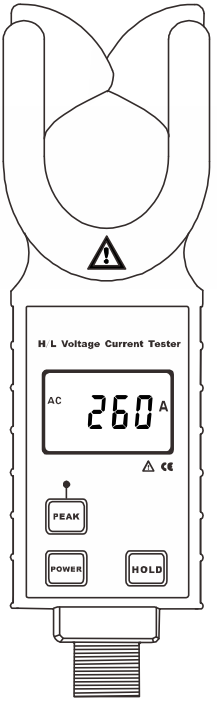
H/L Voltage Clamp Meter



ES1000

USER MANUAL

GuangZhou ZhengNeng Electronics Technology Co.

CONTENT

Ⅰ. Safety rules and precautions

Thank you for purchasing the company's high and low voltage clamp ammeter. To avoid possible electric shock or personal injury, please be sure to strictly observe the safety rules and precautions listed in this manual.

- Before use, check whether the instrument is in good condition, no damage, and forbid to use before the back cover is covered. Otherwise, there is danger of electric shock.
- In any case, it should pay special attention to safety in use of this meter, particularly in measurement of circuitry with more than AC100V and above voltages.
- If the voltage of tested circuitry has exceeded 600V, it must be used by connecting with an insulation rod.
- As it is very dangerous of high voltage transmission line, the operator must get strict training and the relevant certification on high-pressure operation of the state before using this meter and making a field test.
- It is strictly forbidden to use this meter to test the wire without any insulate protection or convergence generatrix.
- Please pay attention to marked words and symbols on panel or backboard of this meter.
- Please do not put or store this meter in the place of high temperature, with moisture, with frozen dew or with direct daylight irradiation for a long time.
- Please note the battery polarity when replacing battery, and remove the battery if you expect not to use this meter for a long time.
- It must be operated by qualified staff that has the authorization on tearing down or repairing this meter.
- Check the housing before using the meter. Check for cracks or

missing plastic parts. If the head and other parts of the instrument are damaged, please do not use it..

- To avoid the impact of transducer clamp, it needs to maintain this meter regularly. Do not use corrosive or coarse materials to clean, but use soft cloth (such as glasses cloth), dip a lubricant that is rust-proof and dehumidified, and gently wipe the meter.
- For the reason of this meter, in case that any danger may occur if continue to use it, stop using it immediately and seal it up for keeping at once, which shall be dealt with by qualified authorization agency.
- The danger symbol “  “on the meter and the manual, the user must make safe operation according to the indication.
- The extremely dangerous symbol “  ” on the meter and the manual, the user must make safe operation according to the indication.
- It suggests that this meter shall be made insulation intensity test at least once every year (AC 60kV/rms five insulation rods between the two ends.)
- The manual has a wireless transmission data type.

Ⅱ. Brief Introduction

The H/L Voltage Clamp Meter is a high-voltage measurement tool composed of a special clamp ammeter equipped with a high voltage insulation rod. Inside the clamp ammeter, a mask integrated circuit is used, and an insulating rod is connected to measure the current of a high voltage line with a bare wire or less than 35 kV. When not using the insulation rod, it can also be used as a high-precision low-voltage clamp ammeter, leakage current meter, can accurately measure the current of 0.1mA. It has a simple to use, easy to carry

Its wireless transmission test data, equipped with a wireless receiver, can receive measured data within 30 meters of a straight line (without obstacles), ensuring high-precision, high reliability,

and high stability throughout the year..

The H/L Voltage Clamp Meter also has functions such as peak hold, data retention, data storage, wireless transmission, etc. Its special clamp ammeter can facilitate clamping or evacuation of the measured wire by pushing or retracting the insulation rod, saving time and fast.

It can be widely used in substations, power plants, industrial and mining enterprises and testing stations, electrical maintenance departments for current detection and field electrical work. Insulation rods are light, moisture-proof, high-temperature resistant, impact-resistant, bend-resistant, and highly insulating.

