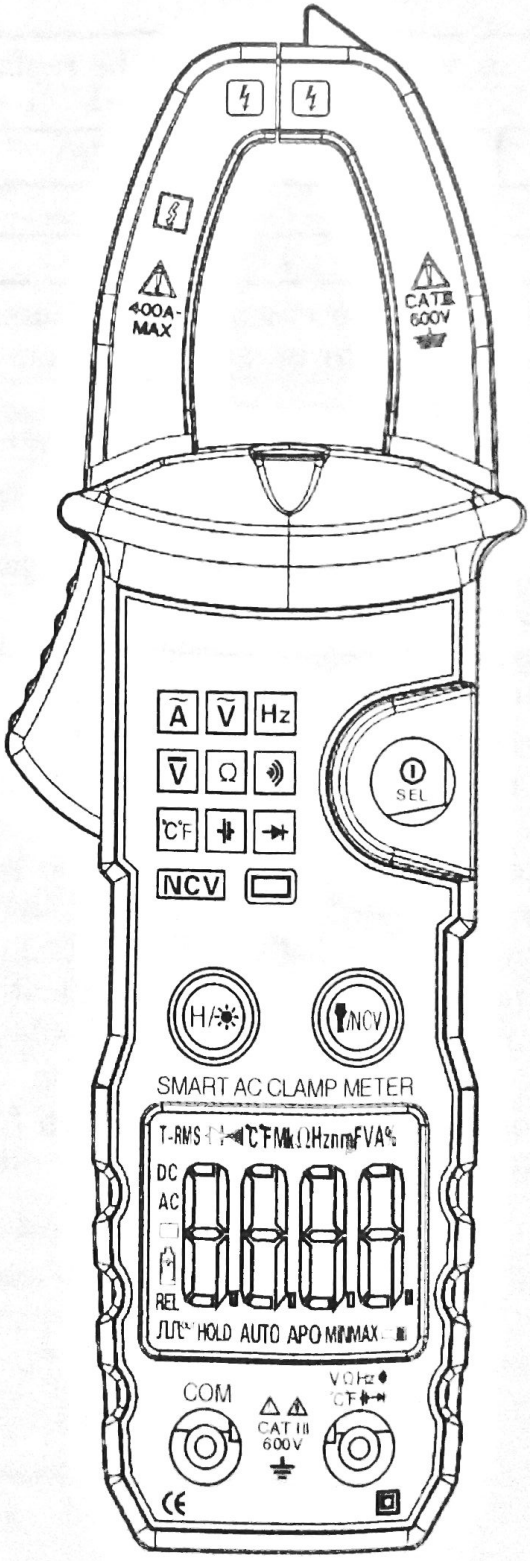
Digital Clamp Meter Operating Manual



1. Safety Instructions

> ⚠ Warning
>
> To avoid electrical shock or injury, Please read the "Safety Information" and "Warning and related Notes" before used.
>
> In order to make full use of the function of the instrument and to ensure the safety, please read and follow the use of this specification in carefully.

This instrument strictly follow GB/T 13978-92 Generic specification for Digital Clamp meter, In accordance with GB4793.1-1995 (IEC-6010-1, IEC-61010-2-032) Electronic measuring instruments safety requirements, Belong to the two class of pollution, Voltage standard CAT III 600V

Please follow the safety instructions, ensure the safety of the use of the instrument. use and protect the item in right condition, the instrument will in satisfactory service.

1.1 Preparation

1.1.1 usre must comply with the standards of safety rules when use it:
- Protection against electric shock
- To prevent the misuse of the instrument

1.1.2 After receiving instrument, check whether the damaged in transit.

1.1.3 Check and confirm the meter whether damaged or not after shipment.

1.1.4 Test lesds must be in good condition. Check the insulation test is damaged, the wire conductor is bare before use.

1.1.5 Use the the test leads to ensure safety, it must be replaced with the same of similar rank test if necessary.

1.2 Use

1.2.1 Use the correct function and range.

1.2.2 Do not exceed the scope of protection of the range of the indicating value measurement. Do not exceed the scope of protection of the indicating value measurement.

1.2.3 When measuring circuit, do not touch the test lead tip (metal parts).

1.2.4 In the measurement, if the measured voltage is higher than 60V DV or 30V (RMS), attention should be paid to keep your fingers always after the finger protection device.

