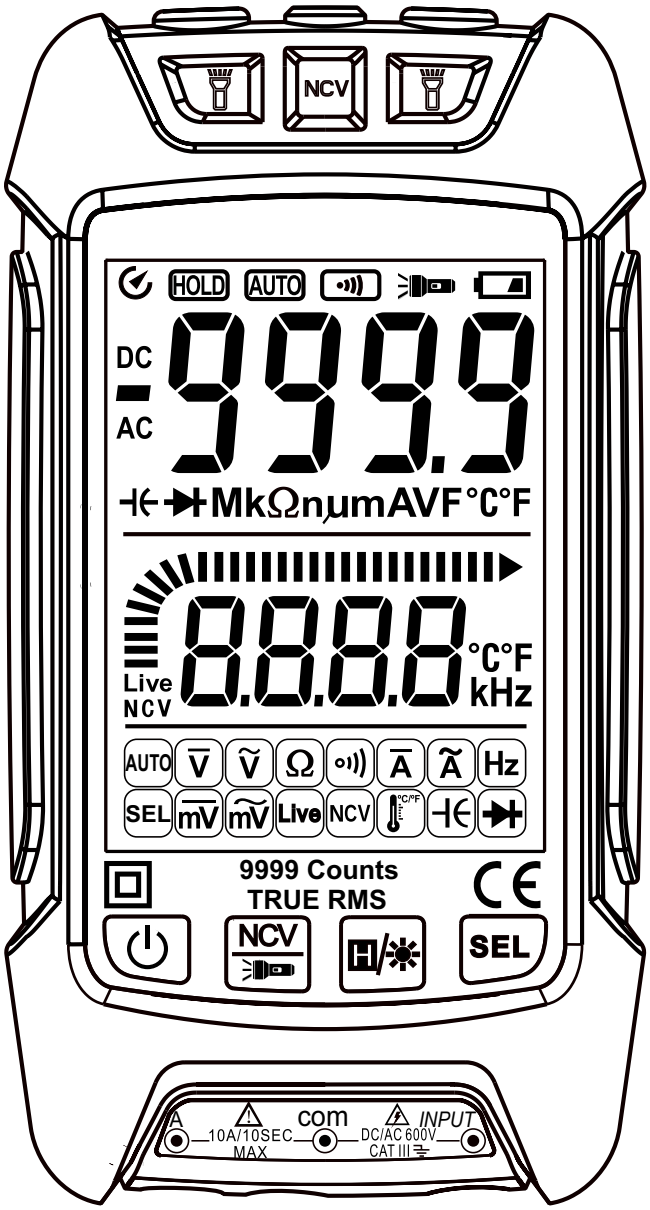
USERS MANUAL

Intelligent digital 9999 counting multimeter



CE

Designed and Conforms to
IEC61010-1
CAT.III 600V

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

directory

1.Safety information

warning

To fully understand the function of the meter and ensure safe operation, please read and follow it carefully Follow the use method of this manual.

Special care should be taken when using this meter, improper use may cause electric shock or damage to the meter. In use, it should follow the usual safety regulations and take effective safety precautions.

The instrument meets the safety requirements of IEC-61010-1, IEC-61010-2-030, IEC-61010-2-032) electronic measuring instrument, belongs to secondary pollution, and the overvoltage standard is CAT III 600V

Please follow the safety operation guide and use the meter safely.

1.1Safety instructions

1.1.1 When using the meter, users must follow standard safety rules

' -Universal protection against electric shock

' -Prevent misuse of meter

1.1.2 After receiving the meter, check for damage in transit.

1.1.3 After storage and shipment in poor condition, check and confirm whether the meter is damaged.

1.1.4 The pen must be in good condition. Before use, check whether the insulation of the pen is damaged and whether the metal wire of the wire is exposed

1.2Electrical symbols

⚠ Note (For important safety information, please refer to the instruction manual)

Can be used on dangerous charged objects

Double insulation protection (Class II)

CAT III In accordance with iec-61010-1 overvoltage (installation) Class II, contamination level 2 refers to the level of voltage protection provided to withstand pulses.

