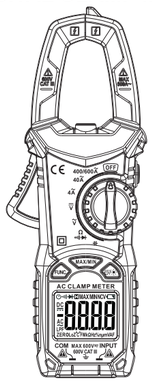
User manual

AC DIGITAL CLAMP METER



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

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Safety Statement

The design and manufacture of clamp meters conform to IEC 61010-1, IEC 61010-2-032, IEC 61010-030 International Electrical Safety Standards, and Compliance with IEC 61010 CAT.III 600V measurement category and pollution grade 2.

⚠**Warning***Read this manual before using the instrument.*

Safety Operation Specifications

"**Warning**" mark indicates the condition and operation which may cause danger to users.

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

⚠**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
- Voltage applied between terminals or between each terminal and grounding point shall not exceed the rated value.
- 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 are cracks in the instrument shell or plastic parts damaged. If so, please do not use again.
- Before using the instrument, please check whether the probe is cracked or damaged. If so, please replace the same type and the same electrical specifications
- Do not exceed the lowest rated Category of Measurement (CAT) rating in products, probes or accessories
- Do not measure the current when the probe is inserted into the input jack
- Don't work alone

- 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 neutral wire or the ground wire firstly, then connect the live wire; When disconnecting, please disconnect the live wire firstly, then disconnect the neutral wire and ground wire
- 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

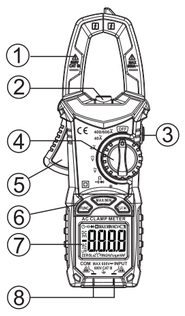
ϟ	High voltage warning
~	AC (Alternating current)
⎓	DC (Direct current)
≂	AC or DC
⚠	Warning, important safety signs
⏚	Ground
▭	Fuse
⧈	Equipment with double insulation/reinforced insulation protection
▭	low battery
CE	Product complies with all relevant European laws
🗑	The additional product label shows that do not discard this electrical/electronic product into household garbage.

Overview

A new generation of true RMS double impedance high performance digital clamp meter, which integrates multiple functions, makes your work easier, more efficient and safer.

Instrument panel description

① Clamp
② Flashlight
③ Data hold key
④ Knob switch
⑤ Trigger
⑥ Function key
⑦ Display screen
⑧ Measuring input jack



Function key

FUNC：Function select
MAX/MIN：MAX/MIN
FLASH：Flashlight/Backlight

Other function

- Max/Min measurement：press MAX/MIN key View Maximum and Minimum，press MAX/MIN key and keep more than 2 seconds to exit the maximum and minimum measurements
- Backlight：press FLASH key to turn on or off the backlight, or automatically turn off the backlight after 20 seconds
- Flashlight：press FLASH key and keep more than 2 seconds to turn on or off flashlight
- Data hold：press H key to turn on or off data hold
- Auto power off：
  No operation in 15 minutes. The meter will turn off power automatically to save battery energy. After automatic power off, press any key to restore the working state.
  If you press the FUNC key and keep, Then turn on the meter power, the automatic shutdown function will be cancelled. Reboot can restore automatic shutdown function.

Measurement operation

AC current measurement

1) Turn the knob to Ã，and select Proper range(4A,40A or

600A),
2) Then press the trigger to open the clamp, clamp the conductor to be tested, slowly release the trigger until the clamp are completely closed, and determine whether the conductor to be tested is clamped in the center of the pliers, if the conductor is not in the center of the pliers, additional errors will occur.
3) Read the measurement results from the display screen
4) When the measurement result is greater than 3A, the orange backlight will on.

⚠**Warning**

- When measuring high voltage, pay special attention to safety, so as not to be subjected to electric shock or personal injury.
- In order to ensure the measurement accuracy, the measured conductor must be placed in the center of the clamp, otherwise additional errors will occur.

AC/DC voltage measurement

1) Turn the knob to V̄ (DCV)or Ṽ (ACV)
2) Insert the red probe in "INPUT" jack，insert the black probe in "COM" jack

3) Contact the probe to the measured circuit (connect to the measured power supply or circuit in parallel), measure the voltage.
4) Read the measurement result on the screen.
5) When the measurement result is greater than 80V, the orange backlight will on.

⚠**Warning**

- The voltage above 600V can't be measured; otherwise the instrument may be damaged.
- Pay special attention to safety when measuring high voltage to avoid electric shock or personal injury.

Resistance measurement

1) Turn the knob to Ω, Switching resistance Measurement Function by Pressing FUNC Key
2) Insert the red probe in "INPUT" jack，insert the black probe in "COM" jack
3) Contact the probe to the measured circuit or resistance.
4) Read the measurement result on the screen.

⚠**Warning**

When measuring resistance on the line, disconnect the power supply and discharge all the high-voltage capacitors. Otherwise,

the instrument may be damaged and may be struck by electric shocks.

