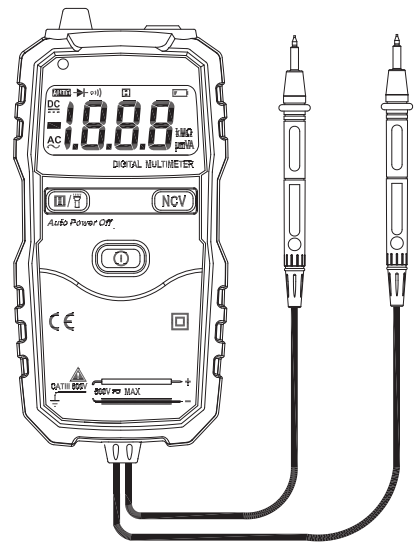


# USERS MANUAL

## Mini Auto Digital Multimeter



EMC&LVD

Designed and Certified to  
IEC61010-1  
CAT.III600V



Designed and Certified to  
IEC61010-1  
CAT.III600V

Y01-04-0080A0

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

尺寸：115X80MM

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## 1. The Statement

In accordance with the international copyright law, without permission and written consent, shall not copy the contents of this manual in any form (including storage and retrieval or translation into languages of other countries or regions). The manual is subject to change in future edition without prior notice.



“Caution” mark refers to the condition and operation which may cause damage to the instrument or equipment.

It requires that you must be careful during the execution of the operation. If incorrectly perform the operation or do not follow the procedure, it may damage the instrument or equipment. In the circumstances that such conditions are not met or not fully understood, please do not continue to perform any operation indicated by the caution mark.



“Warning” mark indicates the condition and operation which may cause danger to users.

It requires that you must pay attention during the execution of this operation. If incorrectly perform the operation or do not follow the procedure, it may result in personal injury or casualties. In the circumstances that such conditions are not met or not fully understood, please do not continue to perform any operation indicated by the warning mark.

*Before using the instrument, Please read this manual carefully and pay attention to the relevant safety warning information.*

## 2. Overview

The instrument is a portable digital multimeter. It has stable performance, high precision, low power consumption, novel structure. Safe and reliable, it's an ideal measuring instrument for the majority of users.

The instrument can measure DC voltage, AC voltage, resistance and connectivity; with non-contact voltage detection function, timely remind the user to pay attention to operation safety, so it's more safe and rest assured for user to use.

This manual includes the relevant safety information, warning notices and so on, please read the related contents carefully before using the instrument, and strictly follow all warnings and precautions.

## 3. Safety Instructions

The instrument is designed and manufactured strictly in accordance with the safety standard IEC61010 and in conformity with double insulation, over-voltage standard 600V CAT III and pollution level 2 safety standards.

Please follow the manual to use the instrument, otherwise the protection function provided by the instrument may be reduced or invalid.

## 4. Safety Operation Specification



### Warning












**In order to avoid possible electric shock or personal injury, please abide by the following specification:**

- ⇒ Before using the instrument, please read the "Safety Instructions" in advance. Use the instrument in strict accordance with the provisions, otherwise the protection ability provided by the instrument may be reduced or invalid.
- ⇒ Check the external shell firstly before using the instrument. Check whether there are any cracks or defects on the plastic parts. Please carefully check the insulator near the input terminal.
- ⇒ If the instrument is not working properly or damaged, please do not use.
- ⇒ Do not touch the electrified body with more than 30V true effective value AC, 42V AC peak or 60V DC.
- ⇒ The instrument shall be used according to the specified measurement category, voltage or current rating.
- ⇒ When it shows low battery indication, please replace the battery in time in case of any measurement error.
- ⇒ Please comply with local and national safety code. Wear personal protection equipment (such as approved rubber gloves, masks and flame retardant clothes, etc.) to prevent being damaged by electric shock and electric arc due to exposed hazardous live conductor.
- ⇒ The voltage applied between input terminals or between

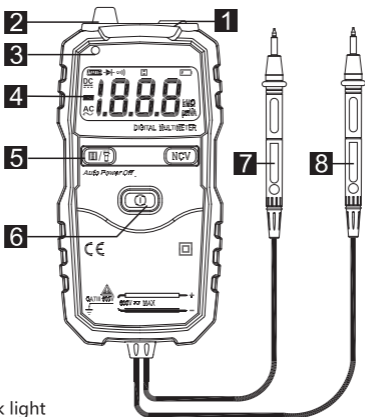
each terminal and earth point cannot exceed the specified ratings of the instrument.

