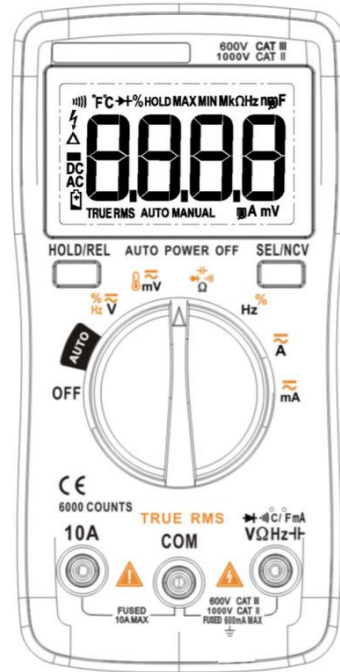


User Manual



Thank you for purchasing our product.
Please read this manual carefully before use.
Please keep this manual properly after reading.

Safety Instructions

Please read the following precautions carefully.

- Caution** There may be a risk of death or serious injury.
- Caution** There may be a risk of personal injury or property loss.
- ◆ Do not input signals exceeds the measurement range of this product. Please select the correct test position and range to avoid damage to the instrument or personal injury. "OL" will be shown on the display when out of range.
- ◆ When the voltage to be measured exceeds 36V DC or 25V AC, the operator shall be careful to avoid electric shock.
- ◆ Check the function position before measuring.
- ◆ Disconnect the test leads from the circuit before changing the mode.
- ◆ For your safety, please read this manual carefully before use. Please fully understand the instructions and use this product correctly.

Caution

Do not measure circuits that exceed the maximum input rated value 1000V.

Measurement Notices

Caution

- ◆ DC/AC high voltage circuits are very dangerous, please be careful to measure.
- ◆ Do not to add AC/DC voltages that exceeds the maximum rated value between the ground terminal and test terminal.
- ◆ Do not add voltage that exceeds the allowable value.
- ◆ Do not operate this product with wet hands to avoid the risk of electric shock.
- ◆ Do not use the product around explosive gas, vapor, or in damp or wet environments.
- ◆ Do NOT touch the input terminals when measuring.
- ◆ Do not use test leads with damaged coatings.

AC/DC Voltage Measurement Notice

Caution

- ◆ The measured voltage should not exceed the rated maximum test value, otherwise it may damage the product and endanger personal safety.
- ◆ Do not measure voltages that exceed the allowable value.

AC/DC Current Measurement Notice

Caution

- ◆ The measured current should not exceed the rated maximum test value, otherwise it may damage the product and endanger personal safety.
- ◆ Use the 10A Terminal and the **A** Mode to judge range and choose the right function position when measure an unknown current.
- ◆ It is strictly forbidden to input voltage in this measuring state.

Resistance Measurement Notice

Caution

- ◆ Before measuring the resistance, please make sure that all capacitors in the circuit to be measured are fully discharged.
- ◆ It is strictly forbidden to input voltage in this measuring state.

Continuity Measurement Notice

Caution

- ◆ Please do not measure the continuity with a voltage circuit or wire.
- ◆ It is strictly forbidden to input voltage in this measuring state.

Other Notices

Battery Change Notice

Caution

- ◆ Please turn off the power.
- ◆ Install the battery cover and tighten the screws before measuring.

Test Leads Notice

Caution

Do not touch the pins of the test leads during the measurement. Do not use test leads with damaged coatings. Please do not stretch the cables to avoid breaking the test lead. Dust and water are not supported.

Maintenance and Modification

Caution

Except for our company or our authorized individuals, please do not attempt to repair or modify the circuit board to avoid the danger caused by improper operation.

1. Introduction

This product is a multi-functional, auto-ranging digital multimeter with a 6000 counts LCD display.

