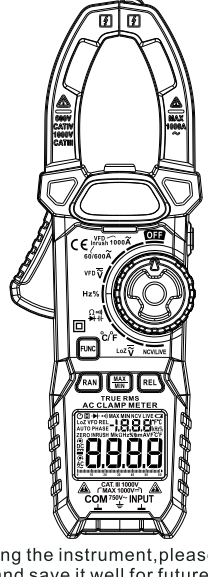


User manual

AC DIGITAL CLAMP METER



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

Table of Contents:

- Safety Information.....1
- Safety Symbols.....4
- Overview.....5
- Panel description.....5
- Function operation.....6
- Operations.....8
- Auto power off.....8
- Inrush current measurement.....8
- VFD current measurement.....9
- AC current measurement.....10
- VFD Voltage measurement.....11
- AC/DC Voltage measurement.....12
- Frequency/duty measurement.....14
- Resistance measurement.....14
- Continuity test.....15
- Diode test.....16
- Capacitance measurement.....16
- Temperature measurement.....17
- Non-contact AC Voltage (NCV) Detection.....18
- Live Detection.....18
- General Technical Specifications.....19
- Accuracy Specifications.....20
- AC current.....20
- DC voltage.....21
- AC voltage.....21
- Resistance.....22
- Diode.....23
- Continuity.....23
- Capacitance.....23
- Frequency/duty.....24
- Temperature.....25
- Maintenance.....26
- General maintenance.....26
- Battery Installation or Replacement.....26

3

Safety Information

High voltage warning

AC

DC

AC or DC

Warning, danger

Ground

Double insulation/reinforced insulation protection

Low battery

Product complies with all relevant European laws

VFD Frequency converter

Inrush Inrush current measurement

LoZ Low Input Impedance Voltage Measurement

The additional product label shows that do not discard this electrical/electronic product into household garbage.

Safety Symbols

High voltage warning

AC

DC

AC or DC

Warning, danger

Ground

Double insulation/reinforced insulation protection

Low battery

Product complies with all relevant European laws

VFD Frequency converter

Inrush Inrush current measurement

LoZ Low Input Impedance Voltage Measurement

The additional product label shows that do not discard this electrical/electronic product into household garbage.

Overview

This meter is a double impedance high performance true RMS digital clamp meter, which integrates multiple functions, makes your work easier, more efficient and safer. It can measure AC/DC voltage, AC/DC current, frequency, duty, resistance, capacitance, temperature, diode, NCV, VFD, inrush current, etc.

High Input Impedance Voltage Measurement: When measuring in a circuit, it has little effect on circuit performance. This is the desired effect for most voltage measurement applications and is especially important for sensitive electronic or control circuits.

Low Input Impedance Voltage Measurement (LoZ): It can safely troubleshoot sensitive electronic or control circuits and circuits that may contain false voltages, and can more reliably determine whether there is a voltage on the circuit.

Panel description

4

Operations

Auto power off

No operation in 15 minutes. The meter will power off automatically to save battery energy. After automatic power off, press any key to power on. If you press the key and keep, then turn on the meter power, the auto power of function will be cancelled.

Inrush current measurement

- Turn the knob to and select Proper range(60/600A or 1000A). Press key until the "inrush" character is displayed
- Then press the trigger to open the clamp, clamp the conductor to be tested, and then slowly release the trigger until the clamp is 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.
- Turn on the equipment to be tested (such as motor) and then trigger the meter by inrush current
- Read the measurement results on the display

5

Safety Information

WARNING
Please read this manual carefully before using this product.

"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
- Use the instrument strictly according to this instruction, otherwise the protection function provided by 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.

6

automatic range.

Max/Min View Key
At current, voltage, resistance and temperature functions. Press this key to cycle through the maximum and minimum values; Press this key for more than 2 seconds to exit this mode. After entering this mode, the meter will automatically switch to manual range.

Relative Value Key
In the current, voltage, resistance, capacitance and temperature, this key is the relative value key. Press this key to turn on relative value measurement, the display screen will display "REL", and press it again to exit the relative value measurement function.

Data Hold/FlashLight Key
Press this key to turn on data hold, and the display screen displays "H" character to show data locking. Press again to cancel. Press this key for more than 2 seconds to turn on or off the flashlight.