Ⅲ. Electrical Symbols

Symbol	Meaning
	Dangerous voltage (Risk of electric shock)
	Warning attention safety sign.
	Comply with EU Community Safety Standards.
	Alternating Current (AC)
	Direct Current (DC)
	Battery, when indicated, means low battery

Ⅳ. Technical Indicators

Model	Range of measurement	Accuracy	Jaw Specification
Base Model	0.0mA-1200A	0.1mA	Φ50mm
Wireless Model	0.0mA-1200A	0.1mA	Φ50mm

Insulation sheath wire test below 60kV line voltage, bare wire test below 60kV (with insulation rod operation)

1. Jaw Specification: Φ50mm
2. Range of measurement: 0.0mA-1200A（50/60Hz Auto Identification）
3. Test Accuracy: ±2%±5dgt
4. Sampling Speed: About 2 times/second
5. Meter Dimension: W/T/H: 87mm×37mm×262mm

*6. Receiver Dimension: W/T/H: 100mm×35mm×204mm

7. LCD Dimension: 47mm×28.5mm

*8. Wireless Receiver Display Dimension:62mm × 44mm

9. Internal Battery: DC6V 4 alkaline batteries, 7th, Wireless Receiver: 5 1.5V5 alkaline batteries
10. Meter Total Weight:2.5kg (including insulating rod and battery)
11. Insufficient Voltage: LCD display "  " symbol
12. Work Temperature: -10℃～40℃

13. Storage Temperature: -10℃～60℃

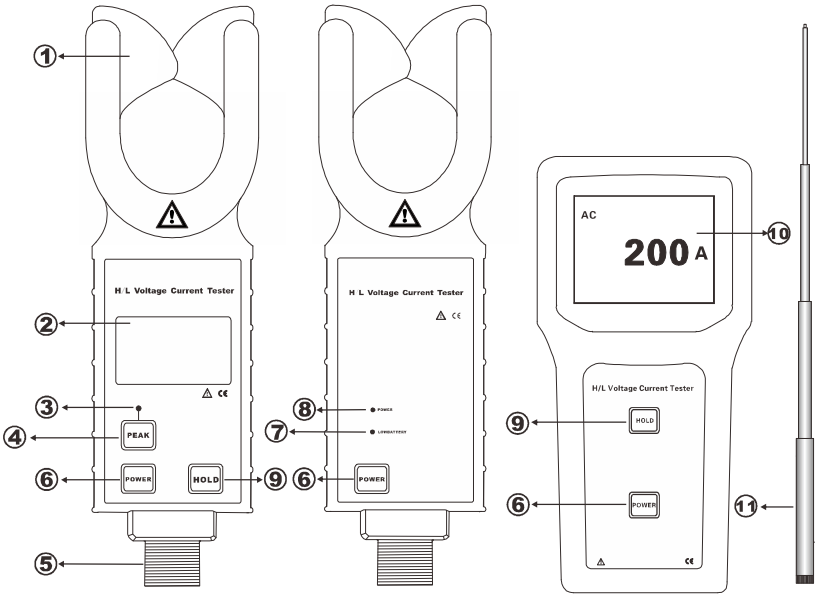
14. Relative Humidity: 0℃～31℃≦75%，31℃～40℃≦50%

*15. Wireless Distance: 30m

16. Insulating Rod: Five section insulation rods (5 meters in total)
Insulation strength AC60kV/rms

Parameter with symbol* is for the wireless model

Ⅴ. Outline Structure



Base Model **Wireless Model** **Receiver for Wireless Model**

NO.	Description
①	Clamp Jaw
②	Base Type：LCD Display
③	PEAK Test Indication
④	PEAK Key
⑤	Insulation Rod Connector
⑥	POWER Key
⑦	Wireless Type Low Battery Indication
⑧	Wireless Type Power Indication
⑨	Wireless Type HOLD Key
⑩	Wireless Receiver LCD Display
⑪	Insulation Rod(total 5m)