- ◆ Measurement functions include AC/DC voltage, AC/DC current, resistance, diode test/continuity, NCV, frequency/duty cycle, capacitance.
- ◆ Support True- RMS
- ◆ Support Auto Power Off
- ◆ Support temperature measurement
- ◆ Support data hold

2. General Specifications

Display (LCD)	6000 counts
Ranging	Auto
Material	ABS/PVC
Update Rate	3 times / second
Low Battery Indication	√
Product Weight	114g (batteries not included)
Product Dimension	130*65*32mm

Operating Storage	Temperature	0~40°C
	Humidity	<75%
Operating Storage	Temperature	-20~60°C
	Humidity	<80%

※ Specifications are subject to change without notice.

※ Batteries included are samples.

※ Battery life may be shorter than regular commercial batteries. If the backlight and buzzer are used frequently, battery life will be shortened.

3. Electrical Specifications

Function	Range	Resolution	Accuracy	Max
DC Voltage (V)	6.000V	0.001V	±(0.5%+3)	1000V
	60.00V	0.01V		
	600.0V	0.1V		
	1000V	1V		
DC Voltage (mV)	60.00mV	0.01mV	±(0.5%+3)	600mV
	600.0mV	0.1mV		
AC Voltage (V)	6.000V	0.001V	±(1.0%+3)	750V
	60.00V	0.01V		
	600.0V	0.1V		
	750V	1V		
AC Voltage (mV)	60.00mV	0.01mV	±(1.0%+3)	600mV
	600.0mV	0.1mV		

DC Current (A)	6.000A	0.001A	±(1.2%+3)	10A		
	10.00A	0.01A		600mA		
DC Current (mA)	60.00mA	0.01mA	±(1.5%+3)	10A		
	600.0mA	0.1mA		600mA		
Resistance	600.0Ω	0.1Ω	±(0.5%+3)	60MΩ		
	6.000kΩ	0.001kΩ				
	60.00kΩ	0.01kΩ				
	600.0kΩ	0.1kΩ				
	6.000MΩ	0.001MΩ				
Resistance	60.00MΩ	0.01MΩ	±(1.5%+3)			
	9.999nF	0.001nF	±(2.0%+5)	9.999mF		
99.99nF	0.01nF					
999.9nF	0.1nF					
9.999μF	0.001μF					
99.99μF	0.01μF					
Capacitance	999.9μF	0.1μF	±(5.0%+5)	9.999mF		
	9.999mF	0.001mF				
	99.99Hz	0.01Hz			±(0.1%+2)	9.999MHz
	999.9Hz	0.1Hz				
	9.999kHz	0.001kHz				
99.99kHz	0.01kHz					
999.9kHz	0.1kHz					
Frequency	9.999MHz	0.001MHz	±(5.0%+5)	9.999MHz		
	99.99MHz	0.01MHz				
Duty Cycle	1%~99%	0.1%	±(0.1%+2)			
Temperature	(-20~1000)°C	1°C	±(2.5%+5)	1000°C		
	(-4~1832)°F	1°F		1832°F		
Diode			√			
Continuity			√			

