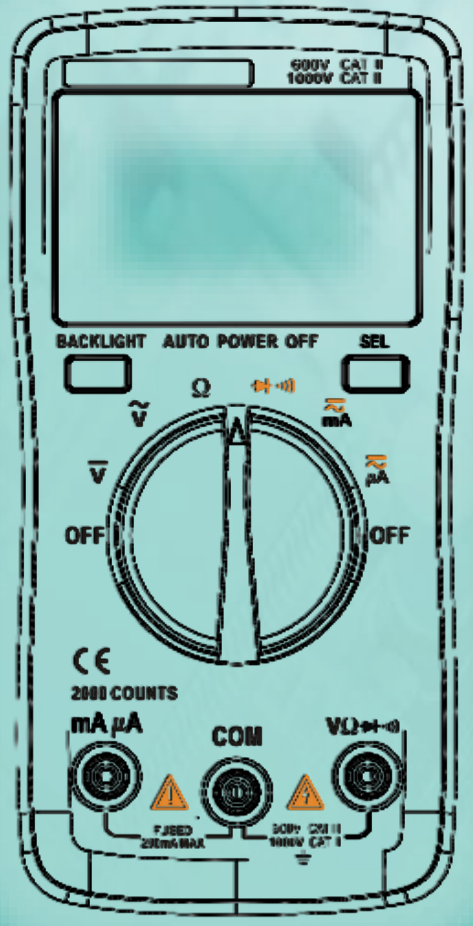
User Manual



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.

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Introduction

This product is a battery-powered, auto-ranging digital multimeter with a 1999 counts LCD display and a backlight. It can be used to measure AC/DC voltage, AC/DC current, resistance, diode, and continuity.

Safety Information

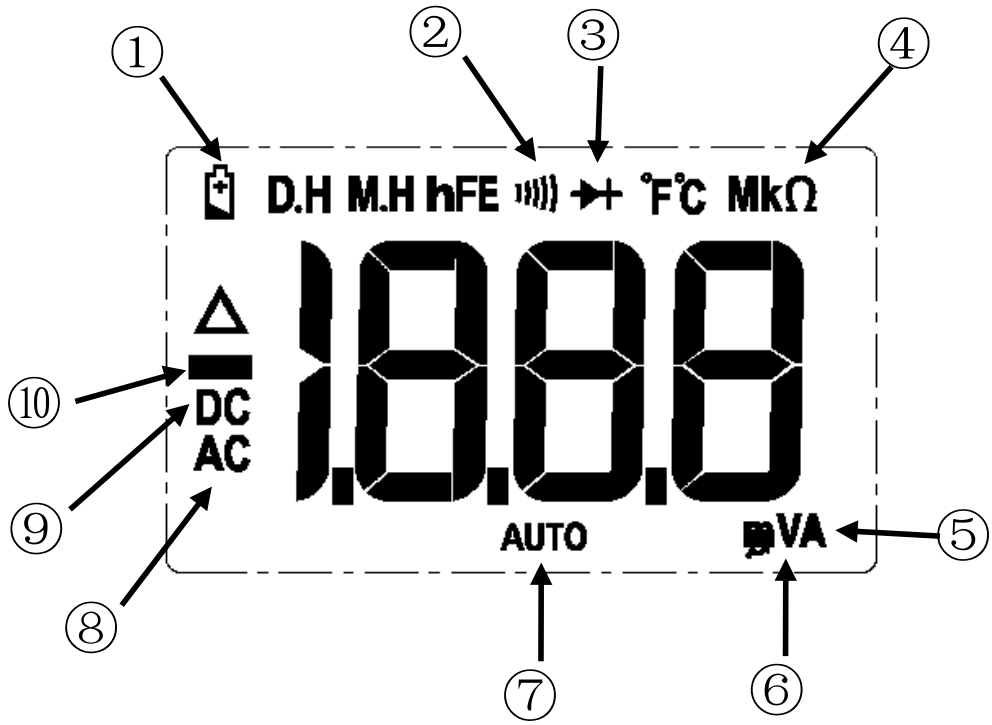
To avoid possible electrical shock, fire, or personal injury, please read all safety information before you use the product. Please use the product only as specified, or the protection supplied by the product can be compromised.