Ⅵ. H/L Voltage Clamp Meter Symbols

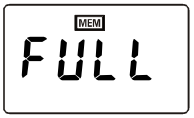
1. Button Instructions

POWER	Press the POWER button to turn on the LCD display and enter the normal test mode.
PEAK	Peak hold
LOWBATTERY	Low-power display light
HOLD	Data retention function (wireless model)

2. LCD four-digit Symbol Display Instructions

	Low battery voltage symbol, when the battery voltage is lower than 5.5V, this symbol shows, please replace the battery in time
MEM	Data storage symbol
MR	Data access symbol
mVA	Unit symbol
AC	Alternating current symbol
HOLD	Data retention
DC	Direct current symbol

3. Ordinary H/L Voltage Clamp Meter Test Display Instruction

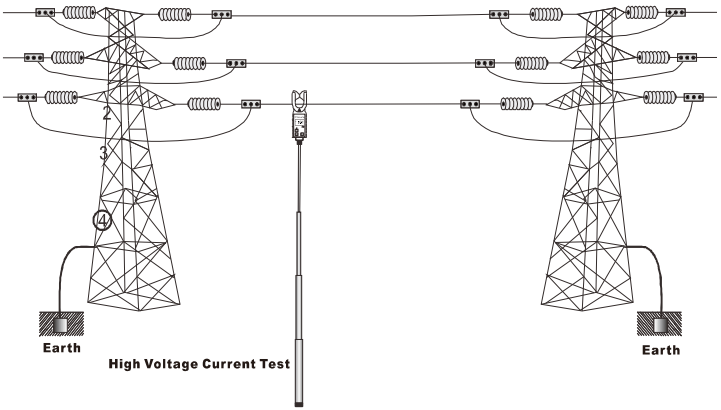
Status Symbol	Instrucion
	The measured current exceeds the upper limit of the meter
	When the memory data is full of 100 groups, the "FULL" symbol flashes and data can no longer be stored
	Data clear symbol, displayed during clearing
	The measured current is 0.1mA

	Lock the display data. This data is automatically stored as group 08. The measured current is: 100.6A
	The measured current is: 486A battery voltage low symbol display, please replace the battery in time
	Review the stored 08th set of the measured current, it's data is: 100.6A

Ⅶ. Basic H/L Voltage Clamp Meter Operating Instructions

⚠	Please check all parts of the meter carefully before usage, to see whether there is any damage. And make sure no damage before usage.
	According to manual instructions to install the battery

Test Operation



1. Power On/Off

Press POWER button to power on, the instrument will displays the LCD screen, entering normal testing mode. If LCD display is relatively dark after power on, it is possible that battery voltage is a bit lower. Please replace battery. 15 minutes after powering on the meter, if it remains idle, an auto-power off procedure starts to preserve the battery life and LCD will continue flash until the complete switch off takes place after 30 seconds. In case of LCD continuous flash, press POWER button, then the meter will continue to work.

Under general test mode, press POWER button to power off.

In the power-on state, press and hold the HOLD button for a long time. After releasing, enter the data access mode. In the data reference mode, press the HOLD button and the POWER button to check the data mode. Press and hold the HOLD button to return to the normal test mode, and then press the POWER button to shut down.

2. General Test

	High voltage, extremely dangerous! It must be operated by qualified staff that has acquired authority. The operator must strictly abide by the safety rules. Otherwise, there is electric injury danger, causing personal damage or casualty accident.
	Dangerous! It cannot be used to measure the circuit over 60KV voltage. Otherwise, there is electric injury danger, causing personal damage or equipment damage.
	Dangerous! It cannot be used to measure the circuit over 1200A voltage. Otherwise, there is electric injury danger, causing personal damage or equipment damage.

General Test: In the process of test, LCD will display the tested current value real time, and LCD data will vary with the

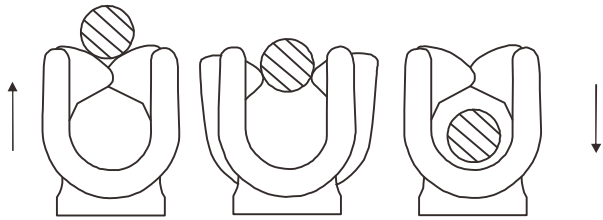
current change. When the tester is removed away from the lead on test, it does not preserve the test result, LCD display will return to zero.