CE Comply with European Community (EU) standards.
⏚ Grounding

1.3maintenance

1.3.1Do not attempt to open the bottom case to adjust or repair the instrument. Such operations should only be performed by technicians who are fully aware of the instrument and the risks of electric shock.

1.3.2The pen should be removed from the line under test before opening the instrument backing.

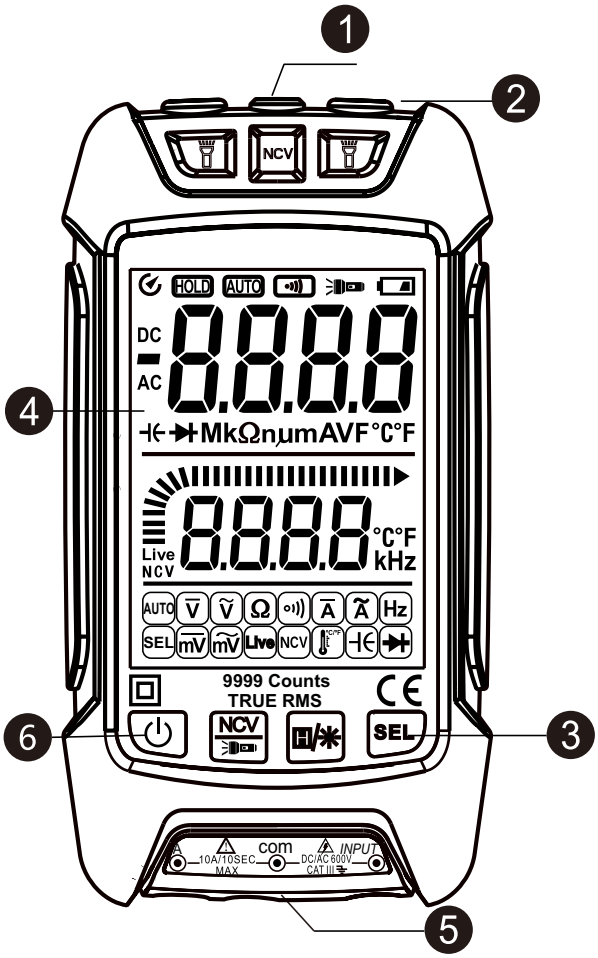
1.3.3To avoid electric shocks that may be caused by incorrect readings, charge the meter immediately when it shows the " ▭ " symbol.

1.3.4Clean the meter with a damp cloth and mild detergent. Do not use abrasives or solvents.

1.3.5Turn off the power when the meter is not in use.

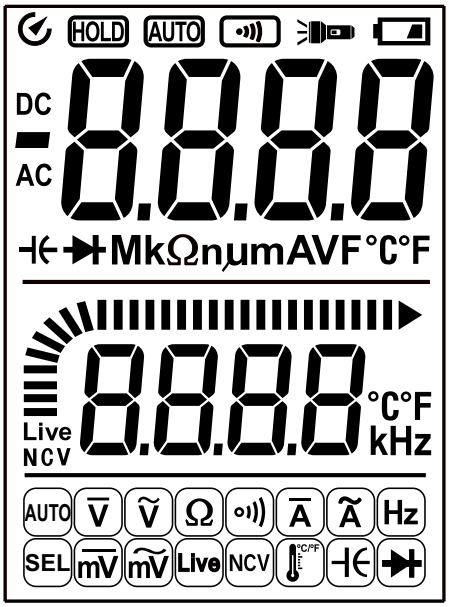
2describe

2.1 Part name



1. Non-contact voltage detection sensing area
2. Flashlight
3. Function switch button
4. LCD display monitor
5. Input socket
6. The power button

2.2 LCD touch display



~ ⎓	AC & DC
•))	Connection/Disconnection indication
AUTO	Automatic range mode
	Automatic shutdown indication
	Low battery
	Reading hold state
V,A	Volt (voltage), ampere (current)
Ω, kΩ, MΩ	Ohm kilohm and megohm (resistance)
Hz	Hertz
	DIODE
nF uF mF	Microfarad
℃ ℉	Centigrade and Fahrenheit
NCV	Non-contact voltage detection
Live	The line of fire test

3. Technical indicators

Gauges shall be specified for a period of one year, between 18°C and 28°C, with relative humidity less than Recalibration in 75% condition.

