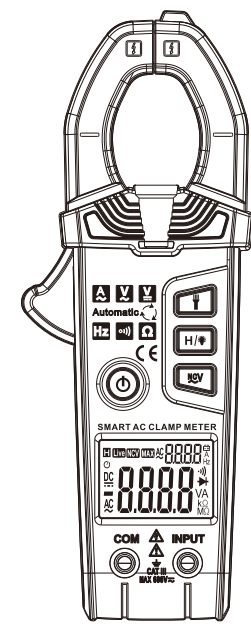


Instruction Manual  
DIGITAL CLAMP METER



尺寸：80x120mm  
材质：80g双胶纸，黑白双面印刷，风琴折

1 SAFETY INFORMATION >>>

⚠ Warning

Please operate this instrument with great care. Improper operation may result in an electric shock or damage to the instrument. Throughout the operation, you should follow the generally accepted safety procedures and take the safety measures as required by the Operation.

Please read carefully this Manual and take the operational methods as specified herein to as to make full use of the instrument's functionalities and ensure safe operation.

This instrument is in strict compliance with the safety requirements as specified in IEC-61010-1, IEC-61010-2-030 and IEC-61010-2-032 for electrical measuring instruments. Its pollution reaches the level of Class II and over-voltage standard is CAT III 600V.

Please strictly follow the guideline for safe operation so as to ensure safety while operating this instrument.

Preparation

- The user must observe the standard safety rules when operating this instrument:
  - General protection against electrical shock
  - Prevention of unintended use
- Upon the arrival of the instrument, check any damage that arises during transportation.
- Upon the arrival of the instrument that has been stored and shipped in rough conditions, check and identify any damage.
- This instrument must be kept in a good condition. Prior to its use, check the possible damage to insulation part and potential exposed metal wire of the lead.

To avoid possible electric shock or personal injury, and to avoid damage to the meter or the object to be tested, use the meter as follows:

- Check the case before using the meter. Do not use the meter if the case is damaged. Check for cracks or missing plastic parts. Pay special attention to the insulation of the connector.

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Check the test leads for insulation or exposed metal. Check the continuity of the test leads. If the test leads are damaged, replace them before using the meter.

- Use the meter to measure the known voltage to make sure the meter is operating properly. Do not use if the meter is working abnormally. The protective facility may have been damaged. If in doubt, the instrument should be sent for repair.
- Do not apply a voltage rating greater than the rating indicated on the meter between any terminals and ground.
- Use the meter when it exceeds the rms value of 30 VAC, 42 VAC peak or 20 VDC, and be careful to prevent electric shock.
- The correct jack, function and range must be used for the measurement.
- Do not use the meter near explosive gases, vapors or dust.
- When using the test leads, keep your fingers behind the test leads.
- When connecting, first connect the common test leads and then connect the charged test leads, when disconnecting, disconnect the live test leads first, and then disconnect the public test leads.
- Before testing resistance, continuity, and diodes, the power must be turned off and all capacitors discharged.
- If the instrument is not used in accordance with the instructions, the safety protection provided by the instrument may be impaired or invalid.
- Do not use the meter when opening the case or battery cover.
- Replace the battery immediately when the battery undervoltage indicator " " lights up. When the battery is running low, the meter may produce erroneous readings that can cause electric shock and personal injury.
- The test leads must be removed from the meter before opening the case or battery cover.
- Maintenance, please use a soft cloth and a neutral detergent to clean the instrument case. Do not use abrasives and solvents to prevent the case from being corroded, damaging the instrument and endangering safety.

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Symbols



Note (For important safety information, see Operation Manual)



This symbol indicates that it can be used on a hazardous live conductor.



Double insulation protection (Category II)



Refers to over-voltage level III (installation) as specified in IEC61010-1 standard.



Pollution level 2 refers to the level of impulse withstand voltage protection.



Grounding



It is compliant with appropriate EU standard.

Maintenance

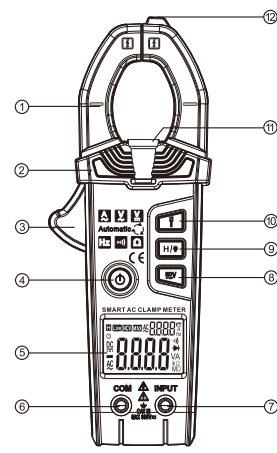
- Do not attempt to open the bottom case to adjust or repair instruments. Such operation can only be executed by an electrician who is fully familiar with the instrument and electric shock risks.
- Remove pen-shaped meter from the line to be measured, before opening the instrument's bottom case or battery cover.
- To avoid an electric shock that results from any false readings, replace existing battery when the symbol is displayed.
- Don't use any abrasive agents or solvents when a wet cloth and mild detergent are being employed to clean the instrument.
- Power off and keep the range switch to the position "OFF" when the instrument is not in use.
- Remove battery to avoid any damage to the instrument when the instrument is not in use for a long period.

