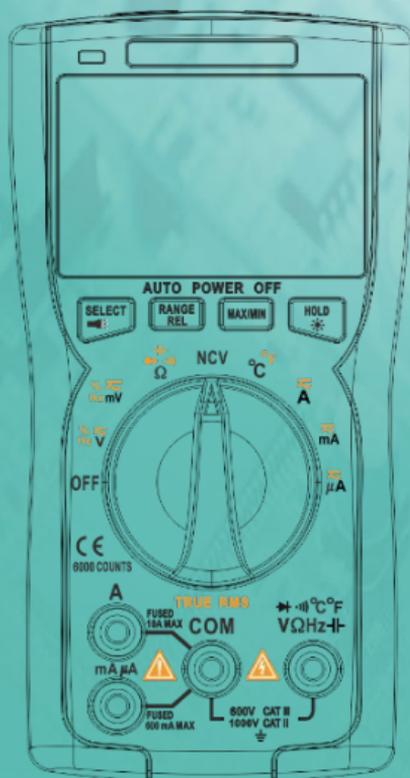


User Manual



LIMITED WARRANTY AND LIMITATION OF LIABILITY

Customers enjoy one-year warranty from the date of purchase.

This warranty does not cover fuses, disposable batteries, damage from misuse accident, neglect, alteration, contamination, or abnormal conditions of operation or handling, including failures caused by use outside of the product's specifications, or normal wear and tear of mechanical components.

Table of Contents

Page

Introduction.....	1
Safety Information.....	1
Instrument Overview.....	3
LCD Display.....	3
Function Buttons.....	5
Rotary Buttons.....	6
Input Terminals.....	8
Measurements Instruction.....	9
Measure AC/DC Voltage.....	9
Measure AC/DC Current.....	9
Measure Resistance.....	10
Test Diodes and Continuity.....	10
Measure Capacitance.....	11
Measure Frequency and Duty Cycle.....	12
Test Temperature.....	13
Test NCV.....	13

Maintenance.....	14
Clean the Product.....	14
Replace the Batteries.....	15
Replace the Fuses.....	15
Specifications.....	16
General Specifications.....	16
Mechanical Specifications.....	16
Environmental Specifications.....	16
Electrical Specifications.....	17

Introduction

This product is a 6000 counts true RMS auto-ranging digital multimeter with 3 kinds of display.

Safety Information

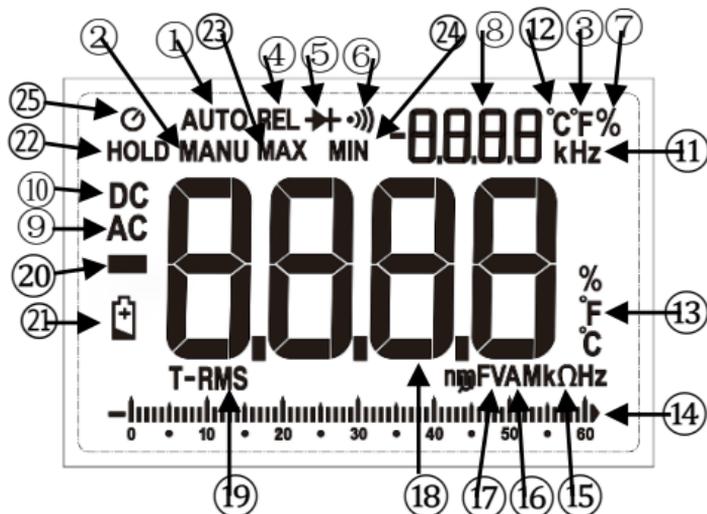
To avoid possible electrical shock, fire, or personal injury, please read all safety information before you use the product. Please use the product only as specified, or the protection supplied by the product can be compromised.

- Examine the case before you use the product. Look for cracks or missing plastic. Carefully look at the insulation around the terminals.
- The measurement must be made with correct input terminals and functions and within the allowable measuring range.
- Do not use the product around explosive gas, vapor, or in damp or wet environments.

- Keep fingers behind the finger guards on the probes.
- When the product has already been connected to the line being measured, do NOT touch the input terminal that is not in service.
- Disconnect the test leads from the circuit before changing the mode.
- When the voltage to be measured exceeds 36V DC or 25V AC, the operator shall be careful enough to avoid electric shock.
- 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.
- Low level of a battery will result in incorrect readings. Change the batteries when battery level is low. Do not make measurements when the battery door is not properly placed.