3.1 Comprehensive Indicators

1.Automatic selection of measuring function and range.

2.Full range overload protection.

3.The maximum voltage between the measuring end and the ground is 1000V DC or 750V AC

4.Working height: maximum 2000m

5.Display: LCD

6.The maximum display value is 9999 digits.

7.Polarity indication: automatic indication, '-' indicates negative polarity.

8.Superview display: 'OL' or '-OL'.

9.Sampling time: about 3 times/second

10. Unit display: with function, electric quantity unit display.

11. Automatic shutdown time: 15 minutes

12. Power supply: Two 1.5V AAA 7 batteries

13. Battery undervoltage indicator: LCD  symbol.

14. Temperature coefficient: less than 0.1X accuracy /°C

15. Operating temperature: 0° C-40 ° C

16. Storage temperature: -10°C- 50°C

3.2Technical indicators

3.2.1Alternating current

Range	Resolution	Accuracy
999.9mA	1mA	± (1.0% reading + 8 digits)
10A	0.01A	

- Minimum input current 20mA AC current
- Maximum input current 10A AC current
- Frequency range: 40HZ-1000Hz;

3.2.2Dc current

Range	Resolution	Accuracy
999.9mA	1mA	± (1.0% reading +5 digits)
10A	0.01A	

- Minimum input current 20mA DC current
- Maximum input current 10A DC current

3.2.3Dc voltage

Range	Resolution	Accuracy
600.0mV	0.1mV	± (0.5% reading + 3 digits)
9.999V	0.001V	
99.99V	0.01V	
999.9V	0.1V	

- In AUTO mode, the input voltage ranges from 0.5V to 1000V DC
- The input voltage ranges from 0.0mV to 600.0mV DC in mV mode

Note:

In the mV range, with the input open, the meter may have a pulsating reading, This is normal because of the high sensitivity of the meter when connected to the pen When you measure the circuit, you get a true measurement.

3.2.4Ac voltage

Range	Resolution	Accuracy
600.0mV	0.1mV	±(0.8% reading + 5 digits)
9.999V	0.001V	
99.99V	0.01V	
999.9V	0.1V	

- In AUTO mode, the input voltage ranges from 0.5V to 1000V AC
- In mV mode, the input voltage ranges from 0.0mV to 600.0mV AC
- Frequency rate pattern: 40HZ-1000Hz

3.2.5Line connection test

Range	Resolution	explain
•))	0.1Ω	If resistance of the line being measured is less than 50Ω, buzzer in instrument will make continuous alarming sounds.

- Overload protection: 600V DC or AC (valid value)

3.2.6 Resistance

Range	Resolution	Accuracy
999.9Ω	0.1 Ω	± (0.8% reading + 3 digits)
9.999KΩ	0.001 kΩ	
99.99KΩ	0.01 kΩ	
999.9KΩ	0.1 kΩ	
9.999MΩ	0.001MΩ	
99.99MΩ	0.01 MΩ	

- Input protection: maximum 600V DC or AC valid value.

3.2.7Diode

Range	Resolution	Accuracy	
Diode test 	1 V	0.001V	Testing current:about 1mA; Open circuit voltage : about 2.8V。 The display shows an approximation of the diode forward pressure drop

- Input protection: the maximum value is 600V DC or AC.

3.2.8Capacitance

Range	Resolution	Accuracy
9.999nF	0.001nF	± (10%reading+ 40digits)
999.9nF	0.1nF	±(2.5%reading+20 digits)
9.999uF	0.001 uF	
99.99uF	0.01 uF	
999.9uF	0. 1 uF	
9.999mF	1 uF	
99.99mF	0.01mF	

- Input protection: the maximum value is 600V DC or AC.