Continuity test

1) Turn the knob to Ω, Switching continuity test Function by Pressing FUNC Key
2) Insert the red probe in "INPUT" jack，insert the black probe in "COM" jack
3) Contact the probe to the measured circuit or resistance.
4) If the resistance or circuit of the measured resistance is less than 30Ω, the buzzer sounds and the orange backlight on; the screen displays the resistance

⚠**Warning**

When measuring capacitance on the line, disconnect the power supply and discharge all the high-voltage capacitors. Otherwise, the instrument may be damaged and may be struck by electric shocks.

Diode test

1) Turn the knob to Ω, Switching diode test Function by Pressing FUNC Key
2) Insert the red probe in "INPUT" jack，insert the black probe

in "COM" jack。
3) Touch the diode anode with the red probe, the black probe contacts the diode cathode.
4) Read the measurement result on the screen.

⚠**Warning**

When measuring diode on the line, disconnect the power supply and discharge all the high-voltage capacitors. Otherwise, the instrument may be damaged and may be struck by electric shocks.

Capacitance measurement

1) Turn the knob to ⊣⊢
2) Insert the red probe in "INPUT" jack，insert the black probe in "COM" jack。
3) Contact the probe to the measured circuit or Capacitance,
4) Read the measurement result on the screen.

⚠**Warning**

When measuring capacitance on the line, disconnect the power supply and discharge all the high-voltage capacitors. Otherwise, the instrument may be damaged and may be struck by electric shocks.

General Technical Specifications

- Environment condition of using:
  CAT.III 600V
  Pollution level：2
  Altitude < 2000m
  Working environment temperature and humidity: 0~40°C (<80% RH, <10°C non condensing).
  Storage environment temperature and humidity: -10~60°C (<70% RH, remove the battery).
- Temperature coefficient:
  0.1× accuracy/°C (<18°C or >28°C).
- MAX. Voltage between terminals and earth ground：600V
- Over range indication: it displays "OL".
- Low battery indication: when the battery voltage is lower than the normal working voltage, "▭" will be displayed.
- Input polarity indication: automatically display "–".
- Power: 2 x 1.5V AAA batteries.

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%

accuracy: ±（% reading + word）

DC voltage

Range	Resolution	Accuracy
400mV	0.1mV	±(0.5%reading+5)
4V	0.001V	
40V	0.01V	
400V	0.1V	
600V	1V	

Input impedance：10MΩ

Overload protection: 600V; Maximum input voltage: 600V

AC voltage

Range	Resolution	Accuracy
4V	0.001V	40~500Hz：±(1.0% reading +5)
40V	0.01V	other：±(2.0% reading +10)

400V	0.1V	
600V	1V	

Input impedance：10MΩ

Overload protection: 600V; Maximum input voltage: 600V

Frequency Response：30Hz ~ 1kHz True RMS

AC current

Range	Resolution	Accuracy
4A	0.001A	45~65Hz：±(2.5% reading +5) other：±(3.0% reading +10)
40A	0.01A	
400A	0.1A	
600A	0.1A	

Maximum current：600A Frequency

Frequency Response：30Hz ~ 1kHz：True RMS

Resistance

Range	Resolution	Accuracy
400Ω	0.1Ω	±(1.0%reading+5)
4kΩ	0.001kΩ	
40kΩ	0.01kΩ	
400kΩ	0.1kΩ	

4MΩ	0.001MΩ	
40MΩ	0.01MΩ	

Overload protection: 250V

Continuity

•ıı)	<Appprox.30Ω, the buzzer sounds	Test Voltage Approx. 2V Overload protection：250V

Diode testing

⊳|	It displays the approximate forward voltage value of the diode.	Test Voltage Approx. 2V Overload protection：250V

Capacitance

Range	Resolution	Accuracy
4nF	0.001nF	±(4.0%reading+5)
40nF	0.01nF	
400nF	0.1nF	
4μF	0.001μF	
40μF	0.01μF	
400μF	0.1μF	
4mF	0.001mF	

Overload protection: 250V

Maintenance

⚠**Warning**

To avoid electric shock, remove the test probe before opening the battery cover or back cover。

General maintenance

- Maintenance and service of this instrument must be carried out by professional qualified maintenance personnel or maintenance department.
- Use wet cloth or mild detergent regularly to clean the shell. Do not use abrasives or solvents. Wipe the contacts in the socket with a clean cotton swab soaked in alcohol.

Battery Installation or Replacement

The meter uses two AAA 1.5V batteries. Please install or replace the batteries according to the following steps.

1) Turn off the power of the meter and remove the probe
2) Use screwdriver to unscrew the screw that fixes the battery cover and remove the battery cover

3) Remove the old battery and install the new battery according to the polarity of the battery marked in the battery box
4) After installing the new battery, cover the battery cover and lock the screw

⚠**Warning**

- To avoid the possibility of electric shock or personal injury caused by incorrect reading, replace the battery immediately when the "▭" sign is displayed on the display screen.
- Please use the same type of batteries, do not use substandard batteries
- In order to ensure safe operation and maintenance of the instrument, please take out the battery when not in use for a long time, in order to prevent damage to the product caused by battery leakage.

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