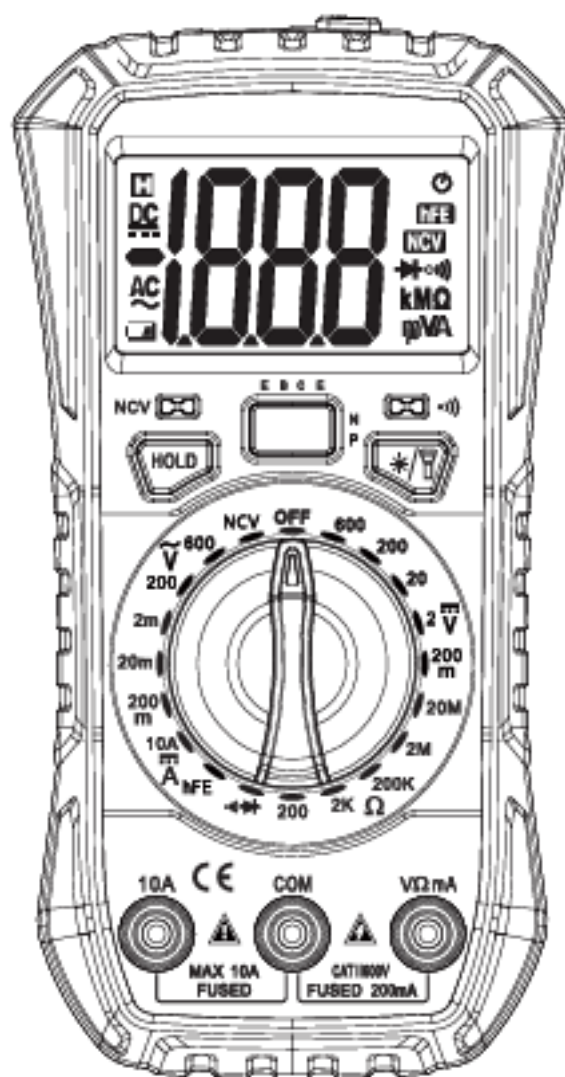


USERS MANUAL



DIGITAL MULTIMETER



Before using the instrument, please read this manual carefully, and save it well for future using.

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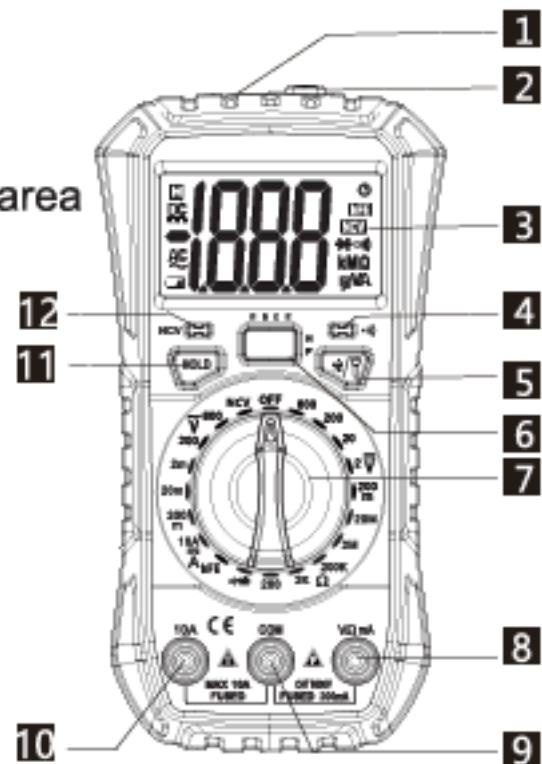
Brief introduction

This meter is a multipurpose instrument with high measurement accuracy, fast response speed and high safety level. It is embedded with a special chip with up to 2000 counts, which is composed of high-precision AD and high-speed digital processor. It has the advantages of accurate measurement, high resolution and fast operation speed. The whole unit is calibrated by software, and the accuracy is steady after long-term use.

