

Smart multimeter User manual

Safety Statement

"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.

Safety Instructions

The instrument is designed according to the

requirements of the international electrical safety standard IEC61010-1 for the safety requirements of the electronic testing instruments. The design and manufacture of instruments strictly comply with the requirements of IEC61010-1 CAT.III 600V over voltage safety standards and pollution level 2.

Safety Operation Specifications



Warning

In order to avoid possible electric shock or personal injury and other safety accidents, please abide by the following specifications:

- Please read this manual carefully before using the instrument, and pay special attention to safety warning information.
- Strictly observe the operation of this manual and use this instrument. Otherwise, the protection function of the instrument may be damaged or weakened.
- Please be careful if the measurement exceeds 30V AC true RMS, 42V AC peak or 60V DC. There may be danger of electric shock at this kind of voltage
- By measuring the known voltage to check whether the meter work is normal, if it is not normal or damaged, do not use

it again.

- Before using the instrument, please check whether there is any crack or plastic damage in the instrument case. If you do, do not use it again.
- Before using the instrument, please check whether the probes cracked or damaged. If so, please replace the same type and the same electrical specifications.
- The instrument shall be used in accordance with the specified measurement category, voltage or current rating.
- 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.
- When it shows low battery indicator, please replace the battery in time in case of any measurement error.
- Do not use the instrument around explosive gas, steam or in wet environment.
- When using the probe, please put your fingers behind the finger protector of the probe.

- When measuring, please connect the zero line or the ground line firstly, then connect the live wire; but when disconnecting, please disconnect the live wire firstly, then disconnect the zero line and ground line.
- Before opening the outer cabinet or battery cover, please remove the probe on the instrument. Do not use the instrument in the circumstances that the instrument is taken apart or battery cover is opened.
- It only meets the safety standards when the instrument is used together with the supplied probe. If the probe is damaged and needs to replace, the probe with same model number and same electrical specifications must be used for replacement.

Safety Symbols

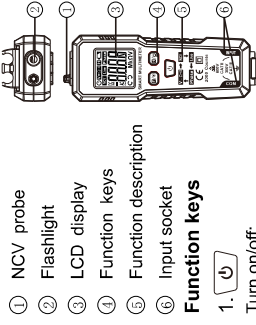
	High voltage warning
	AC (Alternating current)
	DC (Direct current)
	AC or DC
	Warning, important safety signs
	Ground
	Fuse
	Equipment with double insulation/reinforced insulation protection
	Battery under voltage
	Product complies with all relevant European laws
	The additional product label shows that do not discard this electrical/electronic product into household garbage.

CAT.II	Class II measurements are suitable for testing and measuring circuits directly connected to power points (sockets and similiarities) of low voltage power installations.
CAT.III	Class III measurement is suitable for testing and measuring circuits connected to the distribution network of low voltage power supply devices in buildings.
CAT.IV	Class IV measurements are suitable for testing and measuring circuits connected to the power supply of low voltage power installations in buildings.

Overview

A new generation of high performance digital multimeter. The new display and function layout show clearer and better user experience. It is the best choice for professional electricians, enthusiasts or families.

Instrument panel description



Function keys

1.

Turn on/off:
Press and hold to turn on, press and hold to turn off.

2.

Short press to switch function

Long press: turn on/off the backlight

3.

Short press to turn on/off data hold function

Long press: turn on/off flashlight

Auto shutdown

Press Power On, the default is Auto Power Off mode

The meter will automatically shut down after 15 minutes of no operation to save battery power.

Press and hold on at the same time to cancel the auto shutdown function, the auto shutdown symbol disappears.

Measurement operations

Auto Testing

- 1) Short press to select AUTO gear
- 2) Touch the meter probe to the circuit under test (connected in parallel to the power supply or circuit under test) and perform the measurement.
- 3) Read the measurement result from the display. The meter automatically recognizes the voltage, resistance and Continue.

If the resistance value of the resistor or circuit under test is less than about 50Ω, the buzzer will sound a tone and the green backlight will be illuminated.

⚠Warning
● cannot measure voltages higher than 600V, otherwise the instrument may be damaged.

- Pay special attention to safety when measuring high voltage to avoid electric shock or personal injury.
- Before use, test the known voltage with the meter to make sure the meter is functioning properly

NCV testing

- 1) Press briefly to select NCV, the meter will display "NCV".
- 2) Move the meter NCV sensor probe gradually close to the detected point.

3) When the meter senses a weak electric field signal, the green backlight will light up and the screen will display ---L.

4) When the meter senses a strong electric field signal, the red backlight is lit and the beeper emits a fast beep. The screen displays ---H.