1.2.5 If the voltage between the measuring end and the earth more than AC 600V, don't measure the voltage.

1.2.6 Before turning the switch changes the measurement function, should be removed test tsst lead from the circuit

1.2.7 Don't live line measurement of resistance, capacitance, diode and continuity test

1.2.8 Under the test range off current, resistance, capacitance, diode and continuity test, it should be taken to avoid the instrument commected voltage source.

1.2.9 Capacitr is fully discharge, don't test capacitance

1.2.10 Do not use this instrument in the gas, steam or dust

1.2.11 If you notise ant abnormal or faulty instruments, should stop using

1.2.12 Unless the instrument bottom shell and the battery cover is fastened in situ; it should not use the instrument.

1.2.13 Do not store or use the instrument in direct sumlight, high temperature, high humidity conditions.

1.3 Mark

⚠ Note (safety information, important see instructions)

Can be used for dangerous live conductor.

Double insulation protection (II)

CAT III In accordance with the IEC-61010-10ver voltage standard level (installation) III, The pollution degree of 2 refers to the pulse voltage protertion levels.

CE In line with European standarde (EU)

Grounding

1.4 Maintenance

1.4.1 Please do not attempt to test lead the shell to adjust or repair instrument, thisoperation can only be fully understood by technicians

1.4.2 Before test leading the instrument bottom shell and the battery cover, should be removed the test lead from the measured line test lead

1.4.3 In order to avoid false readings may cause electric shock,when the instrument displat "🔋" symbol, The battery should be replaced immediately.

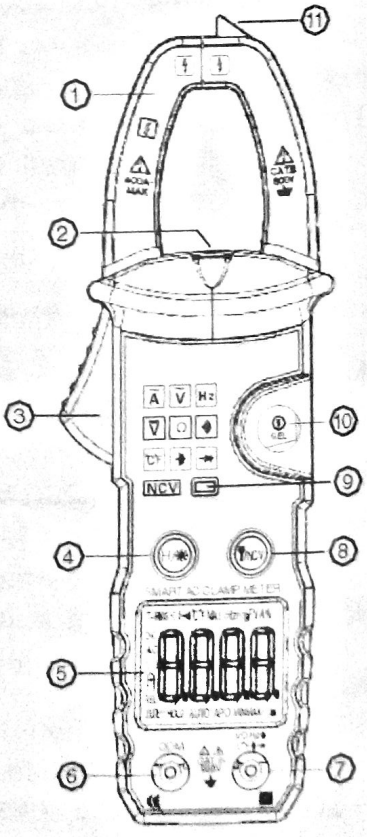
1.4.4 Use a damp cloth and a mild detergent to clean the instrument; do not use abrasive detergents or solvents.

1.4.5 The instrument when not in use should turn off the power.

1.4.6 If you do not use a meter long time, the battery should be removed to prevent damage to the instrument.

2. Description

- The instrmrnt is an professional measuring instrument with liquid crystal display and a back light source. The user readings in easoly. Single hand operation with overload protection and low battery indicator. For professional, factory, school, lovers or family use, is an ideal Multi-function instrument.
- Used for AC DC voltage、AC current, frequency, resistance, capacitance measurement and the on-off circuit, measurement, temperature measurement.
- Automatic range
- Data keep
- Auto power off
- Relative measurement



2.1 Part name

(1) Current clamp head: For current measurement
(2) The torch of head lamp
(3) Panel
(4) Reading / backlight button (H/☀)
(5) LCD Monitor
(6) Common socket
(7) Resistor, voltage, frequency, temperature and Continuity input jack
(8) NCV button
(9) NCV button and alarm
(10) Power button (⏻ SEL)
(11) NCV zone

2.2 Switches and buttons instructions

H/☀ Button used to control reading or backlight.

Used for NCV function.

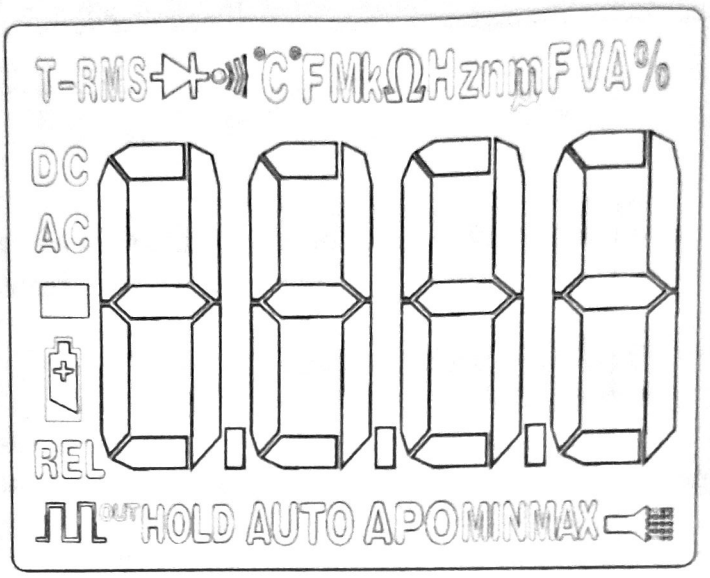
④ Power on and off.