- 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

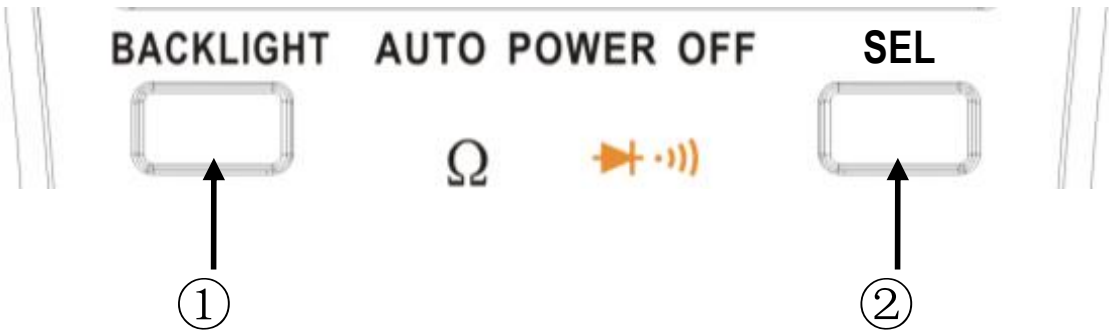
LCD Display



①		Low battery. Replace batteries.
②		Continuity test.
③		Diode test.
④	Ω	Resistance test. (Ohm)
⑤	A	Current test. (Ampere)
⑥	V	Voltage test. (Volt)

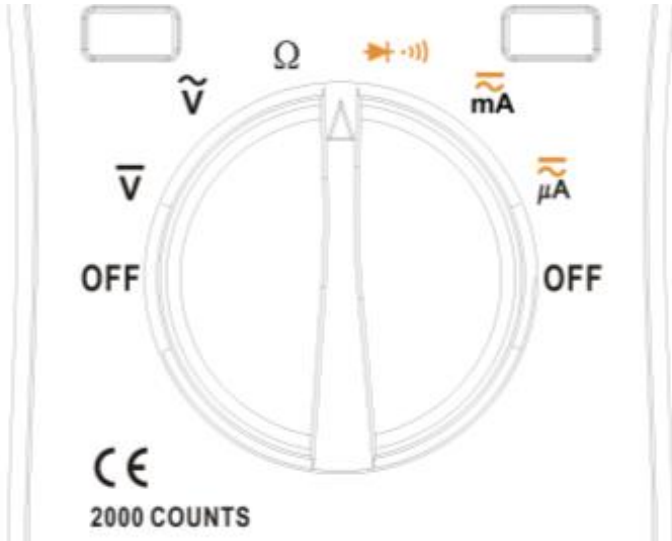
⑦	AUTO	Auto range. The product selects the range with the best resolution.
⑧	AC	Alternating current.
⑨	DC	Direct current.
⑩	▬	Negative readings.
k Ω M		Measurement units.

Function Buttons



①	Push for more than 2 seconds to turn on the backlight; long-push again to turn off or the backlight automatically turns off after 2 minutes.
②	Selects alternate measurement modes on a rotary switch setting, including: 1. Diode/Continuity 2. DC mA/AC mA 3. DC μA/AC μA

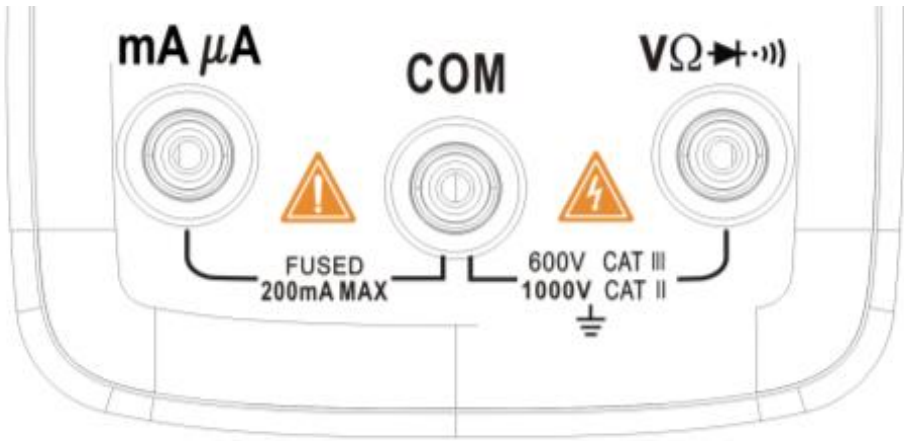
Rotary Switch



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 SEL button or turn the rotary switch back to the OFF position and then to a needed position.
V⎓	DC voltage ≤1000V
V~	AC voltage ≤750V