- ⇒ Measure a known voltage to determine whether the instrument works properly.
- ⇒ When measuring, correct input terminal, function shift and range shift must be used.
- ⇒ Do not use the instrument around explosive gas, steam or in wet environment.
- ⇒ Do not use damaged probe. Check whether the insulation layer of the probe is damaged, whether there' s any exposed metal or sign of wear. Check the continuity of the probe.
- ⇒ When measuring, please connect the zero line or the ground line firstly, then connect the live wire; but when disconnecting, please cut off the live wire firstly, then disconnect the zero line and ground line.
- ⇒ When measuring, please put your fingers behind the finger protector of the probe.
- ⇒ Before opening the back cover of the instrument, please disconnect the probe with the measured object.
- ⇒ Do not use the instrument in the environment of exceeding the measurement category (CAT) rating of a single element with the lowest rating among the instrument, probe or accessories.


## 5. Electrical Symbols

	High voltage warning
	AC (Alternating current)
	DC (Direct current)
	AC or DC
	Warning, important safety signs
	Ground
	Fuse
	Equipment with double insulation or reinforced insulation protection
	Low battery
	Conform with European Union standard
	It shows that do not discard this electrical/electronic product into household garbage.
CAT III	CAT III measurement is applicable for testing and measuring circuits connecting to the distribution section of building low voltage power supply.
CAT IV	CAT IV measurement is applicable for testing and measuring circuits connecting to the power supply of building low voltage power supply.

## 6. Instrument Familiarization



- 1** Work light
- 2** Non-contact voltage induction zone
- 3** Non-contact voltage light indicator
- 4** LCD Display
- 5** Keys

 : Turn on/off backlight, Work light and data hold  
 Press down, data hold, and then press the cancel data hold ,  
 Press and hold more than 2 seconds, open the backlight and  
 lighting, after about 15 seconds automatically shut down or re  
 press and hold more than 2 seconds to manually close

 : NCV key , Non-contact voltage detection key



- 6** Power switch key, press power on or press and hold more than 2 seconds power off  
Instrument in the absence of any operation about 10 minutes, will automatically shut down after the automatic shutdown press any key to boot
- 7** Red probe
- 8** Black probe

## 7. Method of Measurement

### 7.1 AC /DC Voltage and Resistance Measurement

1. Press the power key, on the power meter.
2. The probe is parallel to the circuit to be tested, power or resistance. Instrument automatic identification of AC voltage, DC voltage, resistance.
3. When measuring resistance, resistance of less than about 50, built-in buzzer.
4. Read from the display of measurement results.  
Measurement of DC voltage, voltage display screen at the same time, the red pen test point polarity.
5. The measurement of the end, press the power key and hold for 2 seconds, close instrument power supply.

#### Warning



- ◆ To prevent possible electric shock, fire or personal injury, before measuring the resistance, please disconnect the power supply of the circuit under test firstly, and fully discharge all the high voltage capacitors.
- ◆ After completed all the measurement operation, make sure to disconnect the probe and the circuit under test.

## 7.2 Non-contact Voltage Detection

1. Press the power key, power on.
2. Press the "NCV" button and hold, then near the instrument non-contact voltage sensing area (less than 5mm) wire AC voltage.
3. Non-contact voltage indicator light will light up, said AC voltage line of fire.