7

or character is displayed

- Insert red probe to "INPUT" jack, insert black probe to "COM" jack.
- Connect the probe with voltage source or both ends of load in parallel for measurement
- Read the measurement results on the display

WARNING

- Before use, use the meter to test the known voltage or current, and confirm that the meter is in good condition
- Pay special attention to safety when measuring high voltage to avoid electric shock or personal injury
- Please do not use VFD function to verify the presence of dangerous voltage or current, which may exceed the indicated value to avoid electric shock or personal injury.

CAUTION

- When using LoZ (low input impedance) measurement, the continuous measurement time cannot exceed 1 minute.
- Do not use LoZ mode to measure voltage in circuits that may be damaged by the low impedance of this

13

mode.

NOTE

- High input impedance: approx. 10MΩ
- Low input impedance: approx. 30kΩ

Frequency/duty measurement

- Turn the knob to Hz%
- Insert red probe to "INPUT" jack, insert black probe to "COM" jack.
- Connect the probe with voltage source or both ends of load in parallel for measurement
- Read the measurement results on the display

WARNING

- Before use, use the meter to test the known voltage or current, and confirm that the meter is in good condition
- Pay special attention to safety when measuring high voltage to avoid electric shock or personal injury

Resistance measurement

- Turn the knob to
- Insert red probe to "INPUT" jack, insert black probe to "COM" jack.
- Connect the probe to the both ends of resistor or circuit to be tested for measurement.
- If the resistance value of the tested resistor or circuit is less than about 30Ω, and the LED indicator light is on at the same time, the resistance value will be displayed

WARNING

- When measuring circuit continuity, determine that the power supply is disconnected and the capacitor in the circuit is completely discharged

CAUTION

It takes a long time for the cold end of thermocouple to be restored in the meter to achieve thermal balance with the environment.

14

"COM" jack.

- Connect the probe to the both ends of resistor or circuit to be tested for measurement.
- Read the measurement results on the display

WARNING

- When measuring circuit impedance, determine that the power supply is disconnected and the capacitor in the circuit is completely discharged

Continuity test

- Turn the knob to , Press key until the "diode" Symbol is displayed
- Insert red probe to "INPUT" jack, insert black probe to "COM" jack.
- Connect the probe to the both ends of resistor or circuit to be tested for measurement.
- If the resistance value of the tested resistor or circuit is less than about 30Ω, and the LED indicator light is on at the same time, the resistance value will be displayed

WARNING

- When measuring circuit continuity, determine that the power supply is disconnected and the capacitor in the circuit is completely discharged

CAUTION

It takes a long time for the cold end of thermocouple to be restored in the meter to achieve thermal balance with the environment.

15

Diode test

- Turn the knob to , Press key until the "diode" Symbol is displayed
- Insert red probe to "INPUT" jack, insert black probe to "COM" jack.
- Connect the red probe to diode anode and connect the black probe to diode cathode.
- Read the measurement results on the display

WARNING

- When measuring diode, determine that the power supply is disconnected and the capacitor in the circuit is completely discharged

Capacitance measurement

- Turn the knob to , Press key until capacitance function
- Insert red probe to "INPUT" jack, insert black probe to "COM" jack.
- Connect the probe to the both ends of capacitance to be tested for measurement.

16

600A	0.1A	VFD: ±(5.0%reading+10)
1000A	1A	INRUSH: ±(5.0%reading+10)

MAX current: 1000A, True RMS
Frequency range: 0.1~600A: 40Hz~400Hz; 600~1000A: 40Hz~60Hz

Range	Resolution	Accuracy
600mV	0.1mV	±(0.5%reading+5)
6V	0.001V	
60V	0.01V	±(0.5%reading+5)
600V	0.1V	
1000V	1V	±(0.8%reading+5)

DC voltage

Range	Resolution	Accuracy
600mV	0.1mV	±(0.5%reading+5)
6V	0.001V	
60V	0.01V	±(0.5%reading+5)
600V	0.1V	
1000V	1V	±(0.8%reading+5)

Input impedance: 10MΩ(LoZ:300kΩ)
Overload protection: AC750V/DC1000V
Maximum input voltage: AC750V/DC1000V
Note: In the small voltage range, when the probe is not connected to the measuring circuit, the meter display reading may not be zero, which is normal and will not affect the normal measurement.

AC voltage

Range	Resolution	Accuracy
600mV	0.1mV	±1.0% or ±2%
6V	0.001V	
60V	0.01V	±1.0% or ±2%
600V	0.1V	
1000V	1V	±2.0%

Input impedance: 10MΩ(LoZ:300kΩ)
Overload protection: AC750V/DC1000V
Maximum input voltage: AC750V/DC1000V
Note: In the small voltage range, when the probe is not connected to the measuring circuit, the meter display reading may not be zero, which is normal and will not affect the normal measurement.

