

## User Manual



### A. Introduction

This product is a battery-powered, true-rms, auto ranging digital clamp multimeter with a 6000 counts LCD display and a backlight.

### B. Safety Information

To avoid possible electrical shock, fire, or personal injury, please read all safety information before you use the product.

- Do **NOT** exceed the "maximum value" indicated in the Specification.
- Examine the connection of the test leads and the insulation of the product before measuring voltage higher than 36V DC or 25V AC.
- Disconnect the test leads from the circuit before changing the mode.
- Misuse of mode or range can lead to hazards, be cautious. "OL" will be shown on the display when the input is out of range.
- Safety symbols:

	Hazardous Voltage		Earth
	Double Insulated		Low Battery
	Risk of Danger. Check the User Manual.		N/ L Wire Judgement

### C. Specifications

Electrical Specifications					
Function	Range	Resolution	Accuracy	MAX.Value	Frequency Response
DC Voltage (V)	6.000V	0.001V	±(0.5%+3)	600V	
	60.00V	0.01V			
	600.0V	0.1V			
AC Voltage (V)	6.000V	0.001V	±(1.0%+3)	600V	40Hz-1kHz
	60.00V	0.01V			
	600.0V	0.1V			
DC Current (D)	60.00A	0.01A	±(2.0%+30)	600A	40Hz-400Hz
	600.0A	0.1A			
AD Current (D)	60.0A	0.01A			
	600.0A	0.1A			

Function	Range	Resolution	Accuracy	MAX.Value	Frequency Response	
Resistance	600.0Ω	0.1Ω	±(1.5%+3)	60MΩ		
	6.000kΩ	0.001kΩ				
	60.00kΩ	0.01kΩ				
	600.0kΩ	0.1kΩ	±(0.5%+3)			
	6.000MΩ	0.001MΩ				
Capacitance	60.00MΩ	0.01MΩ	±(1.5%+3)	60.00mF		
	6.000nF	0.001nF				±(5.0%+20)
	60.00nF	0.01nF				
	600.0nF	0.1nF				
	6.000μF	0.001μF				±(2.0%+5)
	60.00μF	0.01μF				
	600.0μF	0.1μF				
	6.000mF	0.001mF				
60.00mF	0.01mF					
Frequency	60.00Hz	0.01Hz	±(0.1%+2)	300.0kHz		
	600.0Hz	0.1Hz				
	6.000kHz	0.001kHz				
	60.00kHz	0.01kHz				
	300.0kHz	0.1kHz				
Diode					√	
Continuity					√	
Inrush current					√	
Flashlight					√	
Temperature	(-30~1000)°C	1°C	±(2.5%+5)	1000°C		
	(-22~1832)°F	1°F		1832°F		

General Specifications	
Display (LCD)	6000 counts
Ranging	Auto
Material	ABS
Update Rate	3 times/second
Ture RMS	√
Data Hold	√
Low Battery Alert	√
Auto Power Off	√

Mechanical Specifications		
Dimension	185*65*30mm	
Weight	165g	
Battery Type	1.5V AAA Battery * 2	
Warranty	One year	
Environmental Specifications		
Operating	Temperature	0~40°C
	Humidity	<75%
Storage	Temperature	-20~60°C
	Humidity	<80%

### D. Instruction

#### (1) Front Panel ( see the picture on the right )

- Jaw
- Flashlight
- Jaw trigger
- Hold / Flashlight

HOLD: To press this button once and you will see "HOLD" on the display. Flashlight: Long press this button to turn on/off the flashlight .

- Dial
- Turn the dial to select the gear you want to measure. Switch to OFF for power off.

- SEL/NCV  
Long press this button for more then two seconds to enter NVC measurement. After inserting the test leads, press the button. Short press the button can switch continuity/diode, capacitance, temperature, AC/DC and other measurements.

- INR/PEAK  
Press this button to enter INRUSH test in current measurement mode; Press this button to hold voltage reading (PEAK HOLD) while in voltage measurement mode.
- HZ/REL

In AC mode, press this button to start frequency measurement; in capacitance and current mode, long press this button to enter relative value measurement (REL)

- LCD display
- COM: Common terminal for all measurements.
- ⚡ : Red test lead jack, common test signal input port
- Wire to be measured.

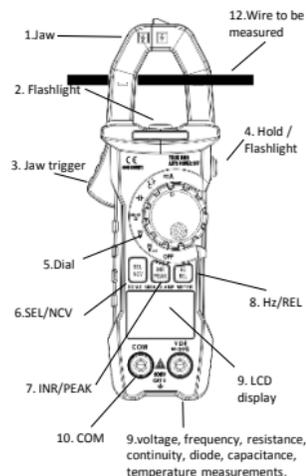
#### (2) Measure AC/DC Voltage

- This product has dual impedance voltage detection function. The "V~" gear is 10MΩ high input impedance measurement gear used for general AC and DC voltage detection; "V~" is the 600K ω low input impedance measurement gear, which can avoid the possibility of measurement error caused by stray voltage or false voltage in the measurement circuit, so as to accurately determine whether the voltage really exists.

- Connect the black test lead to the COM Terminal and connect the red test lead to the VΩmA Terminal;
- AC/DC voltage measurement switch by pressing SEL button.
- Touch the probes to the correct test points of the circuit to measure the voltage;
- Read the measured voltage on the display.

#### (3) Measure AC Current Only

- Keep the probes not put in the jacks, turn power switch on;
- Push the jaw release and center the wire within the clamp jaws (as in the picture). The wire should be in the marked position to keep measurement accuracy;
- Press SEL button to select AC/DC, read the measured current on the display.