4. Preparations for Measurement

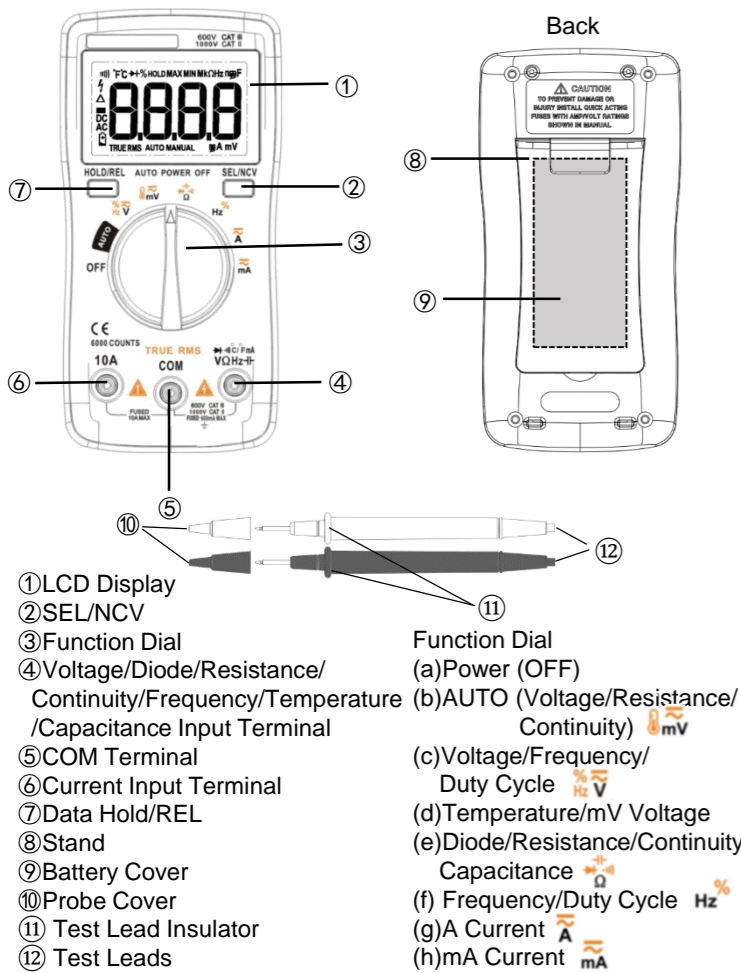
4.1 Preparations

- (1) Please check the product carefully before use and confirm if there is cracks or missing items. If you have any questions, please contact the store you purchased.
- (2) Disconnect the test leads from the circuit before changing the mode.
- (3) Please note that if there are noise-generating devices around, or large temperature difference, the data may become unstable or there may be increasing errors.
- (4) Please note that when measuring resistance, continuity, current flows through the measured circuit will result in incorrect measurement.
- (5) When using this device, it may cause display differences due to external strong noise, etc. If the measurement is not available, please turn off the power and wait for a while, then turn the power on again.

Note:

The display changes irregularly under the situations where the test leads are not connected. This is caused by high input sensitivity, not a fault. When connected to the circuit, the correct measurement can be taken after the data become stable.

5. Appearance



6. Measurements

6.1 Steps for measurement

1. Confirm the measurement content in the table on the right.
2. Switch function dial according to the item to be measured.
3. Please remove test leads after measuring.
4. Turn off the power.

Caution

1. Do not confuse the item to be measured with the position of the function.
2. Do not exceed the maximum rated value of each function.
3. Do not switch functions or modes during measurement.
4. During the measurement process, hold the insulated part of the test lead and do not hold the pins of the test lead.

6.2 Auto Power Off

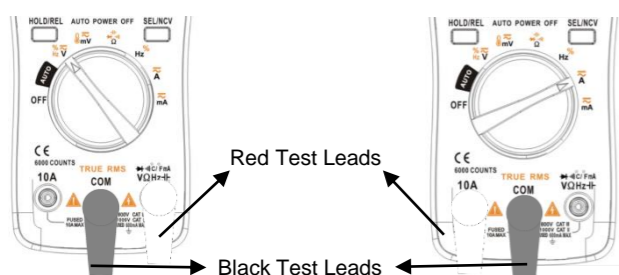
1. This feature prevents the battery from running out if you forget to turn off the power.
2. If the operation is not continued for about 15 minutes, the auto power off function will automatically cut off the power.
3. If you want to cancel this function, you should press and hold the SEL/NCV button and then turn it on again. It will be cancelled after five beeps.

※Methods of Connecting Test Leads

- ① Put the black lead into **COM** terminal and put the red lead to **VΩHz** terminal in Picture1
- ② Put the red lead to **10A** terminal when test the current in Picture2.

