6000counts

Automatic Scanning Digital Multimeter User's Manual

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一、 Overview

The 6000counts is a pocket-sized 3 5/6-digit RMS auto-scanning digital meter that does not require a dial to select a function. The meter will automatically recognize and measure based on the input voltage/current/resistance/current. It has stable performance, high precision, high reliability, clear reading and overload protection. Driven by AAA 1.5V battery, the instrument adopts large screen LCD display and adopts boost power supply. Even at the edge of 2.3V low battery, it can ensure the high brightness of backlight and flashlight. The meter is easy to carry and is very popular among users. The instrument's backlight can be turned on and off automatically after 15 seconds. This series of instruments available for automatic identification of DC voltage and AC voltage, DC current 1OA, resistance, does not require any switching, can manually switch to measure capacitors, diodes, continuity testing, and other parameters, is a superior performance tools and instruments, It is an ideal tool for laboratories, factories, radio enthusiasts and families.

二、Safety Precautions

This series of instruments is designed in accordance with IEC1010 (Safety Standards promulgated by the International Electrotechnical Commission), please read the safety precautions before use.

1. When measuring voltage, do not input a limit voltage exceeding the effective value of DC 1000V or AC 750V;
2. The voltage below 36V of the current file is a safe voltage;
3. When changing functions and ranges, the test pen should leave the test point;
4. Select the proper function and range, beware of wrong operation, although the series of instruments with a full-range protection, but for safety reasons, you still pay more attention;
5. Safety Symbol Description: “ ⚠ ” Exist dangerous voltage， “ ⏚ ” Ground ， “ ▣ ” Double insulation， “ ⚠ ” Operator must refer to the instruction manual， “ ▭ ” Low voltage symbol.

三、Characteristics

1. General Characteristics

1-1. Display: liquid crystal display (LCD)；
1-2. Maximum display: 5999 (3 5/6) bit automatic polarity display;
1-3. Measurement method: double integral A/D conversion;
1-4. Sampling rate: about 3 times per second;
1-5. Overrange display: The highest position shows “OL”;
1-6. Low voltage display： “ ▭ ” symbol appears；
1-7. Working environment：(0～40)℃，relative humidity＜80%；
1-8. Power: AAA 2* 1.5V battery;
1-9. Volume (size): 176×67×33mm (L×W×H)；
1-10. Weight：about300g（including 1.5V battery）；
1-11. Attachment: a manual, a certificate, a box, a pair of pen, two AAA1.5V battery.

2. Technical characteristics

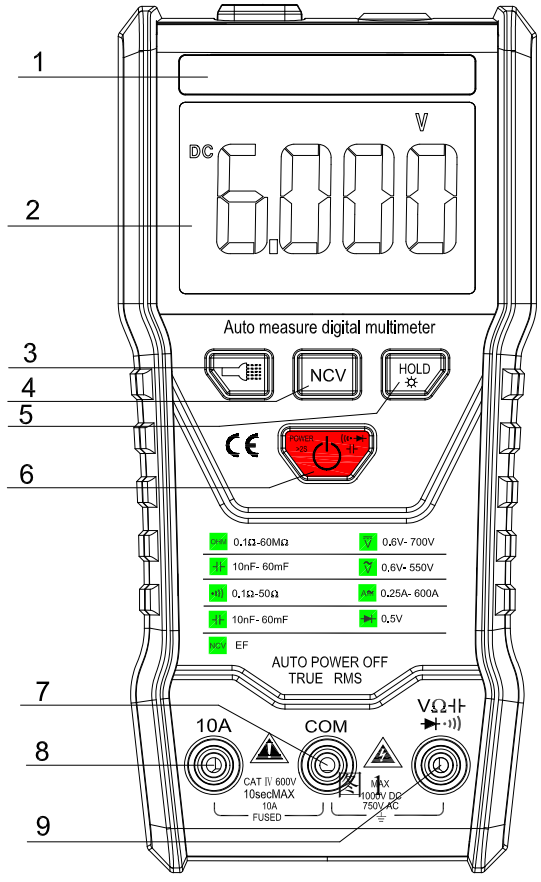
2-1. Accuracy ±(reading data of a%+ least significant digits), guaranteed accuracy environment temperature: (23±5)℃, Relative humidity <75%, calibration guarantee period from the date of manufacture for one year.

