USERS MANUAL

Made in China

M101040035

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

USERS MANUAL

Smart digital multimeter



120*90mm

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OVERVIEW

This instrument is smart digital multimeter with 10000 counting, multi-display and super big screen. It features easy operation, high precision, clear reading, overload protection and accurate measurement, high resolution and good portability.

It can measure alternating/direct range, data hold, temperature measurement, automatic shutdown, backlight, flashlight, full-range overload protection and battery under-voltage indication.Whether used by professionals, factories, schools, enthusiasts or families, it is an ideal multi-functional instrument.

It can be used for measurement of AC/DC voltage, AC/DC, resistance, capacitance, diode, continuity,and temperature,live wire identification and NCV test.

1. SAFETY INFORMATION

1.1 ATTENTION

⚠ Please read the manual carefully before use to prevent the possible electric shock or damage to the instrument.

1.1.1 When using the instrument, the user must abide by the standard safety rules:

1.1.2 After receiving the instrument, please check whether it is damaged during transportation and whether the probe is in good condition.

1.3.2 Instrument should be placed far away from high temperature, explosive, inflammable, greasy or dusty.

1.3.3 If the instrument is stained with dirt or dust, please clean it with a soft cloth.

1.3.4 In order to avoid electric shock caused by incorrect reading, when the instrument displays the symbol " ", the battery should be replaced immediately.

1.1.5 When the instrument is connected to the measuring circuit, the finger must be placed behind the probe sheath protection device, and it is forbidden to touch the top (metal part) of the probe.

1.1.6 If the measured voltage is higher than 60V DC or 30V AC (effective value), care should be taken, and the highest voltage measured at the COM port and the INPUT port should not exceed AC/DC 600V.

1.1.7 Before changing the measuring function, the probe should be removed from the circuit under test.

1.2 Marks

⚠	Attention (important safety information, see the instruction manual)
	It can be used on dangerous fire conductors.
	Double insulation protection (class II)
CE	Complies with the directives of the European Union
	Ground

1.3 Maintenance

1.3.1 Non-professional maintenance personnel are forbidden to open the bottom shell to adjust or repair the instrument.

1.3.2 Instrument should be placed far away from high temperature, explosive, inflammable, greasy or dusty.

1.3.3 If the instrument is stained with dirt or dust, please clean it with a soft cloth.

1.3.4 In order to avoid electric shock caused by incorrect reading, when the instrument displays the symbol " ", the battery should be replaced immediately.

1.3.5 After the instrument is used, turn off the power supply.

1.3.6 If the instrument is stored for a long time, the battery should be taken out to prevent leakage and corrosion.

1.3.7 The cycle of the instrument should be one year, and it is calibrated again under the conditions of 18°C ~ 28 °C and relative humidity less than 75%.

2. SPECIFICATIONS

Automatic range: Yes

Smart identification: Yes

Full-range overload protection voltage: 250V

The maximum input voltage at COM port and INPUT port: AC/DC voltage gear 600V

Operation altitude: Max. 2000m

Display: LCD

Maximal display value: 9999

Overrange display: OL or -OL

Sampling time: About 3 times/second

Automatic shutdown: About 5 minutes

Backlight: Auto turn off in about 2 minutes (only for normal screen)

Power supply: 2x1.5V AAA battery

Low battery: LCD display symbol

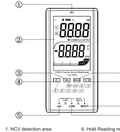
Working temperature: 0°C~40°C

Storage temperature: -10°C ~ 50°C

Dimension: 156x78x20mm

Weight (excluding battery) : 160g(batteries not included)

3. THE PANEL SCHEMATIC



1. NCV detection area
2. LED display
3. SEL function conversion
4. Power
5. mA input po
6. Hold Reading retention
7.Backlight/Flashlight
8. Input port
9. COM port