3.2.9The temperature

Range	Resolution	Accuracy	
℃	1℃	-40℃~ 1000℃	± (1% reading +3℃)
℉	1℉	-40℉~ 1832℉	± (1% reading +3℉)

- Accuracy does not include error of thermocouple probe.
- Overload protection 250V DC or AC (valid value)

3.2.10Frequency

3.2 .10.1 Pass grade A:

Range	Resolution	Accuracy
100.0 Hz	0.1Hz	± (1.0%reading+ 5digits)
1000Hz	1Hz	

- Measuring range: 40HZ-1000Hz
- Input signal pattern: > 3A AC current (Effective Value)

3.2.10.2 Through V gear:

Range	Resolution	Accuracy
100.0 Hz	0.1Hz	± (1.0%reading+ 5digits)
1000Hz	1Hz	

- Measuring range: 40HZ-1000Hz
- Input signal pattern: > 0.8V AC current (Effective value)

4.Operational guidelines

4.1Reading hold

In the process of measurement, if you need to hold the reading, touch the **H** key, the display value will be locked, touch the **H** key again, can remove the reading hold.

4.2Flashlight

Long press the button to turn on the lighting function of the flashlight barrel, which will be automatically turned off after about 5 minute.。

4.3Automatic shutdown

4.3.1If there is no operation within 15 minutes after startup, the meter will enter hibernation state and automatically shut down to save electric energy. The buzzer has one sound one minute before the shutdown.

4.3.2After automatic shutdown, press the power button to wake up the instrument to work.

4.4Preparation before measurement

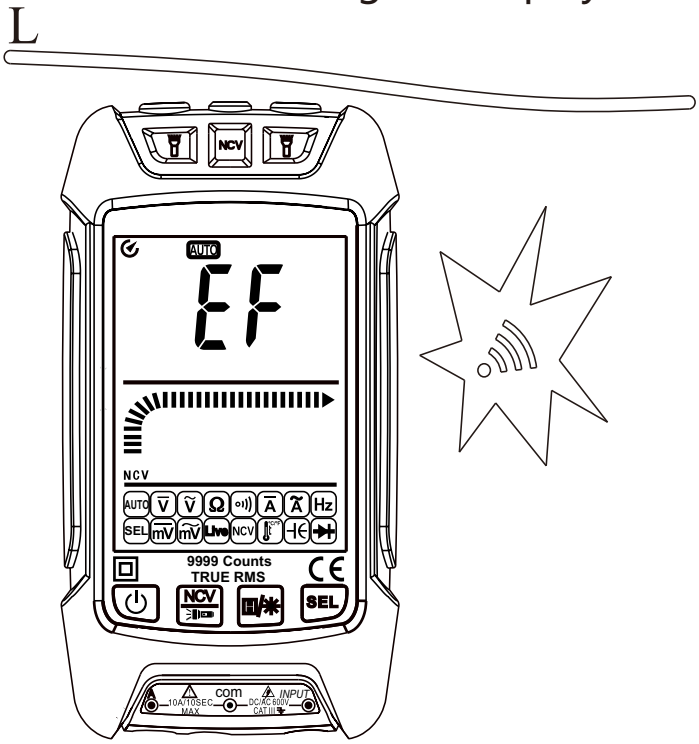
4.4.1 Tap the power source button to power on. If the battery voltage is low (about 2.8V), the monitor will display " " symbol, then should charge. Press the power button again to turn it off.

4.4.2 When the instrument is not measured, the instrument enters the automatic scanning state and the instrument displays AUTO

4. 5 Non-contact Voltage Detection (NCV)

4.5.1Touch the NCV key to enable the NCV function, and the instrument displays NCV

4.5.2The NCV sensor is placed close to the measured wire, and the instrument can detect whether the measured wire is gt. 90V ac voltage. When the meter detects the ac power, the meter buzzer alarms and the LCD analog bar displays the induction intensity.