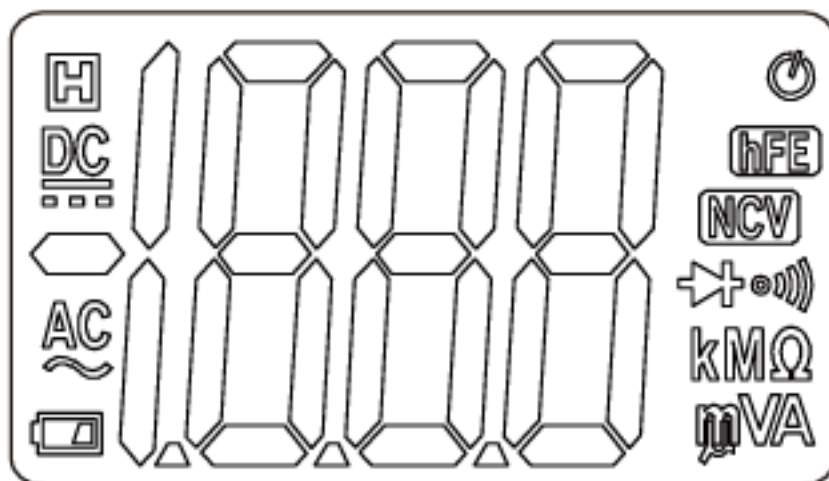
This instrument can be used to measure DC and AC voltage, DC current, resistance, diode and circuit on-off test, which can meet the needs of professional engineers and maintenance engineers.

I. THE PANEL SCHEMATIC

1. Lighting
2. NCV non-contact voltage sensing area
3. LCD
4. Beep indicator
5. Backlight and lighting buttons
6. hFE test socket
7. Gear rotary switch
8. $\mu\Omega$ mA input socket
9. COM (negative) input socket
10. 10A input socket
11. Lock button
12. NCV indicator lamp



II. THE DISPLAY SYMBOL DESCRIPTION



symbol	description
	Battery undervoltage indicator
	Automatic shutdown
	negative pole
	AC
	DC
	On-off buzzer.
	diode
	Transistor test

DISPLAY SYMBOL DESCRIPTION

	Data hold
NCV	Non-contact voltage measurement
V, mV	voltage
A, mA, μA	current
Ω, kΩ, MΩ	resistance

III. THE SAFETY MARK

	Warning, important safety sign, please refer to the manual before use. Improper use can cause damage to the equipment or its components.
	AC (alternating current)
	DC (direct current)
	earth
	Double insulation protection
	fuse wire
	Compliance with European Union directives
	High voltage warning
CAT III	Class III 600V overvoltage protection

IV. COMPREHENSIVE INDICATORS

- the maximum allowable voltage between the measuring terminal and the earth: AC/DC 600V.
- fuse protection: "mA" fuse F200mA/250V/"A" fuse F10A/250V.
- Conversion rate: about 3 times/second.
- Display: 1999 LCD display.
- Over-range indication: the LCD will display "OL".
- Battery low voltage indication: "  " will be displayed when the battery voltage is lower than normal working voltage.
- Input polarity indication: automatically display "-".
- power supply: 3×1.5V AAA battery.
- overall dimensions: 147mm(L)×78mm(W)×45mm(H).
- weight: about 220g (excluding the battery).

4.1 DCV

Range	Resolution	Accuracy
200mV	0.1mV	± (0.5% reading +5 digits)
2V	1mV	
20V	10mV	
200V	100mV	
600V	1V	± (0.8% reading +5 digits)

Input impedance: 1 MΩ Maximum input voltage: DC600V

4.2 ACV

Range	Resolution	Accuracy
200V	100mV	$\pm (1\% \text{ reading} + 10 \text{ digits})$
600V	1V	$\pm (1.2\% \text{ reading} + 10 \text{ digits})$

Input impedance: 1M Ω Maximum input voltage: AC600V

4.3 Resistance Ω

Range	Resolution	Accuracy
200 Ω	0.1 Ω	$\pm (1\% \text{ reading} + 3 \text{ digits})$
2k Ω	1 Ω	
200k Ω	100 Ω	
2M Ω	1k Ω	
20M Ω	10k Ω	$\pm (1.5\% \text{ reading} + 3 \text{ digits})$

Overload protection: 250V DC/AC

4.4 Diode and on-off buzzer

Diode test 	The approximate value of diode forward voltage drop is displayed on the display.
	When the internal resistance is lower than 30 Ω , the buzzer will sound and the red indicator will light up.