4. SYMBOL DESCRIPTION

4.1 Description of display symbols

Symbols	Description
	Low battery
	Automatic shutdown function
HOLD	Reading hold mode
	High voltage warning
Smart	Smart measurement
	AC voltage
	DC voltage
°C/°F	Temperature
	Diode test
	Continuity test
Ω	Resistance
uF	Capacitance
Hz	Frequency
mA	Current
NCV	Non-contact AC voltage detection
Live	Live fire identification

4.2 Description of buttons

	Power on/off
SEL	Function selection
HOLD	Data hold
+ /	Backlight/flashlight

4.3 Description of input port

Input socket	Description
COM	The COM port is connected with the black probe.
INPUT	The INPUT port of AC/DC voltage, resistance,capacitance, diode, continuity, temperature and live wire identification is connected with the red probe.
mA	The input port of current is connected with the red probe.

5. FUNCTIONS

5.1.( ) long press to turn on or off the power. Smart mode is the default when power is on, which can identify AC/DC voltage, resistance,capacitance, diode, continuity test.

5.2.SEL function switch button: short press SEL button to switch to NCV, Live, capacitance, temperature, continuity, diode and long press SEL button to resume Smart mode.

5.3.HOLD: short press to lock the measured data, short press the HOLD button again to exit the data lock, and long press the HOLD button to switch °C/°F.

5.4.(/)/ flashlight/flashlight: short press(/)key to turn on or off the flashlight (only for normal screen), long press(/)key to turn on or off the flashlight (about two minutes to turn off automatically).

5.5 Current switch:when the red probe in plugged into the mA input port, the meter automatically switch the current. Press SEL to switch to AC/DC according to the measurement.

5.6 Automatic shutdown function: If there is no operation for about 5 minutes, the instrument will automatically shut down.

5.7 Under-voltage indicator of battery:when appears on the screen, it means that the battery is low; please replace the battery in time.

6. OPERATION GUIDE

6.1 Smart mode

(1)Smart mode is the default when power is on. It can measure AC/DC voltage, resistance, diode and continuity test.

(2) Plug the black probe into the COM port, and the red probe into the INPUT port.

(3) Connect the red and black probe to the circuit under test.

When the measuring gear is at the NCV, Live, capacitance, temperature, continuity, or diode, long press SEL to resume Smart mode.

6.2 NCV detection

Short press the SEL button to switch to NCV: non-contact AC voltage detection. Close the the meter to the conductor,and the meter judges the measured voltage according to the intensity of the detected voltage signal.

When the AC voltage is detected, L,M and H are displayed respectively on the screen simulation bar for the low ,middle and high voltage, the buzzer gives out warnings with different frequencies.

Notes:

(1) Even if there is no indication, the voltage may still exist. Don't rely on non-contact voltage detection to determine whether there is voltage in the wire.

(2) The detection process may be affected by factors such as socket design, different insulation thickness and types.

(3)External interference sources (such as flashlights, motors, electromagnetism, etc.) may mistakenly trigger non-contact voltage detection.

6.3 Live wire identification

Short press the SEL button to switch to Live wire identification. Plug the red probe into the INPUT port, when closing the the meter to the conductor, L,M and H are displayed on the screen simulation bar respectively for the low ,middle and high voltage, the buzzer gives out alarm,the tested circuit is live wire , or it's the zero wire or earth wire.

Notes:

(1) Before use, please test on the known electric conductor to make sure the meter is in good condition.

(2) When using Live wire identification, please plug the red probe into the INPUT port and unplug the black probe against electric shock.

6.4 Capacitance

(1) Short press the SEL button to switch to the (uF) gear.

(2) Plug the black probe into the COM port, and the red probe into the INPUT port.

(3) Connect the red and black probe to the measured capacitance.

Notes:

①When measuring the capacitance, it is necessary to discharge the capacitance first, and the instrument will charge the capacitance during the measurement, and it will take some time for the stable measurement.

6.5 Temperature

(1) Short press the SEL button to switch to the (°C/°F) gear, plug the red port of the K thermocouple into the INPUT port and the black port into the COM port, and the thermocouple probe contacts the object to be measured.

6.6 Continuity test

(1) Short press SEL button to select ( ) continuity gear.