Note:

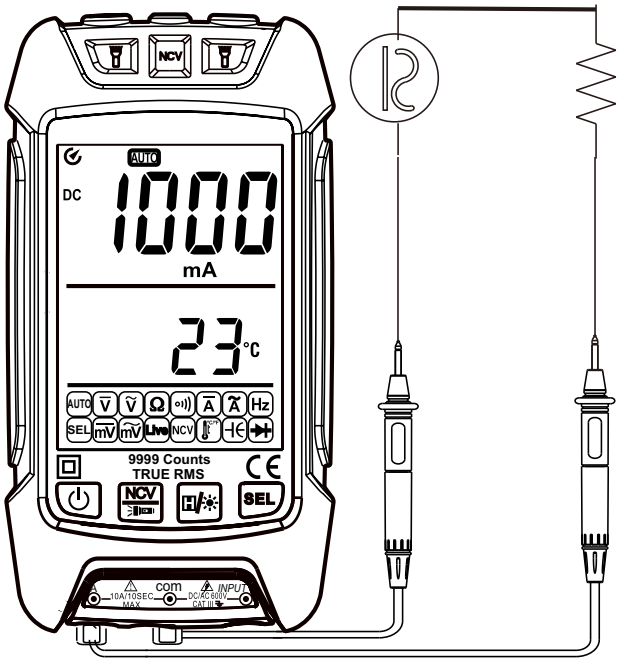
1) Voltage may still exist even if there is no alarm indication. Do not rely on contactless voltage detectors To see if there's a voltage on the wire. Probe operation may depend on socket design, insulation thickness Different types of factors such as the impact.
2) In NCV mode, the meter does not measure voltage, resistance, and current at the same tim

4.6Ac-dc current measurement

4.6.1Insert the stylus into the 10A current input hole, and the current input terminal is inserted into the stylus automatic identification function on on Automatically enters the default DC current gear of the current gear system. Remove the 10A current input hole and the stylus automatically jumps out of the current gear and enters the AUTO measurement mode

Note:

When the meter is in diode gear, the pen is inserted into the 10A input hole and the meter will not enter current gear.



4.6.2Connect the pen into the measured signal, when the measured signal > The meter will display the current measured value at 20mA. When measured ac signal > At 3000rnA, the instrument pair displays the AC current frequency.

4.7Dc voltage measurement

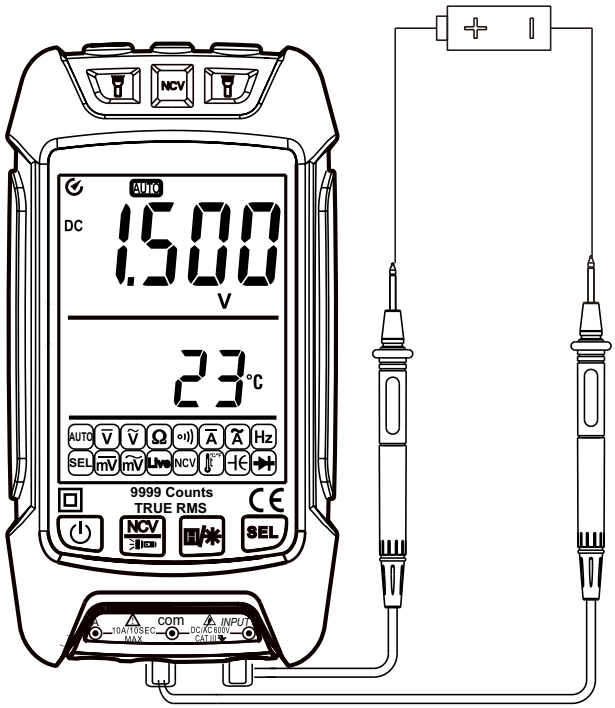
Insert the black stylus into the COM jack and the red stylus into the V jack. Connect the markers together The voltage source or load ends are measured and read on the LCD.

AUTO automatic measurement mode:

when the measured signal > At 0.5V, the meter will display the current measured DC voltage value. When the signal being measured. At 0.5V, the meter will default to the resistance value and display the internal resistance value of the measured signal.

Press " SEL " key to switch to DC mV The voltage profile. Connect the pen to both ends of the voltage source or load for measurement, reading on the LCD.