2-2. Performance (Note "▲" indicates that the table has this function)

Function	
DC voltage DCV	▲
AC voltage ACV	▲
DC current DCA	▲
AC current ACA	▲
Resistor / Diode / On-Off Test / Capacitor	▲
Frequency F	
Square wave output	
NCV	▲
Zero line / FireWire test	
Full unit symbol	▲
Backlight manual/Auto off	▲
True RMS measurement	▲
Temperature（℃/℉）	
Flashlight lighting	▲

四. Operation panel instructions

1. Product model label position;
2. LCD display;
3. Flashlight trigger button;
4. NCV measurement button, long press NCV button to measure electric field induction signal;
5. HOLD is the data hold button, long press for 2 seconds for the flashlight;
6. Function selection key SELECT, long press for 2 seconds to turn the power on and off;
7. COM input; negative input, insert black test pen;
8. 10A current input port;
9. Voltage, resistance, diode, capacitor, buzzer input port.



3．Technical Specifications

2-3-1．DC voltage / AC voltage automatic scanning test (DCV / ACV)

Accuracy / Range	6000counts	Resolution
DC/AC6V	±（0.5%+3）	0.001V
DC/AC60V		0.01V
DC/AC600V		0.1V
DC1000V/AC750V	±（0.8%+10）	1V

Input impedance: 10MΩ; Overload protection: 1000V DC or 750V AC peak.

The specific operations are as follows:

1. Press and hold POWER for more than 2 seconds, the boot will display the automatic scan status "----".
2. Insert the black test lead into the “COM” jack and the red test lead into the “V/Ω” jack; the test leads are reliably in contact with the test point.
3. When the measured voltage between the input port "COM" and "VR" is greater than 0.6V, regardless of the AC voltage or DC voltage, the meter will compare the DC component with the AC component, take the larger component signal, and then measure according to the measurement. The value is automatically switched between 6V/60V/600V/1000V, and the measured value is displayed on the LCD.

Note：

1) Do not exceed the input voltage of DC1000V or AC750V. If it exceeds, there is danger of damage to the instrument circuit. When high voltage circuit, pay special attention to avoid electric shock.
2) After completing all measurement operations, disconnect the test leads from the circuit under test.

2-3-2.Resistance（Ω）

Accuracy / Range	6000counts	Resolution
600Ω	±（0.8%+5）	0.1Ω
6kΩ	±（0.8%+3）	1Ω
60kΩ		10Ω
600kΩ		100Ω
6MΩ		1kΩ
60MΩ	±（2.5%+3）	10kΩ

Input impedance: 10MΩ; Overload protection: 1000V DC or 750V AC peak.

The specific operations are as follows:

1. The boot is displayed as an automatic scan status "----".
2. Insert the black test lead into the “COM” jack and the red test lead into the “V/Ω” jack; the test leads are reliably in contact with the test point.

3. If the measured resistance at both ends of the test leads is less than 50Ω, the beep will emit a continuous sound, which requires a fast buzzer measurement. Press the power button to enter the buzzer for quick measurement.
4. If the closed loop resistance is measured, the resistance across the resistor must be discharged. Otherwise, if the voltage in the loop is greater than 0.6V, the meter will mistakenly consider the voltage measurement and enter the voltage measurement mode.
5. Input resistance measurement value between input port "COM" and "V/Ω", the meter will automatically switch between 600Ω/6kΩ/60kΩ 600kΩ/6MΩ/60MΩ according to the measured value of the resistance, and then the measured value will be displayed on the LCD.

Note:

1）When measuring low resistance, the test leads will bring internal resistance. To obtain accurate readings, you can record the short value of the test leads first, and subtract the value when the test leads are shorted in the measurement readings;

2）When measuring the on-line resistance, please make sure that all the circuits under test must be turned off and all capacitors fully discharged in order to ensure the measured value accurately.