Picture1

Picture2



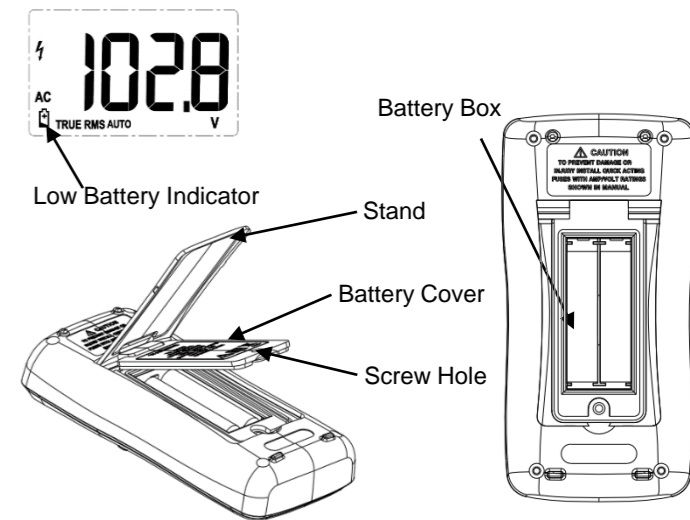
Measurement	Function Position	Data Display	Connection Illustration	Usage and Notice
Auto	<p>Auto-recognition for Voltage /Resistance/ Continuity by connecting test leads</p>			<p>Please rotate dial to AUTO position; Put probes correctly to recognize Voltage/Resistance/Continuity automatically. Only when the voltage is higher than 0.8V, this data will be shown on the display. ※ Voltage/Resistance/Continuity can be also measured by switch dial to function position manually.</p>
DC Voltage AC Voltage (Frequency Duty Cycle) Temperature	<p>DC→AC→Hz→%</p> <p>Please select temperature function in mV by SEL/NCV</p>			<ol style="list-style-type: none"> 1. Connect the black test lead to the COM Terminal and connect the red test lead to the VΩHz Terminal; 2. Rotate dial to V Mode or $V\Omega Hz$ Mode; 3. Press SEL/NCV to toggle between AC/DC; 4. Touch the correct test points of the circuit to measure the voltage; 5. Read the measured data on the display. <p>※ If reverse the test lead, it shows "- " mark. The frequency is 40-1000Hz in AC Voltage Mode. There is no special link between the measured value and the test leads.</p>
DC Current			<p>Red Probe Black Probe</p>	<ol style="list-style-type: none"> 1. Connect the black test lead to the COM Terminal and connect the red test lead to the VΩHz Terminal or the 10A Terminal (based on the value of current) ; 2. Rotate dial to mA Mode or $10A$ Mode; 3. Press SEL/NCV to toggle between AC/DC mode; 4. Cut off the circuit path to be measured. Then connect the test leads across the circuit and power supply; 5. Read the measured current on the display. <p>※Please measure current by 10A terminal within 15 sec When measuring DC current, please access to the circuit from the red test lead to the black test lead based on the direction of the current flow.</p>
AC Current				<ol style="list-style-type: none"> 1. Connect the black test lead to the COM Terminal and connect the red test lead to the VΩHz Terminal or the 10A Terminal (based on the value of current) ; 2. Rotate dial to mA Mode or $10A$ Mode; 3. Press SEL/NCV to toggle between AC/DC mode; 4. Cut off the circuit path to be measured. Then connect the test leads across the circuit and power supply; 5. Read the measured current on the display. <p>※Please measure current by 10A terminal within 15 sec When measuring DC current, please access to the circuit from the red test lead to the black test lead based on the direction of the current flow.</p>
Resistance Ω				<ol style="list-style-type: none"> 1. Press SEL/NCV to toggle between AC/DC mode 2. Please turn off the power of this component to be tested. 3. All capacitors are fully discharged. <p>※ There is no special link between the measured value and the test leads.</p>
Continuity \rightarrow	<p>SEL 键切换功能</p>			<p>The built-in beeper will beep when the resistance is lower than 50Ω, which indicates a short circuit. ※Please measure the resistance range in order to get detailed resistance.</p>
Diode \rightarrow				<ol style="list-style-type: none"> 1. Connect the red probe to the anode and the black probe to the cathode of the diode being tested; 2. Read the forward bias value on the display; 3. If the polarity of the test leads is reversed with diode polarity or the diode is broken and it shows "- " mark. <ol style="list-style-type: none"> a. Do not input voltage at the Diode Mode. b. Disconnect circuit power and discharge all capacitors before you test diode.
Capacitance				<ol style="list-style-type: none"> 1. Connect the red test lead to the anode and the black test lead to the cathode of the capacitor to be tested; <p>※ Disconnect circuit power and discharge all capacitors before testing capacitance. The electrostatic capacity becomes larger, the measurement time is longer.</p>
Frequency Duty Cycle Hz/%				<ol style="list-style-type: none"> 1. Press SEL/NCV to toggle data 2. A higher frequency may be measured in this mode. . <p>※The maximum frequency that can be measured is 9.999Mhz. The Frequency Mode only applies to measure high frequency with low voltage.</p>
NCV Function				<ol style="list-style-type: none"> 1. Keep pushing the NCV button to enter the NCV mode. 2. 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. <p>※ It is impossible to use NCV function in current mode.</p>
Data Hold/REL HOLD/REL				<ol style="list-style-type: none"> 1. Press the Data Hold / REL function button in each measurement mode. 2. The product will keep the present reading on the display by short press. <p>※The product allows relative measurements for Voltage, Current, and Capacitance; Hold down this button for a few seconds to enter the REL mode; Press again to exit this mode.</p>