Instrument Overview

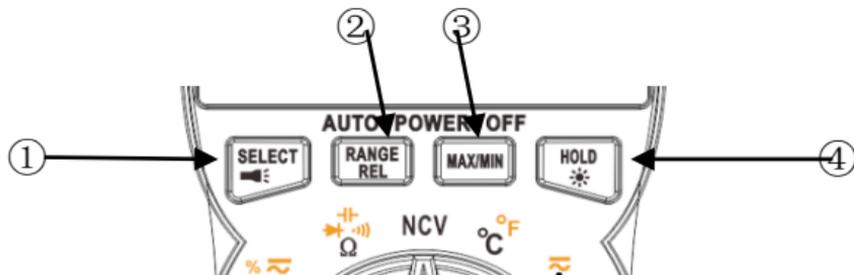
LED Display



①	AUTO	Auto range. The product selects the range with the best resolution.
②	MANU	Manual range. The user selects the range.
③	F	Capacitance test. (Farad)
④	REL	Relative mode.
⑤	→ 	Diode test.
⑥	•))	Continuity test.
⑦	%	Duty cycle test.
⑧	-0000	Secondary measurements display.
⑨	AC	Alternating current.

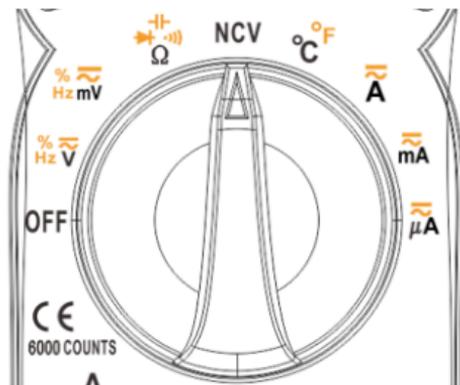
⑩	DC	Direct current.
⑪	Hz	Frequency test. (Hertz)
⑫	°C	Temperature test. (Celsius)
⑬	°F	Temperature test. (Fahrenheit)
⑭		Analog bar graph.
⑮	Ω	Resistance test. (Ohm)
⑯	A	Current test. (Ampere)
⑰	V	Voltage test. (Volt)
⑱	-8888	Primary measurement display.
⑲	T-RMS	The product measures both sinusoidal and nonsinusoidal ac waveforms accurately.
⑳		Low battery. Replace batteries.
㉑		Negative readings.
㉒	HOLD	Display freezes present reading.
㉓	MAX	Display maximum value.
㉔	MIN	Display minimum value.
㉕		Auto power off symbol
n k M μ m		Measurement units.

Function Buttons



①	Short press to switch among functions. Long press to turn on/off flashlight.
②	Short press to change range. Push for more than 2 seconds to enter the relative mode. The product will store the present reading as a reference for subsequent readings. The display is zeroed, and the stored reading is subtracted from all subsequent readings. Long-push again to exit the relative mode.
③	Press this button to switch MAX/MIN test. Long press 2 second to quit MAX/MIN mode.
④	Push once to hold the current reading on the display; push again to continue normal operation. Long press beyond 2 seconds to turn on flashlight, long press again to turn off flashlight.

Rotary Button



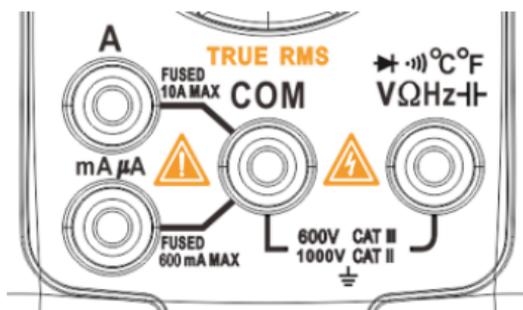
OFF

Turn off the product at this position.

- The product automatically powers off after 15 minutes of inactivity.
- The built-in beeper beeps 5 times 1 minute before auto power off.
- To restart the product from auto power off, press the SELECT button or turn the rotary switch back to the OFF position and then to a needed position.
- To disable the Auto Power Off function, hold down the SELECT button when turning on the product, you will hear five beeps and the  symbol will disappear if you have successfully disabled the function.