DC mV measurement mode:
when the measured signal < At 600.0mV, the meter will display the current measured DC voltage value. When the measured signal > The meter will display "OL" at 600.0mV.

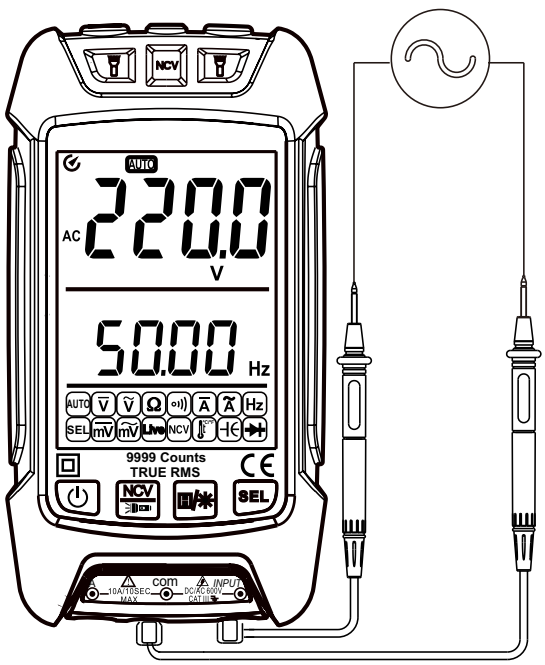


4.8Ac voltage measurement

Insert the black stylus into the COM jack and the red stylus into the V jack. Connect the pen to both ends of the voltage source or load for measurement, reading on the LCD.

AUTO automatic measurement mode:
when the measured signal > At 0.5V, the meter will display the current measured AC voltage value. When the signal being measured. 0.5 VInstrument will default to the resistance value, display the measured signal internal resistance value.

Press "SEL" to switch to AC mV voltage.Connect the pen to both ends of the voltage source or load for measurement, reading on the LCD.



AC mV measurement mode:
when the measured signal < At 600.0mV, the meter will display the current measured AC voltage value. When the signal is measured> The meter will display "OL" at 600.0mV."

4.9 Resistance measurement

warning

When measuring the impedance on the line, make sure that the circuit is disconnected and the capacitor on the circuit discharges completely.

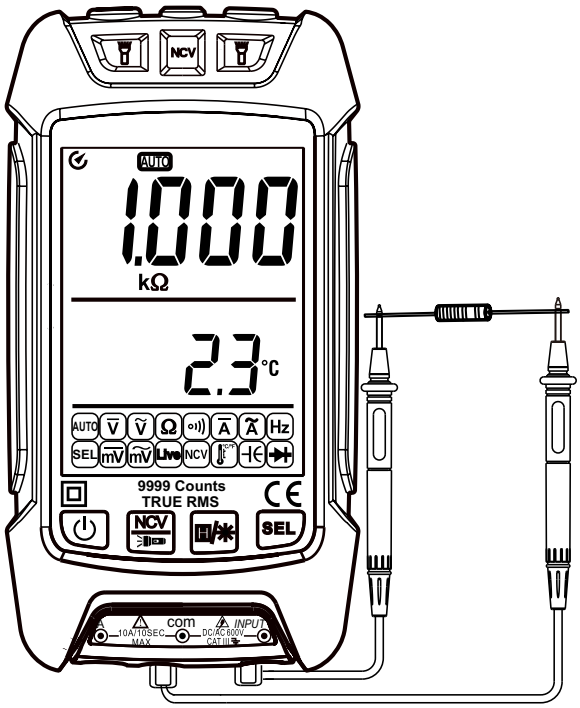
4.9.1 Insert the black stylus into the COM jack and the red stylus into the " Ω " jack.

4.9.2 AUTO AUTO range tap. At this time, the meter is in automatic scanning state.

4.9.3 Connect the pen to the measured resistance or both ends of the line for measurement, reading in the LCD display.

Note:

1) When the input is open, the LCD will display the "OL" overrange status.
2) If the resistance being measured is higher than 10MΩ, the meter may take several seconds to stabilize the reading, which is normal for high resistance readings.