7. Maintenance

7.1 Replace Battery

When " " is shown on the display, batteries should be replaced as below:

1. Remove the test leads and turn off the product before replacing the batteries;
1. Loosen the screw on the battery door and remove the battery door.
2. Replace the used batteries with new batteries of the same type.
3. Place the battery door back and fasten the screws.

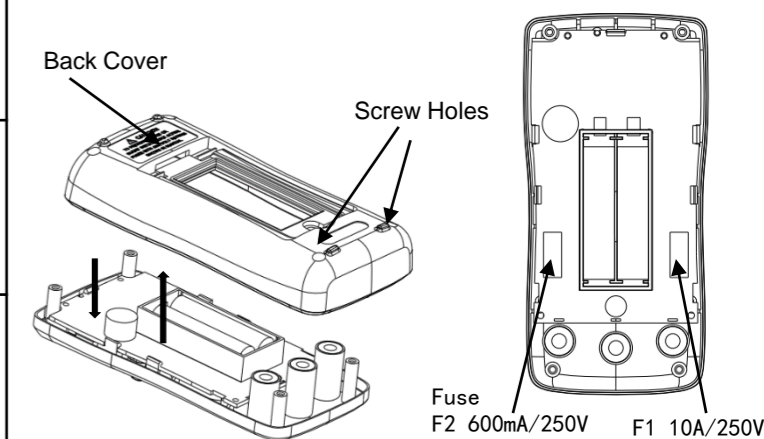


7.2 Replace the Fuses

If current measurement is not possible, make sure that the fuse is not blown.

If it is blown, please replace the required rated fuse.

1. Remove the battery cover and battery according to the battery replacement method;
2. Use a screwdriver to remove the two screws on the back cover.
3. Remove the back cover;
4. Replace the fuse;
5. Put the back cover and battery cover back, tighten the screws.



7.3 Clean the Product

Wipe the product with a damp cloth and mild detergent. Do not use abrasives or solvents. Dirt or moisture in the terminals can affect readings.

*Remove the input signals before you clean the product.

7.4 Calibration

Calibration is regularly performed at the calibration laboratory to ensure accurate measurements.

The recommended calibration period is once a year.

Please consult your dealer for calibration cost and delivery time.

8. Storage Method

Please turn off the power after use to avoid consuming the built-in battery.

If it is not used for a long time, please remove the battery and keep it.