LIVE testing

- 1) Press briefly to select LIVE , the meter will display "LIVE ----".
- 2)) Touch or insert the red meter pen into the point to be measured.

3) When the meter senses a weak electric field signal, the green backlight will light up and the screen will display ---L.

4) When the meter senses a strong electric field signal, the red backlight is lit and the beeper emits a fast beep. The screen displays ---H.

⚠ Warning

In order to avoid possible safety accidents such as electric shock or personal injury, please effectively comply with safe work practices

Phase sequence detection testing

- 1) Short press to select phase sequence phase.

- The display flashes with the "PA" symbol (A blinks), hold the NCV sensing probe close to the first phase line.

- The display flashes with the "PAB" symbol (A is fixed, B is flashing), then press the NCV sensor against the second phase line.

- The display flashes with the "PABC" symbol (A and B fixed, C flashing), and the NCV sensor is placed close to the third phase line.

The test is finished and the measurement result is shown on the display.

The "P---L" symbol indicates phase sequence left rotation

The "P---R" symbol indicates phase sequence right rotation.


Note 1: Please hold the sensing probe close to the wire

Note 2: Shielded wire/cable, thickness and type of insulation or complete insulator will have an effect on the detection.

Note 3: Please complete the test on the three wires within 1 minute, otherwise a detection timeout error will occur, prompted by the PABC symbol with the letter P flashing. When the timeout error occurs, please return to the phase sequence test and re-test.

Note 4: When the three phase lines are close together, separate the lines as much as possible to test, otherwise it is easy to misjudge

General technical specifications

- Operating environmental conditions. CATII 600V
- Pollution level: 2
- Altitude < 2000m.
- Operating temperature and humidity: 0~40°C (<80% RH, <10°C non-condensing)
- Storage temperature and humidity: -10~60°C (<70% RH, remove the battery)
- Temperature coefficient: 0.1 accuracy/°C (<18°C or >28°C)
- Maximum voltage allowed between measuring end and earth: 600V
- Display: 2000 count display. Automatic display of unit symbols according to the measurement function step.
- Over-range indication: "OL" is displayed.
- Battery low voltage indication: "  " is

displayed when the battery voltage is lower than the normal operating voltage.

- Input polarity indication: "-" sign is automatically displayed.
- Power supply: 2 x 1.5V AAAA batteries.

Accuracy index

Accuracy is applicable within one year after calibration
 Baseline conditions: Ambient temperature 18°C to 28°C, relative humidity not greater than 80%

Accuracy: ± (% reading + word)

DC voltage

Range	Resolution	Accuracy
2.000V	0.001V	
20.00V	0.01V	±(0.5% reading+3words)
200.0V	0.1V	
600V	1V	

Input impedance: 10MΩ.

Maximum measurement voltage: 600V

AC voltage

Range	Resolution	Accuracy
2.000V	0.001V	
20.00V	0.01V	±(1.0% reading+3words)
200.0V	0.1V	
600V	1V	

Input impedance: 10MΩ.

Maximum measurement voltage: 600V

Frequency range: 40Hz ~ 1kHz

Resistance

Range	Resolution	Accuracy
2000Ω	1Ω	
20.00kΩ	0.01kΩ	±(1.0% reading+3words)
200.0kΩ	0.1kΩ	
2.000MΩ	0.001MΩ	
20.00MΩ	0.01MΩ	±(1.5% reading+3words)

Overload protection: 250V.

Continue testing

Function
Resistance <50ohm , the buzzer will sound and the backlight will light green

Maintenance

Cleaning the meter

If there is dust on the terminals or it is relatively wet, it may produce incorrect measurements. Please clean the meter as follows:

- 1) Power off the meter.
- 2) Wipe the case with a damp cloth or mild detergent , do not use abrasives or solvents.

Warning :

Always keep the inside of the meter clean and dry to prevent electrical shock or

damage to the meter.

Replacing the Battery

● To replace the batteries:

- 1) Turn off the power to the meter
- 2) Remove the battery cover by unscrewing the screw holding it in place with a screwdriver.
- 3) Remove the old battery and replace it with a new one of the same size. Please pay attention to the battery polarity.
- 4) Install the battery cover back to its original position and secure the battery cover with screws to lock it tightly.

⚠Warning :

- To avoid incorrect readings that could result in electric shock or personal injury, replace the batteries immediately when they are low. Do not discharge the battery by short-circuiting it or reversing its polarity.
- To ensure safe operation and maintenance of the meter, remove the batteries when not in use for a long period of time to prevent damage to the product from battery leakage