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2 DESCRIPTION >>>

Components

- Current clamp head: for current measurement
- Guard: Protect the user's hand from touching the danger zone.
- Trigger: press the trigger to open the clamp head and release the automatic clamping.
- Power button
- Display screen
- Black test pen input socket
- Red test pen input socket
- NCV function conversion button
- Hold state
- Lighting button
- NCV/On/Off indicator
- Non-contact voltage detection area



LCD monitor

AC & DC	
	On / Off indicator
	Display of automatic switch-off
	LOW batteries
	Hold state
	Volt (voltage); Ampere (current)
	Ohms, kilohms and megohms (resistance)
	Hertz
	Detection of non-contact voltage

3 SPECIFICATION >>>

The instrument shall be re-calibrated at an interval of one year under the conditions of 18 °C - 28 °C and relative humidity of less than 70%.

3.1 Overview

- The instrument is designed to automatically select measurement functions and measuring ranges.
- Full range overload protection.
- Allowable max voltage between terminal to be measured and ground: 600V DC or 600V AC
- Working weight: max 2000m
- Display unit: LCD
- Max display value: 6000 numbers, 6999-bit LCD display with a word height of 21mm
- Polarity indication: automatic indication, "-" indicates negative polarity.
- Over range indication: "OL" or "OL"
- Sampling rate: approximately 3 times per second
- Unit display: to display functions and electric quantity

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- Automatic shut-down time: 15 minutes
- Power supply: 1.5V AAA battery x2
- Battery undervoltage Indication: LCD display symbol
- Temperature coefficient: less than 0.1% accuracy / °C
- Working temperature: 0 - 40 °C (< 80% RH, < 10 °C is not considered).
- Storage temperature: -10m - 20 °C (< 70% RH, remove the battery)
- Dimensions: 185mm x 70mm x 34mm
- Weight: approx. 165g (battery not included)
- The maximum size of the jaw opening: 25mm

3.2 Technical parameters

3.2.1 Alternating current

Range	Resolution	Accuracy
6A	0.001A	± ( 3.0% reading + 5 words )
60A	0.01A	
600A	0.1A	

- Maximum input current: 600A
- Frequency range: 50 - 60Hz
- Response: true RMS

3.2.2 DC voltage

Range	Resolution	Accuracy
6V	0.001V	± ( 0.8% reading + 3 words )
60V	0.01V	
600V	0.1V	

- Input impedance: 10MΩ, overload protection: 600mV
- Range: 250V DC (r AC (RMS)), 6V/400V
- Range: 600V DC or 600V AC(RMS)
- Maximum input voltage: 600V DC

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3.2.3 AC voltage

Range	Resolution	Accuracy
6V	0.001V	± ( 0.8% reading + 5 words )
60V	0.01V	
600V	0.1V	

- Input impedance: 10MΩ, overload protection: 600V DC or 600V AC (RMS)
- Maximum input voltage: 600V AC (RMS)

3.2.4 Frequency

Frequency measurement for the current (A level) through clamp head Clamp head frequency measurement through A file):

Range	Resolution	Accuracy
60Hz	0.1Hz	± ( 1.0% reading + 5 words )
1000Hz	0.001kHz	

- Measurement range: 40 Hz to 1000 Hz
- Input signal range: ≥1A AC (valid value)

Frequency measurement for the current (V level) through clamp head

Range	Resolution	Accuracy
60Hz	0.1Hz	± ( 1.5% reading + 5 words )
1000Hz	0.001kHz	

- Measurement range: 40Hz to 1000Hz
- Input voltage range: ≥0.8V AC (valid value)

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3.2.5 Electric resistance

Range	Resolution	Accuracy
600Ω	0.1Ω	± ( 1.0% reading + 2 words )
6kΩ	0.001kΩ	
60kΩ	0.01kΩ	± ( 2.0% reading + 5 words )
600kΩ	0.1kΩ	
6MΩ	0.001MΩ	± ( 2.0% reading + 5 words )
60MΩ	0.1MΩ	

- Open circuit voltage: about 0.4V
- Overload protection: 250V DC or AC (RMS)

3.2.6 Line On/ Off test

Range	Resolution	Features
	0.1Ω	If the measured line resistance is less than 50Ω, the buzzer will sound in the meter.

- Open circuit voltage is about 2.5V
- Overload protection: 250V DC or AC (RMS)

4 OPERATIONAL GUIDELINES >>>

Reading hold

During the process of measurement, gently touch the key / if you want to hold readings, and monitor's display value will be locked. Touch again the key / , the readings hold will be removed.

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Backlight

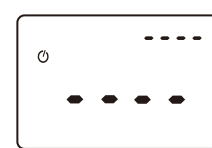
- In the process of measurement, if the measurement environment is too dark, press the key / for more than 2 seconds to enable backlight function. Then about 1 minute later, the backlight function will be automatically disabled.
- During this process, press the key / for 2 seconds to disable backlight.

Auto shutdown

- If no operations occur within 15 minutes after the initialization, the instrument will be in the state of dormancy. Auto shutdown at this moment can save power consumption.
- The function of auto shutdown will be disabled. If key is pressed while the instrument is initialized.