## 8. General Specifications

- Environment condition of using:

IEC/EN 61010-1 600V CAT III, pollution level 2


Altitude < 2000 m

Working temperature:

0~40°C (do not consider when it' s <80% RH, <10°C )

Storage temperature:

-10~60°C (<70% RH, remove the battery)

- Temperature coefficient: 0.1× accuracy /°C
- Maximum voltage allowed between the measuring terminal and the ground: 600V DC or AC RMS
- Sampling rate: about 3 times/second.
- Display: 3 1/2 bit LCD
- Over range indication: LCD display will show "OL" .
- Low battery indication: when the battery voltage is lower than the normal working voltage, " " will be displayed on the LCD display.

- Input polarity indication: automatically display “-”
- Power requirement: 2x1.5V AAA batteries
- Dimension: 128x61x25mm

## 9. Accuracy Specifications

The accuracy applies within one year after the calibration.

Reference condition: the environment temperature 18°C to 28°C, the relative humidity is no more than 80%.

### 9.1 DC Voltage

Range	Resolution	Accuracy
2V	0.001V	± (0.5% readings+3 )
20V	0.01V	
200V	0.1V	
600V	1V	± ( 0.8% reading + 5 )

Sensitivity : The minimum DC voltage of 0.5V

Input impedance: 10MΩ

Maximum input voltage: 600V DC or AC RMS

### 9.2 AC Voltage

Range	Resolution	Accuracy
2V	0.001V	± ( 0.8 reading + 3 )
20V	0.01V	
200V	0.1V	
600V	1V	± ( 1.0% reading + 5 )

Sensitivity : The minimum 1V AC voltage

Input impedance: 10MΩ Maximum input: 600V DC or AC RMS.


Frequency range: 50Hz~60 Hz; true RMS

### 9.3 Resistance

Range	Resolution	Accuracy
2k $\Omega$	0.001 k $\Omega$	$\pm$ ( 1.0% readings +3 )
20k $\Omega$	0.01 k $\Omega$	
200k $\Omega$	0.1 k $\Omega$	
2M $\Omega$	0.001M $\Omega$	
10M $\Omega$	0.01 M $\Omega$	$\pm$ ( 1.2% reading+15 )

Input protection: Maximum 600V DC or AC RMS.

### 9.4 Connectivity

Function	Description	Testing environment
	When the buzzer sounds, the measured resistance is less than 50 $\Omega$ .	Test current: 100 $\mu$ A open circuit voltage: about -1.8V.

Input protection: Maximum 600V DC or AC RMS.

## 10. Instrument Maintenance

This section provides the basic maintenance information, including description of replacing fuse and batteries.

Do not try to repair the instrument unless you are experienced repair person and have associated calibration, performance test and maintenance information.



To prevent possible electric shock, fire or personal injury:

- ◆ When the cabinet is opened, do not use the instrument to do any measurement operation.
- ◆ Remove the input signal before cleaning the instrument.
- ◆ Specified replacement parts shall be used. Please ask the qualified technicians to repair the instrument.


## 10.1. General Maintenance

Use a damp cloth and a small amount of detergent to clean the outer casing of the instrument. Please do not use abrasive or chemical solvents.

## 10.2. Replace Fuse and Battery

### Warning



- ◆ To prevent electric shock or personal injury caused by error reading, when it displays “” on the screen, the batteries should be replaced in a timely manner.
- ◆ To ensure safety operation and product maintenance, when the instrument will not be used for an extended period of time, please remove the batteries to avoid any product damage caused by battery leakage.
- ◆ To avoid electric shock or personal injury, before opening the back cover to replace batteries, the instrument should be shut down and check to ensure that the probe has already been disconnected from the measuring circuit.

Please follow the following steps to replace the battery:

- 1 Turn off the power supply of the instrument.
- 2 Disconnect the probe from the circuit under test.
- 3 Loosen the screws fixing the back cover, remove the back cover.
- 4 Remove the old batteries, replace with new batteries.
- 5 Mount the back cover, tighten the screws.