VΩHz Voltage, resistance, frequency of the input terminal.

°C°F

COM: Voltage, resistance, frequency of the common terminal.

2.3 LCD 显示器



AUTO	Auto mode
MANU	Manual mode
DC、AC	AC AND DC
T-rms	Measured in line with the sine wave waveform and Alternating current that does not conform to the sinusoidal waveform
	Low battery
REL	Relative value measurement
MAX、MIN	Min and Max value
	Diode test
	On-off test
Ω, kΩ, MΩ	Ohm, kilo-ohm, mega ohm (resistance)
Hz, kHz, MHZ	Hertz, kilohertz, megahertz (frequency)
nF, μF, mF	Na Fala, micro-Farah, millifara
μA, mA, A	Current
mV, V	Voltage
%	Percentage (duty ratio)
F	Capacity test
°C°F	Temperature test
Hold	Data hold
APO	Auto power off
	Negative readings
	Torch

3. Specifications

The instrument shall specify the period of one year,during in 18℃~28℃、The relative humidity

is less than 75% under the

3.1 Overview

Automatic measurement and manual measurement

Overload protectiom

The maximum voltage allowed between the measuring terminal and earth:600V DC or 600V AC

Display: LCD

Maximum: 5999 display

Polar indication: Automatic indicator, ' − ', Display negative

Over range display: ' OL ' or ' −OL '

Sampling time: adout 3 times / secretary

Display unit and power display

Automatic power off: 10Minutes

Open Jaw is 25mm; test Line OD less than23mm

Power: DC current 3V

Battery type: 1.5V AAA

Battery voltage indication: LCD Symbol

Temperature coefficient: less 0.1

operating temperature: 18℃~28℃

Storage temperature: -10℃~50℃

Size: 184.0×66.0×32.5mm

weight: about 190g (Including battery)

3.2 Technical indicators

Environment temperature: 23±5℃ Relative humidity: < 75%

3.2.1 AC Current

Range	Resolution	Accuracy
6A	0.001A	±(3.0% + 20)
60A	0.01A	±(2.5% + 8)
600A	0.1A	±(2.5% + 10)

- Min input current: 0.01A AC
- Max input: 600A AC
- Frequency: 50Hz~60Hz
- When ac current is measured, the meter automatically opens an internal low-pass filter to filter out high-frequency current.

3.2.2 DC voltage

Range	Resolution	Accuracy
6V	0.001V	±(0.5% + 3)
60V	0.01V	
500V	0.1V	±(0.8% + 5)

- Min / input voltage: 0.9V DC
- Input impedance: 10MΩ
- Maximum / input voltage: 500V AC (Effective value) OR 500V DC

3.2.4 AC voltage 交流电压

Range	Resolution	Accuracy
6V	0.001V	±(1.0% + 5)
60V	0.01V	
450V	0.1V	±(1.2% + 5)

- Min / input voltage: 0.9V DC
- Input impedance: 10MΩ

- Maximum / input voltage: 450V AC (Effective value) or 450V DC
- Frequency range: 45Hz~100Hz

3.2.5 Frequency 频率

Range	Resolution	Accuracy
99.99Hz	0.01Hz	±(0.1% + 2)
999.9Hz	0.1Hz	
9.999kHz	0.001kHz	
99.99kHz	0.01kHz	
999.9kHz	0.1kHz	±(0.1% + 2)
9.999MHZ	0.001MHZ	

- Overload protection: 250V DC or AC (Rffrctive value)
- Input range: ≥200mV~10VPP (Effective value) With the increase of the measured frequenc the input voltage should be increased

3.2.6 Resistance

Range	Resolution	Accuracy
6kΩ	0.001kΩ	±(0.8% + 3)
60kΩ	0.01kΩ	
600kΩ	0.1kΩ	
6MΩ	0.001MΩ	±(1.2% + 3)
10MΩ	0.1MΩ	

- Overload protection: 250V DC or AC (Effective value)

3.2.7 Continuity test

Range	Resolution	Function
🔊	0.1Ω	If the measured line resistance is less thss than 50, enclosing the instrument may sound a buzzer