Overload protection: 250V DC/AC

4.5 Transistor

Range	Description	Test condition
hFE	The approximate value of hFE read by the display is (0-1000)	The base current is about 10 μ A Vce is about 2.8V.

4.6 DC current DCA

Range	Resolution	Accuracy
2mA	1 μ A (model A only)	$\pm$ (1% reading +5 digits)
20mA	10 μ A	
200mA	100 μ A	
10A	10mA	$\pm$ (3% reading +10 digits)

Overload protection: mA range fuse (F200 mA/250V);

10A range fuse (F10A/250V).

When the measuring current is greater than 5A, the continuous measuring time cannot be longer than 10 seconds, otherwise the welding spot may be melted due to high temperature.

Stop current measurement for 1 minute after measurement.

V. ROUTINE OPERATION

5.1 Reading hold

Press shortly to enter the "HOLD" MODE.

Keep the current reading on the display. Change the measuring function gear or press the HOLD key again can exit the reading holding.

5.2 Backlight and Lighting

The meter is equipped with backlight function and lighting function, which is convenient for users to accurately read the measurement results in dark places. Turn backlight on or off as follows:

1. Press the "/
" key shortly to turn on the backlight, and press it again shortly to turn off the backlight. If there is no operation, the backlight will be turned off automatically after 15S.2. Press the "/
" key for a long time to turn on the lighting and turn on the backlight at the same time. Press it again for a short time to turn off the lighting and backlight. If there is no operation for 30S, the lighting and backlight will be turned off automatically.

5.3 Automatic shutdown

If there is no operation after about 15 minutes of startup, the instrument will send out a dripping sound prompt, automatically cut off the power supply and enter the sleep state. You can restart the unit by pressing any key in automatic shutdown mode.

5.4 Measure AC or DC voltage

1. Turn the rotary switch to V or V position.
2. Connect black test pen and red test pen to COM input socket and V input socket respectively.
3. Measure the voltage value to be measured with the test pen tip.
4. Read the measured voltage value by the LCD. When measuring DC voltage, if the red test pen is connected to the negative pole of the voltage, the display will display "-"polarity symbol.

Note:

- ① At the range of DC 200mV and 2V , even if no test pen is input or connected, the instrument will also display something. In this case, short-circuiting "V-Ω" and "COM" terminals will make the instrument display return to zero, indicating that the instrument is normal.
- ② If "OL" is displayed on the display screen, indicating that it is out of range, please change to the corresponding higher range measurement.

5.5 Measure resistance

1. Turn the rotary switch to the "Ω" position.
2. Connect black test pen and red test pen to COM input socket and V/Ω input socket respectively.
3. Measure the resistance value to be measured with the test pen tip.
4. Read the measured resistance value by the LCD.

5.6 Test diode

1. Turn the rotary switch to the  position.
2. Connect black test pen and red test pen to COM input socket and V/Ω input socket respectively.
3. Measure the diode to be tested with the test tip.
4. The meter will display the forward bias value of the diode under test. If the polarity of the test pen is reversed, the instrument will display "OL".