(2) Plug the black probe into the COM port, and the red probe into the INPUT port.

(3) Connect the red and black probe to the circuit under test.

Notes:

When the resistance value of the tested circuit is less than about 30Ω, the buzzer makes continuous sounds .

6.7 diode

(1) Short press SEL button to select the ( ) gear.

(2) Plug the black probe into the COM port, and the red probe into the INPUT port.

(3) Connect the red and black probe to the diode under test.

Notes:

When measuring a normal diode, the meter displays the forward voltage drop of the diode under test.

6.8 AC/DC

(1)Plug the red probe into the mA input port, the meter automatically switches the current gear.

(2)Short press SEL button to switch AC/DC according to the test requirements.

(3)Connect the red and black probe into the tested circuit.

Notes:

(1) The maximum measured AC/DC is 600mA.

(2) When the red probe is plugged into the mA input port, please check whether the fuse is broken if the current gear is not switched.

7. TECHNICAL INDICATORS

7.1 DC voltage

Range	Resolution	Accuracy
1V	0.001V	± (0.5% reading +3 digits)
10V	0.001V	
100V	0.1V	± (0.8% reading +3 digits)
600V	0.1V	

Input impedance: 1MΩ. The maximum input voltage: 600V

7.2 AC voltage

Range	Resolution	Accuracy
1V	0.001V	± (0.5% reading +3 digits)
10V	0.001V	
100V	0.1V	± (0.8% reading +3 digits)
600V	0.1V	

Input impedance: 1MΩ. The maximum input voltage: 600V

Frequency response: 40Hz-400Hz

7.3 Resistance

Range	Resolution	Accuracy
9999Ω	1Ω	
10KΩ	0.1kΩ	±(0.8% reading + 3digits)
1MΩ	0.1MΩ	
10MΩ	0.001MΩ	±(1.0% reading + 5digits)

Overload protection: 250V /open circuit voltage: 1.2V

7.4 Diode

Function	Range	Resolution	Test condition
Diode test	0.15V-2.5V	0.001V	Forward DC current: about 1mA; Open circuit voltage: about 2.3V;

Overload protection: 250V

7.5 Continuity test

Function	Range	Resolution	Description	Test condition
	100Ω	0.21Ω	When the resistance is less than 30Ω, the buzzer sounds.	Open circuit voltage: about 1V

Overload protection: 250V

7.6 Capacity

Range	Resolution	Accuracy
1uF	0.1uF	
10uF	0.1uF	
100uF	0.1uF	± (4% reading+10digits)
1000uF	0.1uF	
6000uF	1uF	± (5% reading+10digits)

Overload protection: 250V

7.7 DC

Range	Resolution	Accuracy
100mA	0.1mA	± (0.8% reading + 10digits)
600mA	0.1mA	

Maximum input current: 600mA

7.8 AC

Range	Resolution	Accuracy
100mA	0.1mA	± (1.2% reading + 10digits)
600mA	0.1mA	

Maximum input current: 600mA, frequency range: 40Hz ~ 400Hz

7.9 Temperature

Range	Resolution	Accuracy
-20 ~ 1000°C	1°C	± (2.0% reading + 2 digits)
-4 ~ 1832°F	1°F	± (2.0% reading + 4 digits)

Overload protection: 250V

8. BATTERY REPLACEMENT

⚠ In order to avoid electric shock or personal injury caused by wrong readings, when the instrument display appears" ", replace the battery immediately.

Before opening the battery cover and replacing the new battery, shut the meter down and check that the probe has been disconnected from the measured circuit.

1. Turn off the power supply.
2. Pull the probe out of the tested circuit.
3. Unscrew the screws fixing the battery cover with a screwdriver.
4. Remove the battery cover.
5. Remove the old battery.
6. Replace with new 2 x 1.5V AAA batteries.
7. Install the battery cover and tighten the screws.

9. ACCESSORIES

1. Multimeter	One
2. Instruction manual	One
3. Probe	A pair
4. 1.5x2 AAA battery	Two
5. Thermocouple	One