2-3-3. Fast turn-off test / diode / capacitor

Range	Display value	Test Conditions
"----"	Diode forward voltage drop	Forward DC current is about 1mA, open circuit voltage is about 3V
	The buzzer buzzes for a long time, and the test resistance is less than(50±20)Ω	Open circuit voltage is about 0.4V, press "power" for two-speed function switching

2-3-4. Capacitance(C)

Accuracy / Range	6000counts	Resolution
10nF	±（3.5%+20）	10pF
100nF		100pF
1uF		1nF
10uF		10nF
100uF		100nF
1mF		1uF
10mF		10uF
60mF	±（5%+3）	100uF

Overload protection: 1000V DC or 750V AC peak.

1. The boot is displayed as an automatic scan status "----".
2. Insert the black test lead into the "COM" jack and the red test lead into the "V/Ω" jack; the test leads are reliably in contact with the test point.
3. For fast on/off test/diode/capacitance measurement, continuously trigger the "power" switch to enter the fast on/off test/diode/capacitance

measurement in the second cycle, and select the corresponding function measurement according to the measurement requirements. When measuring the capacitance, the size of the measured capacitance will automatically select different ranges, and the measured value will be displayed on the LCD. The capacitance measurement position is 10nF/100nF / 1uF/10uF/100uF/1mF/10mF/60mF.

Note:

1）When measuring the capacitance with the 10nF file, the screen display value may have a residual reading, which is the distributed capacitance of the test pen, which is an accurate reading, which can be subtracted after the measurement;

2) When the large capacitance file measures severe leakage or breakdown capacitance, some values will be displayed and unstable; when measuring large capacitance, the reading takes several seconds to stabilize, which is normal when measuring large capacitance;

3）Please fully discharge the capacitor before testing the capacitor capacity, otherwise it will enter the voltage measurement mode.

4）Unit：1F=1000mF　1mF=1000uF　1uF =1000nF　　1nF=1000pF

2-3-4. AC and DC current (DC/ACV A)

Accuraacy / Range	6000counts	Resolution
6A	±（2%+30）	0.001A
10A		0.01A

Maximum measured pressure drop: 600mV; Overload protection: 10A

The specific operations are as follows:

1. The boot is displayed as an automatic scan status "----".
2. Insert the black test lead into the “COM” jack and the red test lead into the “V/Ω” jack; the test leads are reliably in contact with the test point.
3. When inputting more than 20mA current between "COM" and "10A", the meter will display the large component on the LCD according to the size of the AC and DC components.

Note：

1) Before the meter is connected in series to the loop to be tested, the power in the loop should be turned off first;
2) The maximum input current is 10A (depending on the insertion position of the red meter pens), not more than 10 seconds, excessive current will cause the circuit to heat, or even damage the instrument;
3) When the test leads are plugged into the current input port, do not connect the test leads to any circuit, which will damage the fuses and Instruments;

4）After the completion of all the measurement operation, you should first turn off the power and then disconnect the test leads and the measured circuit connection, Especially to high current measurement.

5) It is forbidden to input more than 36V DC, 25V AC voltage between the current jack and the "COM" jack.

2-3-5．NCV measurement

The specific operation is as follows:

1. Press and hold the “NCV” button to enter the EF measurement.

2. The front end of the meter has NCV test points. As long as the point is close to the AC voltage, the buzzer will emit different continuations according to the different strengths of the signals. At the same time, the LCD will display different number of segments according to the strength of the signal.

五. Automatic Startup & Shutdown

When the instrument stops using for about 15 minutes, the meter will automatically power off to enter the sleep state. To restart the power, press and hold the “power” button for more than 2 seconds, the LCD will display “----” for automatic scanning, and the automatic shutdown symbol “APO” will be displayed. Press and hold the "hold" key while the power switch is turned on, the automatic shutdown function will be canceled, no "APO" appears on the display.

symbol disappears, will cancel the automatic shutdown function.

六、Troubleshooting

If your instrument does not work, the following method can help you solve the general problem, if the fault still can not be excluded, please contact the service center or dealer.

Failure phenomenon	Inspection site and method
Not shown	Battery not connected
	Replace the battery
Low battery symbol	Replace the battery
Current is not input	Replace fuse
Resistance display error	The test pen is not in contact

This manual is subject to change without notice;

The contents of this manual are considered correct. If the user finds any errors, omissions, etc., please contact the manufacturer;

The company does not bear the accidents and hazards caused by the user's wrong operation;

The functions described in this manual are not intended to reasons of the product for special purposes.

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