	<p>AC voltage $\leq 750V$ DC voltage $\leq 1000V$ Frequency $\geq 10V$, 1~100KHz</p>
	<p>AC voltage $\leq 600.0mV$ DC voltage $\leq 600.0mV$ Frequency $\leq 10V$, 1~10MHz</p>
	<p>Resistance: $\leq 60.00M\Omega$. Continuity: beeper will beep when resistance less than 50 Ω Diode test. Displays above 3V Capacitance: $\leq 60.00mF$</p>
<p>NCV</p>	<p>NCV</p>
	<p>Temperature: -20~1000° C (-4~1832)°F</p>
	<p>DC current: $\leq 600.0mA$. AC current: $\leq 600.0mA$.</p>
	<p>DC current: $\leq 6000\mu A$. AC current: $\leq 6000\mu A$.</p>
	<p>DC current: $\leq 10.00A$ AC current: $\leq 10.00A$</p>

Input Terminals



A	Input terminal for AC/DC current measurement ($\leq 10.00\text{A}$)
$\mu\text{A}/\text{mA}$	Input terminal for AC/DC current measurement ($\leq 600.0\text{mA}$)
COM	Common (return) terminal for all measurements.
°C/°F $\text{V}\Omega\text{Hz- H}$	Input terminal for the measurements of: <ol style="list-style-type: none"> 1. Diode 2. Continuity 3. AC/DC voltage 4. Resistance 5. Temperature 6. Capacitance

Measurements Instruction

Measure AC/DC Voltage

1. Connect the black test lead to the COM Terminal and the red lead to the  Terminal.
2. To measure voltage under 600.0mV, turn the rotary to  . To measure voltage higher than 600.0mV, turn the rotary to  . Press SELECT to change the AC/DC voltage test mode.
3. Touch the probes to the correct test points of the circuit.
4. Read the measured voltage on the screen.

***Do not measure voltage that exceeds the extremes as indicated in the Specifications.**

***Do not touch high voltage circuit during measurements.**

Measure AC/DC Current

1. Connect the black test lead to the COM Terminal and the red lead to the A or μA /mA Terminal (choose based on the value of the current to be measured).
2. Turn the rotary to  ,  or  .
3. Break the circuit path to be measured, connect the test leads across the break and apply power.
4. Read the measured current on the display.

***Do not measure current that exceeds the extremes as indicated in the Specifications.**

• *Use the A mA Terminal when you are measuring an unknown current, then select the terminal and range according to the display value.

***Do not input voltage at this setting.**

Measure Resistance

1. Connect the black test lead to the COM Terminal and the test lead to the  Terminal.
2. Turn the rotary to  , press “SELECT” to the Resistance Mode. The screen will show “OL”.
3. Touch the probes to the desired test points of the circuit to measure the resistance.
4. Read the measured resistance on the display.

***Disconnect circuit power and discharge all capacitors before you test resistance.**

***Do not input voltage at this setting.**

Test Diodes and Continuity

1. Connect the black test lead to the COM Terminal and the red lead to the  Terminal.
2. Turn the rotary to  , press “SELECT” to the continuity mode.
3. To test continuity, touch the probes to the desired test points of the circuit. The built-in beeper will beep when there is a short circuit.

- To test diodes, connect the red probe to the anode side and the black probe to the cathode side of the diode being tested. Then read the forward bias 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 “”.

***Do not input voltage at this setting.**

***Disconnect circuit power and discharge all capacitors before you test diode.**

Measure Capacitance

- Connect the black test lead to the COM Terminal and the red lead to the  Terminal.
- Turn the rotary to , press “SELECT” to the capacitance mode.
- Connect the red probe to the anode side and the black probe to the cathode side of the diode being tested.
- Read the measured capacitance value on the display once the reading is stabilized.

***Disconnect circuit power and discharge all capacitors before you test diode.**

Measure Frequency and Duty Cycle

1. Connect the black test lead to the COM Terminal and the red lead to the  Terminal.
2. Turn the rotary switch to  , press SELECT to frequency test function ($\geq 10V$, 1~100KHz),); or turn the rotary switch to  , press SELECT to frequency test function ($\leq 10V$, 1~10MHz).
3. If the frequency between 100kHz and 10MHz, press SELECT to enter AC mV position. Touch the probes to the desired test points, now the vice display will show frequency; Then press the SELECT again, the main display will show frequency and vice display will show duty cycle.