4 .10 The line of fire test

4.10.1Press "SEL" key to switch to LIVE gear, the instrument shows LIVE

4.10.2Connect the red test pen to the Live input socket. Insert the single pen into the power socket L jack or close to the live wire. If the instrument detects ac voltage, it will display voltage signal strength according to the detected signal strength, and the buzzer will give alarm sound of different intensity.

4 .11Capacitance measurement

4.11.1Press the "SEL" key to switch to capacitor gear.

4.11.2Use the other end of the test pen to measure the capacitance value of the capacitor to be measured and read the measured value from the LCD.

Note: 1)When measuring large capacitors, a fixed time is required to stabilize readings.

2)When measuring polar capacitors, pay attention to the corresponding polarity to avoid damaging the instrument.

4 .12Temperature measurement

Press "SEL" to switch TEMP files, thermocouple red plug into the end of °C /°F, black plug into the COM jack. When the reading is stable, the temperature can be read directly from the display screen.

Note:

The maximum measurement temperature of type K thermocouple is 250°, instantaneous measurement up to 300°C.

4.13Diode test

4.13.1 Insert the black stylus into the COM jack and the red stylus into the " ⏭ " jack.

4.13.2 Touch SEL key to switch to diode position.

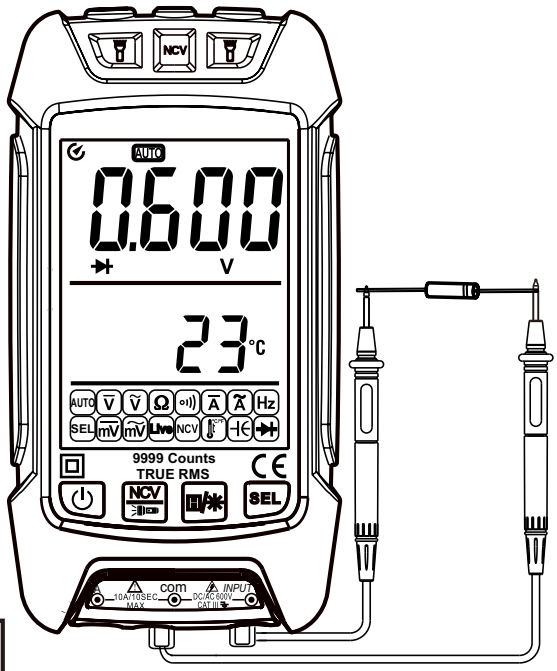
4.13.3 Connect the red stylus to the diode anode and the black stylus to the diode cathode for testing.

4.13.4 Read on the LCD.

Note:

The meter displays an approximation of the forward voltage drop of the diode.

If the pen is connected inversely or the pen is open, the LCD displays "OL".



4 .14Line connection test

warning

Danger of electric shock.

When testing the circuit on and off, make sure the circuit is disconnected and the capacitor on the circuit is completely discharged

4.14.1Insert the black marker into the COM jack and the red marker into the " ·)) " jack.

4.14.2Touch the "SEL" key to switch to the line connection test state.

4.14.3Connect the pen to both ends of the line for measurement.

If the resistance of the measured line is less than 50 Ω, the buzzer inside the meter will sound.

Note:

If the meter is open or the resistance of the measured line is greater than 999.9Ω, "OL" is displayed.

5.Maintenance

5.1 Replace Battery

warning

When replacing the battery, remove the pen from the measuring circuit to avoid electric shock.

5.1.1 the "▭" symbol indicates that charging is needed.

5.2Replace the test pen

warning

When replacing the stylus, you must replace the same or the same grade of the table. Pen meter must be in good condition, pen grade: 1000V 10A.

Note:

If the insulation layer of the pen is damaged, such as exposed wire of the wire, the pen must be replaced.

6.The attachment

1)Test the pen	Grade: 1000V 10A	A pair of
2)Directions for use		A copy of the
3)thermocouple		a


Designed and Conforms to
IEC61010-1
CAT.III600V


ADBel Powertech Inc.
Green Product
RoHS