- \*Caution:
- Do not measure current that exceeds the MAX Value as indicated in the Specifications;
  - Measure one wire at a time because current moving in different directions will cancel each other out.

#### (4) Measure Resistance

- Connect the black test lead to the COM Terminal and connect the red test lead to the  Terminal;
- Turn the dial to resistance, diode, continuity gears;
- Touch the probes to the desired test points of the circuit to measure the resistance;
- Read the measured resistance on the display.

\*Caution:

- Disconnect circuit power and discharge all capacitors before you test resistance.
- Do not input voltage at the Resistance Mode.

#### (5) Measure Continuity / Diode

- Connect the black test lead to the COM Terminal and connect the red test lead to the  Terminal;
- Turn the dial to “”, press **SEL** once to enter diode measurement mode, and press **SEL** again to enter continuity measurement mode.
- Touch the probes to the desired test points of the circuit;
- The built-in beeper will beep when the resistance is lower than 50Ω, and the indicator light will be on.
- Measure diode: Connect the red probe to the anode side and the black probe to the cathode side of the diode to be tested;
- Read the forward biased voltage value on the display;
- If the polarity of the test leads is reversed with diode polarity or the diode is broken, the display reading shows “OL”.

\*Caution:

- Do not input voltage at the Continuity / Diode Mode.

#### (6) Measure Capacitance

- Discharge all capacitors before you test capacitance.
- Connect the black test lead to the COM Terminal and the red lead to the  Terminal.
- Push Power button twice to enter the Capacitance Mode
- Connect the red probe to the anode side and the black probe to the cathode side of the capacitor to be tested.
- Read the measured capacitance value.

#### (7) Measure Frequency

- Connect the black test lead to the COM Terminal and connect the red test lead to the  Terminal;
- When measuring the AC current frequency, press the "HZ/REL" button to read the value directly without inserting the test leads. To measure the AC voltage frequency, press the "HZ/REL" button once after inserting the test leads to enter the frequency measurement mode;
- Touch the probes to the desired test points of the circuit;
- Read the measured frequency value on the display.

#### (8) Measure REL

When in capacitance and current measurement mode, long press the "HZ/REL" button 2S to enter the relative value test mode, the "REL" icon will be displayed in the upper left corner of the display screen; press this button again to exit relative value measurement.

#### (9) Measure NCV

- Press SEL / NCV over 2 seconds to toggle to the NCV Mode;
- Hold the product and move it around, the built-in beeper will beep when the inner sensor detects AC voltage nearby. The stronger the voltage is, the quicker the beeper beeps.
- Put the red probe into the  terminal, then use the black probe to touch the Live line and Neutral line of the Main supply. You can judge the L-line or N-line by the beeps, If you can hear the strong beeps, this is the L-line, or it's a N-line.

#### (10) Measure Temperature

- Connect the black thermocouple probe to the COM Terminal and connect the red thermocouple probe to the  Terminal;
  - Turn the dial to the temperature test gear and enter the temperature measurement. The screen displays the normal temperature by default;
  - Touch the probes to the desired test points;
  - Read the measured temperature on the display.
- \*Caution:
- Do not input voltage at the Temperature Mode.

#### (11) Measure Inrush current

- Turn the dial to current, press the "INR/PEAK" button; enter the start current measurement mode, the display will show “INRUSH”;
- Push the jaw release and center the wire within the clamp jaws. The wire should be in the marked position to keep measurement accuracy;
- Turn on the engine or motor equipment, and the product will capture the maximum current within 100ms when motor is starting;
- Read the measured temperature on the display.

#### (12) Peak Hold

- Turn the dial to the voltage measuring gear, insert the test lead, press "INR/PEAK" button to enter the peak hold function once, the display will show “PEAK HOLD”;
- Contact the correct test point on the circuit with the test lead;
- Read the measured frequency value on the display.

#### (13) Auto Power Off

- The product automatically powers off after 15 minutes of inactivity;
- The builtin beeper beeps 5 times 1 minute before power off;
- To restart the product, press any button;
- To disable the Auto Power Off function, hold down the SEL / NCV button when turning on the product, You will hear the buzzer sound four times, at which point the “” symbol in the upper left corner of the screen disappears, indicating that the automatic shutdown has been cancelled.

#### E. General Maintenance

Beyond replacing batteries and fuses, do not attempt to repair or service the product unless you are qualified to do so and have the relevant calibration, performance test, and service instructions.

- Do not operate the product around hot, wet, flammable, explosive or magnetic environments.
- Clean the product with damp cloth and mild detergent; do not use abrasives or solvents.
- Remove the input signals before you clean the product.
- Remove the batteries if you will not use the product for a long time to prevent possible battery leak.
- When “” is shown on the display, batteries shall be replaced as below:
  - Loosen the screw and remove the battery cover;
  - Replace the used batteries with new batteries of the same type;
  - Place the battery cover back and fasten the screw.

#### Warning:

- Do NOT exceed the “maximum value” indicated in the Specification;
- Do NOT input voltage at the Current Mode, the Resistance Mode, the Diode Mode, the Continuity Mode, or the Temperature Mode;
- Do NOT use the product when the batteries or the battery cover is not placed properly;
- Turn off the product and remove the test leads from the test points before changing batteries or fuses.

#### F. Troubleshooting

If your product do not function as normal, the following steps may help you. If the problem still cannot be solved, please contact your dealer.

Problem	Possible Reason
Display Malfunction	Low battery; replace batteries
 Symbol	Replace batteries

### LIMITED WARRANTY AND LIMITATION OF LIABILITY

Customers enjoy one-year warranty from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from accident, neglect, misuse, alternation, contamination, or abnormal conditions of operation or handling.

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