Preparation for measurement

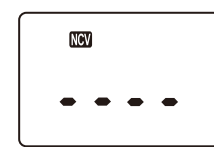
- Press the power key for 2 seconds to initialize the instrument. If the battery voltage is low (approximately <math>2.4V</math>), the monitor will display the symbol . At this moment, the battery should be replaced. The instrument will be shut down if the power key is pressed after the initialization.
- When the instrument is not used for measurement, it will enter the automatic sleep status and display the diagram below.



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Non contact voltage detection(NCV)

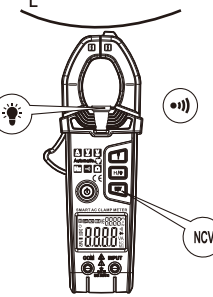
- Press NCV key for 2 seconds to enable NCV function. Then the instrument will display:



- Press NCV key and move NCV sensor closer to the lead line to be measured. The instrument can detect whether the AC voltage of the measured lead line is >90V. When the instrument detects AC voltage, the buzzer will sound alarms while backlight flickers.

Note:

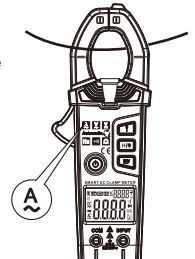
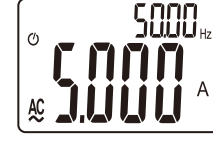
- Voltage may still remains in the absence of any alarm warning. Operator shall not rely on Non contact voltage detector to judge the presence / absence of voltage. The detection result may be subject to various factors, including socket design and insulation thickness and type.
- In NCV detection mode, the instrument will not measure voltage, resistance and current simultaneously.



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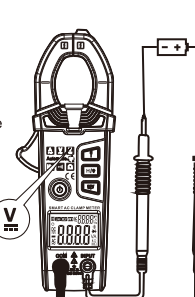
Measurement of AC current and AC current frequency

- Hold a trigger, open clamp head, and catch one guide wire of a line to be measured.
- When the measured current of the signal is 0.01A, the instrument's primary display panel will display the measured current value and the frequency value of the measured current. (Note: only when the current value is >=2.2A, can the instrument display its frequency value).



DC voltage measurement

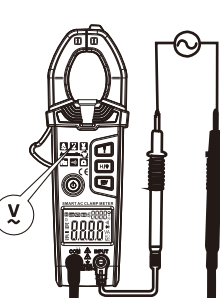
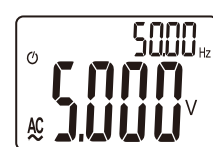
- When the pen-shaped meter is connected to the signal to be measured and the measured signal >=0.5V, the instrument will display the measured DC voltage value.
- When the measured signal <=0.5V, the instrument will accept the resistance as the default resistance and display the internal resistance of the measured signal.



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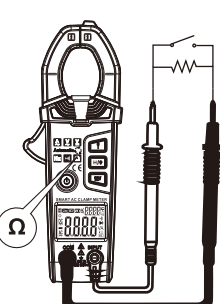
AC voltage measurement

- When the pen-shaped meter is connected to the signal to be measured and the measured AC signal <=1.0V, the instrument will display the measured AC voltage and the frequency value of the voltage. When the measured AC signal <=1.0V, the instrument will accept the resistance as the default resistance and display the internal resistance of the measured signal.



Electric resistance measurement

- Connect the pen-shaped meter with the resistance being measured. When the measured resistance >= 6k, the instrument will display "--"; when the measured resistance is less than 50, the buzzer will sound alarms and On/Off indicator will be on simultaneously.



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5 MAINTENANCE >>>

Battery replacement

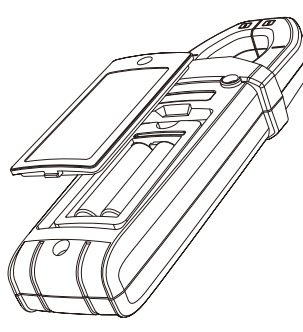
⚠ Warning

Before the instrument's battery cover is opened, remove the pen-shaped meter from the circuit to be measured, so as to avoid the risk of an electric shock.

- If the symbol appears, it indicates that the battery should be replaced.
- Unscrew the fastening screws on the battery cover and remove it.
- Replace the old battery.
- Mount the battery cover as it is.

⚠ Notes:

- Battery polarities cannot be reversed.



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Replacement of pen-shaped meter

⚠ Warning

The same or equivalent pen-shaped meter must be used to replace the old pen-shaped meter. The pen-shaped meter must be intact. Its grade must be 1000V 10A. The pen-shaped meter must be replaced if its Insulating layer is damaged (e.g. the metal wire of the guide is exposed).

- If the symbol appears, it indicates that the battery should be replaced.

6 ACCESSORIES >>>

1	Pen-shaped meter	Level: 1000V 10A	A pair
2	Operation Manual		1
3	Battery	1.5V AAA battery	2
4	Cloth bag		1

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