5.7 On-off buzzer test

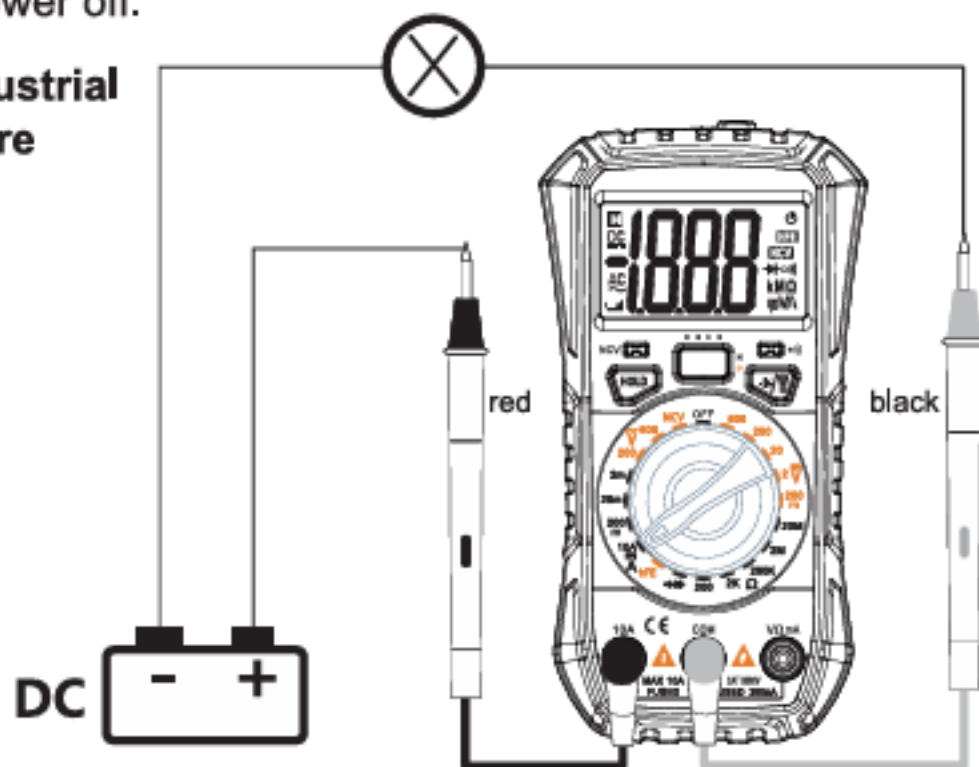
1. Turn the rotary switch to the  position.
2. Connect black test pen and red test pen to COM input socket and V/Ω input socket respectively.
3. Measure the resistance value to be measured with the test tip.

If the resistance value is less than 30Ω , the indicator light will light up and the buzzer will sound continuously.

5.8 Measure current

1. Turn the rotary switch to the "mA/A" position.
2. Connect the black test pen to the COM input socket. If the measured current is less than 200mA, connect the red test pen to the V Ω mA input socket; if the measured current is between 200mA and 10A, connect the red test pen to 10A input socket.
3. Connect the power to the circuit, and then read the displayed reading data. If the display only shows "OL", it means that the input exceeds the selected range, and the rotary switch should be set to a higher range after power off.

Load (all industrial appliances are collectively referred to as load)



5.9 NCV test (non-contact voltage test)

Turn the rotary switch to the NCV position, and place the top of the instrument close to the conductor. If the instrument detects AC voltage, the instrument lights up the indicator light according to the detected signal strength, and the buzzer sounds with different frequencies.

5.10 Measure transistor

1. Turn the rotary switch to hFE position.
2. Determine whether the transistor is NPN or PNP, and then insert the e.b.c pins of the transistor into the corresponding holes of the hFE test seat.
3. The approximate value of hFE of the transistor under test is read from the LCD.

VI. REPLACE BATTERIES AND FUSE

6.1 Replace batteries and fuse



To avoid electric shock or personal injury caused by wrong readings, when the instrument display appears "  ", please replace the battery immediately.

Only designated fuses (200mA250V, 10A250V fuse) can be used in order to avoid electric shock or personal injury, and before opening the battery cover and replacing the new battery, shut down and check that the test pen has been disconnected from the measured circuit.

REPLACE BATTERIES, FUSE AND ACCESSORIES

Please replace the battery and fuse according to the following steps:

Turn off the power supply.

Unplug all test pens from the input socket.

Loosen the screws that fix the battery cover or the back cover with a screwdriver.

Remove the battery cover or back cover.

Take away old batteries or damaged fuse.

Replace with new 3× 1.5V AAA No.7 battery or a new fuse.

Install the battery cover or back cover and tighten the screws.

6.2 Accessories

Instruction manual	x1
Test pen	A pair
1.5v AAA No.7 battery	3pieces

USERS MANUAL

MADE IN CHINA

CE RoHS



M101050132



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