Measure Temperature

1. Connect the black test lead to the COM Terminal and the red lead to the $\frac{\text{V}\Omega\text{Hz}}{\text{V}\Omega\text{Hz}}$ Terminal.
2. Turn the rotary to $^{\circ}\text{C}$ $^{\circ}\text{F}$, press “SELECT” to the temperature Mode; Now the main display will show Celsius and the vice display will show Fahrenheit.
3. Touch the probes to the desired test points.
4. Read the measured temperature on the display.

• ***Do not input voltage at this setting.**

Test NCV

1. Turn the rotary to **NCV** position, press “SELECT” to the temperature 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.

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.

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.

Replace the Batteries

When “” is shown on the display, batteries shall be replaced as below:

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

Replace the fuses

When a fuse is blown or do not work properly, it shall be replaced as below:

1. Remove the test leads and turn off the product before replacing the fuse.
2. Loosen the four screws on the back cover and the screw on the battery door, then remove the battery door and the back cover.
3. Replace the fuse with a new fuse of the same type.
4. Place the back cover and the battery door back and fasten the screws.

Specifications

General Specifications		
Display (LCD)	6000 Counts	
Ranging	Auto/Manual	
Material	ABS+TPE	
Update Rate	3 Times/Second	
Ture RMS	√	
Data Hold	√	
Backlight	√	
Low Battery Indication	√	
Auto Power Off	√	
Mechanical Specifications		
Dimension	147*76*37mm	
Weight	191g (without batteries)	
Battery Type	1.5V AAA Battery * 3	
Warranty	One year	
Environmental Specifications		
Operating	Temperature	0~40°C
	Humidity	< 75%
Storage	Temperature	-20~60°C
	Humidity	< 80%

Electrical Specifications

<i>Function</i>	<i>Range</i>	<i>Resolution</i>	<i>Accuracy</i>
DC Voltage (V)	6.000V	0.001V	$\pm(0.5\%+3)$
	60.00V	0.01V	
	600.0V	0.1V	
	1000V	1V	
DC Voltage (mV)	60.00mV	0.01mV	
	600.0mV	0.1mV	
AC Voltage (V)	6.000V	0.001V	$\pm(1.0\%+3)$
	60.00V	0.01V	
	600.0V	0.1V	
	750.0V	0.1V	
AC Voltage (mV)	60.00mV	0.01mV	
	600.0mV	0.1mV	
*Frequency response of ACV: 40Hz-1kHz			

Function	Range	Resolution	Accuracy	
DC Current (A)	6.000A	0.001A	$\pm(1.0\%+3)$	
	10.00A	0.01A		
DC Current (mA/ μ A)	60.00mA	0.01mA		
	600.0mA	0.1mA		
	600.0 μ A	0.1 μ A		
	6000 μ A	1 μ A		
AC Current (A)	6.000A	0.001A		$\pm(1.2\%+3)$
	10.00A	0.01A		
AC Current (μ A/mA)	60.00mA	0.01mA		
	600.0mA	0.1mA		
	600.0 μ A	0.1 μ A		
	6000 μ A	1 μ A		
Frequency response of AC Current: 40Hz-1kHz				

Function	Range	Resolution	Accuracy
Resistance	600.0Ω	0.1Ω	±(0.5%+3)
	6.000kΩ	0.001kΩ	
	60.00kΩ	0.01kΩ	
	600.0kΩ	0.1kΩ	
	6.000MΩ	0.001MΩ	±(1.5%+3)
	60.00MΩ	0.01MΩ	±(3.0%+5)
Capacitance	6.000nF	0.001nF	±(5.0%+20)
	60.00nF	0.01nF	±(2.0%+5)
	600.0nF	0.1nF	
	6.000μF	0.001μF	
	60.00μF	0.01μF	
	600.0μF	0.1μF	
	6.000mF	0.001mF	±(5.0%+5)
	60.00mF	0.01mF	

Function	Range	Resolution	Accuracy
Frequency (Measures only to 100kHz under the ACV setting))	6.000Hz	0.001Hz	±(0.1%+2)
	60.00Hz	0.01Hz	
	600.0Hz	0.1Hz	
	60.00kHz	0.01kHz	
	600.0kHz	0.1kHz	
	6.000MHz	0.001MHz	
	10.00MHz	0.01MHz	
Duty cycle	1%~99%	0.1%	±(0.1%+2)
Temperature	(-20~1000)°C	1°C	±(2.5%+5)
	(-4~1832)°F	1°F	
Diode	√		
Continuity	√		
NCV	√		