Ω	Ohms ≤20MΩ
	Diode test. Displays OL above 3V Continuity. Beeper turns on at ＜50Ω
	DC A ≤200mA AC A ≤200mA
	DC A ≤2000μA AC A ≤2000μA

Input Terminals



mA μA	Input terminal for AC/DC current measurements to 200mA.
COM	Common (return) terminal for all measurements.
VΩ	Input terminal for the measurements of: 1. AC/DC voltage 2. Resistance 3. Continuity 4. Diode

Measurements Instruction

Measure AC/DC Voltage

1. Connect the black test lead to the COM Terminal and the red lead to the VΩ Terminal.
2. Turn the rotary switch to V⎓ or to V~ .
3. Touch the probes to the correct test points of the circuit to measure the voltage.
4. Read the measured voltage on the display.

***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 mA μA Terminal.
2. Turn the rotary switch to mA⎓~ or μA⎓~ .
3. Press SEL to toggle between AC/DC.

4. Break the circuit path to be measured, connect the test leads across the break and apply power.
5. Read the measured current on the display.

***Do not measure current that exceeds the extremes as indicated in the Specifications.**
***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 VΩ Terminal.
2. Turn the rotary switch to Ω , and the display 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 for Continuity

1. Connect the black test lead to the COM Terminal and the red lead to the VΩ Terminal.
2. Turn the rotary switch to , press SEL once to toggle to the Continuity Mode.
3. Touch the probes to the desired test points of the circuit.
4. The built-in beeper will beep when the resistance is lower than 50Ω, which indicates a short circuit.

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

Test Diodes

1. Connect the black test lead to the COM Terminal and the red lead to the VΩ Terminal.
2. Turn the rotary switch to .
3. Connect the red probe to the anode side and the black probe to the cathode side of the diode being tested.

4. Read the forward bias voltage value on the display.
5. If the polarity of the test leads is reversed with diode polarity or the diode is broken, the display reading shows “ OL ”.

***Do not input voltage at this setting.**
***Disconnect circuit power and discharge all capacitors before you test diode.**

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）	1999 counts
Ranging	Auto
Material	ABS
Update Rate	3 times/second
Ture RMS	×
Data Hold	×
Backlight	√
Low Battery Indication	√
Auto Power Off	√

Mechanical Specifications	
Dimension	130*65*32mm
Weight	114g
Battery Type	1.5V AAA Battery * 2
Warranty	One year

Environmental Specifications		
Operating	Temperature	0~40℃
	Humidity	＜75%
Storage	Temperature	-20~60℃
	Humidity	＜80%

Electrical Specifications

Function	*Range*	*Resolution*	*Accuracy*
DC Voltage	200.0mV	0.1mV	±(0.8%+5)
	2.000V	0.001V	
	20.00V	0.01V	
	200.0V	0.1V	±(1.0%+8)
	1000V	1V	
AC Voltage	2.000V	0.001V	±(1.2%+5)
	20.00V	0.01V	
	200.0V	0.1V	
	750V	1V	±(1.5%+5)
DC Current (µA)	200.0µA	0.1µA	±(1.2%+5)
	2000µA	1µA	
DC Current (mA)	20.00mA	0.01mA	
	200.0mA	0.1mA	

Function	*Range*	*Resolution*	*Accuracy*
AC Current (μA)	200.0μA	0.1μA	±(1.5%+5)
	2000μA	1μA	
AC Current (mA)	20.00mA	0.01mA	
	200.0mA	0.1mA	
Resistance	200.0Ω	0.1Ω	±(2.5%+5)
	2.000kΩ	0.001kΩ	±(1.0%+5)
	20.00kΩ	0.01kΩ	
	200.0kΩ	0.1kΩ	
	2.000MΩ	0.001MΩ	
	20.00MΩ	0.01MΩ	±(2.5%+5)
Diode	√		
Continuity	√