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

3.2.8 Temperature test

Range	Accuracy	Resolution
-20℃- 300℃	±(1.0% + 4d)	1℃
301℃-1000℃	±(1.9% + 5d)	1℃
-4℉-600℉	±(1.2% + 6d)	1℉
601℉-1832℉	±(1.9% + 6d)	1℉

- Overload protection: 250V DC or AC (rms)

3.2.9 Capacitance

Range	Resolution	Accuracy
9.999F	0.001F	±(4.1% of reading + 20words)
99.99F	0.01F	±(2.0% of reading + 5words)
999.9F	0.1F	

9.999F	0.001F	±(2.0% of reading + 5words)
99.99F	0.01F	
999.9F	0.1F	
9.999F	0.001F	±(5.0% of reading + 3words)
99.99F	0.01F	Not calibrated

- Overload protection: 250V DC or AC (rms)

4. Operations Guide

4.1 Data keep

In the process of measurement, such as the need to keep reading, push "H/☀" key, The display value will be locked, then press the button so that relieve reading.

4.2 Function exchange

Press Power button, then can measure automatically

4.3 Backlight and lighting clamp head

1) If the ambient light is too dark,difficulties to get resulting, press the "H/☀" key more than 2seconds, Open the back light, automatically shut dowm in about 30 seconds.

4.4 Automatic power off

1) Without operation after 10 minutes, The meter will enter the sleep state automatically shut down to save power. 2 minutes before the shutdown, each 1 minutes the buzzer 1 sound prompt, dormant into a long sound after that before the shutdown.

4.5 Measurement

1) Toggle the switch and open power, If the battery and voltage Is not enough (about≤2.4V) The LCD display "🔋" symbol then the battery should be replaced
2) "⚠" symbol, The input voltage or current should not exceed the value indicated, this is to protect the internal circuit from being damaged.
3) Connect the public test line, and then connected test line is When in wiring, The test should be removed first line charged dismantling wiring.

4.6 Current measurement

> ⚠ Warning
>
> An electric shock hazard.
> In current clamp measurements before the test probe is removed from the instrument.

1) Hold the trigger, open the pliers, and clamp a wire of the circuit under test in the pliers.
2) When the measured signal is greater than or equal to 0.02A, the main screen of the instrument will display the measured current value, and the secondary screen will display the frequency value of the current (note: the meter will only display the frequency value if the current is greater than or equal to 0.02A)

Noted

1) The correct measurement results cannot be obtained by clamping two or more wires of the circuit under test at the same time.
2) In order to obtain accurate readings, the conductor under test should be placed as far as possible in the center of the current clamp.
3) "⚠" Represents the maximum input ac current of 400A.
4) Please hold the clamp head when the current measurement machine to open the clamp head and nose pliers head clip conductor under test, and then slowly let go of the trigger, until the clamp head closed completely, please be sure to test whether the conductor is picking up in the middle of the tong head, not in the tong head center will produce dssitional error,

Clamp table can only measure electrical conductor, a conductor if two or more current is measured at the same time, the measuring reading will be wrong.

4.7 Voltage measurement

> ⚠ Warning
>
> An electric shock hazard.
> When the measurement of high voltage, please pay special attention to avoid electric shock
> Do not enter the effective value of votage higher than AC600V

1) Use black test lead is inserted into the COM sockte, the red test lead is inserted into the VΩHz CF sockt.
2) Connect the other two ends of the meter pen to the voltage source or load for measurement
3) Read the voltage value on the LCD

notice:

1) when the measural is greater than or equal to 0.5v, the meter will display the dc voltage of course measured; When the measured signal is less than 0.5v, the meter will default to the resistance value and display the internal rseistance value of the measured signal.
2) "⚠" show the maximum input voltage is 600V AC or 600V DC.
3) If the instrument to measure more than 600V AC, issued an alarm

4.7 Resitance test

> ⚠ Warning
>
> The risk of electric shock
> In the measurement of impedance on the line, should be determined to disconnect the power supply circuit, capacitor circuit completely discharge.

1) Use black test lead is inserted into the COM socket, red test lead is inserted into socket.
2) Use the test lead connected with the voltage source or load to measurement
3) Display readings on LCD

notiec:

1) When the measured resistance is more than 10 m Ω, LCD will display "--" outrange state; When the measured resistance is less than 50 Ω instrument buzzer will send out alarm
2) If the measured resistance value is higher than 1MΩ, the instrument may take a few seconds reading, it is normal for high resistivity readings

4.9 Capacitance tet

> ⚠ Risk of electric shock.
>
> To avoid damage to the instrument or equipment under test, all power supplies of the circuit under test and all high voltage capacitors should de fully discharged before measuring the capacitance.