17

Non-contact AC Voltage (NCV) Detection

- Turn the knob to **NCV/ME**, the "NCV" symbol is displayed
- Then NCV sensor gradually approaches the detected point.
- When a weak electromagnetic field signal is sensed, the "L" character is displayed, the buzzer emits a slow beep sound, and the green LED indicator light is on.
- When a strong electromagnetic field signal is sensed, the "H" character is displayed, the buzzer emits a quick beep sound, and the red LED indicator light is on

NOTE

When using NCV function, please remove the probe, otherwise the detection Sensitivity will be affected..

Live Detection

- Turn the knob to **NCV/ME**, Press key until the "LIVE" Symbol is displayed
- Insert red probe to "INPUT" jack.
- Connect the red probe to the conductor to be tested for measurement
- When a low voltage is detected, the buzzer emits a slow beep sound, and the

18

green LED indicator light is on

- When a high voltage is detected, the "H" character is displayed, the buzzer gives a quick beep sound, and the red LED indicator light is on. In general, the fire line detected at this time

NOTE

When using Live function, please remove the black probe, otherwise the detection Sensitivity will be affected..

General Technical Specifications

- Environment condition of using:
IEC 61010-1, Pollution level 2
IEC 61010-2-032, CAT II 1000V / CAT IV 600V
IEC 61010-2-033, CAT III 1000V / CAT IV 600V
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).

Range	Resolution	Accuracy
10μF	0.001μF	±(4.0%reading+5)
100μF	0.01μF	
1000μF	0.1μF	±(5.0%reading+10)
10μF	0.001μF	
100μF	0.01μF	±(5.0%reading+10)
1000μF	0.1μF	
10mF	0.001mF	±(5.0%reading+10)
100mF	0.01mF	

Frequency/duty

Range	Resolution	Accuracy
10Hz	0.001Hz	±(1.0%reading+3)
100Hz	0.01Hz	
1000Hz	0.1Hz	±(3.0%reading+3)
10kHz	0.001kHz	
100kHz	0.01kHz	±(3.0%reading+3)
1000kHz	0.01kHz	
10MHz	0.001MHz	±(3.0%reading+3)
100MHz	0.01MHz	

19

1~99%	0.1%
-------	------

Overload protection: 250V;
Hz/Duty:

- Range: 0~10MHz
- Voltage sensitivity: 0.5~10V AC (As the frequency increases, the voltage should increase accordingly.)
Through mode V:
- Range: 10Hz~10 kHz
- Voltage sensitivity: >0.5V AC (As the frequency increases, the voltage should increase accordingly.)
Clamp measuring frequency:
1) Range: 10Hz~1 kHz
- Current sensitivity: >20A (As the frequency increases, the current should increase accordingly.)

Temperature

Resolution	Accuracy
1°C	-20°C~90°C ±3°C

20

circuit is completely discharged

Diode test

- Turn the knob to , Press key until the "diode" Symbol is displayed
- Insert red probe to "INPUT" jack, insert black probe to "COM" jack.
- Connect the red probe to diode anode and connect the black probe to diode cathode.
- Read the measurement results on the display

WARNING

- When measuring diode, determine that the power supply is disconnected and the capacitor in the circuit is completely discharged

Capacitance measurement

- Turn the knob to , Press key until capacitance function
- Insert red probe to "INPUT" jack, insert black probe to "COM" jack.
- Connect the probe to the both ends of capacitance to be tested for measurement.

21

	0°C ~ 400°C	±1.0% or ±2°C
	400°C ~ 1000°C	±2.0%
	-41° ~ 32°	±0.1°
T	32° ~ 752°	±1.0% or ±4°
	752° ~ 1832°	±2.0%

Note: The above precision does not include the error of thermocouple probe.

Maintenance

To avoid electric shock, remove the 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 three AAA 1.5V alkaline batteries. Please install or replace the batteries according to the following steps:

- Turn off the power of the meter and remove the probe

22

- Use screwdriver to unscrew the screw that fixes the battery cover and remove the battery cover
- Remove the old battery and install the new battery according to the polarity of the battery marked in the battery box
- 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 "COM" sign is displayed on the display screen.
- Please use the same type of batteries, do not use substituted 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.

23

SIZE: 75X105mm

