kΩ	
600kΩ		0.1kΩ	
6MΩ		0.001MΩ	
20MΩ	± (1.5%+15)	0.01MΩ	
60MΩ	± (2.5%+20)	0.01MΩ	

Open circuit voltage: about 1V;

The accuracy is 5% to 100% of the range.

6. Continuity test

Range	Accuracy
600Ω	The resistance value ≤ 50 Ω ,the buzzer will have sound.

Resolution: 0.1Ω

the meter will display "----" and the buzzer issued "drop, drop" alarm sound. As the intensity of the induction electric field increases, the more horizontal sections of "----" displays on the LCD, and the higher the sound frequency of the buzzer.

Note: When the tested electric field voltage is ≥ AC 100V, pay attention to whether the conductor of the measured electric field is insulated to avoid electric shock.

X. TECHNICAL CHARACTERISTIC

Accuracy calibration, ambient temperature 23°C ± 5°C, humidity less than 75%RH.

1. AC voltage(ACV)TURE RMS MEASUREMENT

Range	Accuracy	Resolution	Overload protection
6V	±	0.001V	1000VDC/750VAC
60V	(1.0%+10)	0.01V	
600V	±	0.1V	
750V	(1.0%+12)	1V	

Open circuit voltage: about 2V

Overload protection: 250V AC/DC

7. Diode test

Range	Accuracy
6V	The open circuit voltage is about 3.9V, and the PN junction ≤3.9V the forward voltage drop value can be measured. The normal voltage value of the silicon PN junction is about 0.5~0.8V.

Resolution: 0.001V

Overload protection: 250V AC/DC

XI. INSTRUMENT MAINTENANCE

1. The power supply of this product is 2 AAA batteries, if the meter meets following conditions, please replace the batteries.

(1).When LCD displays low battery "🔋" symbol.
(2).When the brightness of the LCD backlight decreases.

(3).When the buzzer sound of the meter becomes smaller.

2. General maintenance

⚠Display: Voltage True RMS;

Input impedance: ≥10MΩ;

Frequency response: sine wave and triangle wave 40Hz~1k Hz;

The accuracy is 5% to 100% of the range, and the voltage range short-circuit allows ≤5 words of remaining readings.

2. DC voltage

Range	Accuracy	Resolution	Overload protection
600mV	± (0.5%+7)	0.1mV	1000VDC/750VAC
6V		0.001V	
60V		0.01V	
600V	±	0.1V	
1000V	(1.0%+10)	1V	

Input impedance: ≥10MΩ;

The accuracy is 5% to 100% of the range, and the voltage range short-circuit allows ≤5 words of remaining readings.

3. AC current ACA

Range	Accuracy	Resolution	Overload

(1).The maintenance and service of this instrument must be completed by professional maintenance personnel or designated maintenance service department.

(2). Please take out the battery when it is not used for a long time to avoid corrosion of the instrument caused by battery leakage.

(3) Pay attention to waterproof, dustproof and anti-fall.