1) Insert the red and black test leads to COM and VΩHz CF the jack. Press
2) Enter ② to capacitance mode
3) After the capacitor is completely discharged, the other end of the black test pen is connected to the measured capacitance. And the measured capacitance value is read by LCD

Note:

1) To improve the accuracy of measurements below 10nF, subtract the distribution capacitance of the meter and leads.

4.10 Ffequency and duty off test

⚠ Warning

Risk of electric shock.

To avoid damage to the meter or the device under test, all power to the circuit under test should be cut off and all high voltage capacitors should be fully discharged before the beep on-off test.

1) Press Ⓐ button, enter to the test status.
2) Insert the black test lead into the COM jack, and the red test lead into the VΩHz °C°F Jack.
3) Connect the other end of the red and black test leads to the resistance of the circuit under test.

Note:

The frequency test range is 10HZ-100MHZ 600Ω, if the frequency is less 10HZ, the display shows "0.00" . The frequency is more than 10MHz, the test result is not accuracy.

4.11 Temperature Measurement

⚠ Warning

Do not enter a temperature higher than 60V AC voltage 30V AC voltage to avoid damage or instrument damage

1) Connect the negative termunal (black) and the positive terminal (red) of the K type thermocouple to the COM input jack and VΩHz °C°F input jack separately.
2) Press Ⓐ enter to temperature mode;
3) The other end of the thermocouple (test side) close to the surface of the measured object.
4) To be read by the liquid crystal display to read the measured temperature value.

Note:

K-type thermocouple distribution of the highest measurement temperature of 250

5. Non-contact voltage detector NCV

⚠ Warning

Even if no indication but the voltage may still exist. Don' t rely on non-contact voltage detector to determine whether there is a voltage shielded wire. The operation may affect the detection by socket design, insulation thickness and different types

Press NCV button, "NCV" symbol, When clamp head close to mains phase line or power switch,socket the detected voltage is close to the 110V (AC RMS) ,display "-" ,When the induction voltage is higher, display "-" will became much more, With buzzer alarm. This instrument also set a clamp head AC induction signal function, used to clamp head near line or by an electric switch and electric socket. When using this 20function, don' t insert test leads

Noted:

1) Even if there is no alarm indication, the voltage may still exist. Do not rely on contacrless voltage detectors to determine whether the shielding line has a voltage. Probe opreation may be affected by socket design, insulationn thickness and type.
2) In NCV detection mode,the meter does not simultaneously measure voltage,resistance,and current.

6. Maintenance

6.1 Replace the battery

⚠ Warning

Before opening the instrument of the battery cover, please removed the test leads from measuring circuit so that to avoid the risk of electric shock.

1) If "▭" symbol display, please replcae the battery.
2) Unscrew fastenong screws of the battery cover and move away.
3) Replace the old battery

Notice:

The battery polarity cannot be reversed

6.2 Change Test Leads

> ⚠ Warning
>
> Please use the same test leade or same level test leads if you need replace the test leads level: 1000V 10A.

If one damaged insulation, such as wire exposed, must be replaced.

7. Accessories

1)	Test lead	level: 1000V 10A	one
2)	Manual		one
3)	battery	1.5V AAA	two

* The contents of this manual are sub ject to change without notice
* The contents of this brochure is believed to be correct,if users find errors, please contact the manufacturer.
* The company is not responsible for the accident and harm caused by user weong operation *
* This manual describes the function, not for lther special use

Warranty

Please show your product certification when you need repair service or something wrong items, it is effective show one and purchase invoice in together

1) Please contact with our company or repair service department when your clamp meter appear faults as soon as possible, don' t delay your use and warranty period.
2) Our company provide warranty service for one year from the dete of purchase.The company provides free warranty service after professional confirm the probaem is not by user sabotage during the warranty period
3) Repair need charges (repairs components fee) more than the warranty period
4) All of the following will charge the cost of repair even in the warranty period.

(1) Improper use or accidental disasters cauaed damage of components and circuit board burn
(2) Non-professional personnel open shell, check and modification
(3) Does not follow the instructions to operation caused problems
(4) No maintenance and repair of the other company products
(5) Users offer the maintenance of postage and transportation fees
(6) Clamp meter' s battery, probe, temperature probe and other functional accessories not included free warranty list