In normal testing mode, it is suitable for close distance measurement, convenient for circuit test by direct read of LCD data.

⚠	Before test, firstly to connect insulation rod, which must be connected in right position, and then to connect tester, avoiding the impact of meter to ground surface.
	Make sure to use specially equipped insulation rod to connect with the meter.
	After test, it should incline the insulation rod accordingly on drawing in. Firstly to tear down the tester and then the insulation rod, avoiding the impact of meter to ground surface.

After the normal start-up, let the wire be in the middle of the clamp guide area, the instrument guide area is perpendicular to the wire, push the meter forward to clamp the measured wire, and the LCD shows the measurement result. If “OL A” is displayed, the measured conductor current exceeds the upper limit of the gear. Please select high-end or higher limit meter. After pulling back, the instrument can be evacuated from the tested wire. When evacuating, the instrument guide area should be kept perpendicular to the wire..

Wire



PUSH PULL

Press HOLD key to release the hand, LCD display HOLD symbol, enter HOLD mode, press HOLD key to exit measurement mode!

Press and hold the HOLD button to release, enter the data query mode. In the data reference mode, press and hold the HOLD button to release the exit data reference mode and return to the normal test mode.

In the PEAK test mode, press the PEAK key to exit the PEAK test mode and return to the normal test mode.

	Attention! For the sake of safety, please move the meter away from the tested wire

3. PEAK Test

PEAK test: the maximum current test. The meter will make automatic comparison on the changes in measured current, indicating the maximum value and maintain it.

When the meter is removed away from the wire on test, the test result will be kept consistently, suitable for the circuit test on those LCD data hard to be read directly.

Under the normal testing mode, press **PEAK** button，**PEAK** indication light will be bright,，enter **PEAK** testing mode. That means the meter will display and automatically keep the maximum value in the test.

4. Data Maintenance

Under normal testing mode, press **HOLD** button to keep LCD display, "**HOLD**" symbol displays, the "HOLD" symbol indicates that the MEM flashes once and the measured current data is retained Press **HOLD** button again to release data lock, returning to normal testing mode, and "**HOLD**" symbol disappears.

5. Data Storage

Under normal testing mode, press **HOLD** to storage data, at the same time, Meter will automatically form serial numbers, and memory the current preserved data. During the storage, "**MEM**" symbol will show once by flash. This meter can

memory 100 groups of data, in case of full storage, "**FULL**" symbol will display by flash continuously, and it cannot continue to memory until cleaning out the previous memory.

6. Data Reference

In the normal test mode, press and hold the HOLD button to release and enter the data reference mode. The "MR" symbol is displayed. At the same time, the stored 01st group data is automatically displayed. Press the HOLD button or the POWER button to scroll up or down through the stored data. The data, when referring to the last set of stored data, automatically returns to the first set of data. Press and release the POWER button to release the data reference mode and return to the normal test mode

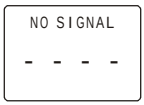
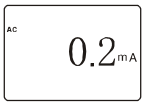
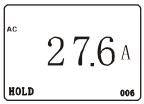
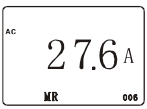
7. Data Deletion

In the test mode, press and hold the POWER button once to clear all stored data. During the data clearing process, the "dEL" symbol is displayed. Hold down the HOLD button to clear the data.

Ⅷ .Symbols of Wireless H/L Voltage Clamp Meter

1. Instrument LCD Symbol Description

Status Symbol	Instructions
	The measured current exceeds the upper limit of the meter
	When the memory data is full of 200 groups, the "FULL" symbol flashes and data can no longer be stored。

	Data Clear, Clear Select "YFS", Do Not Clear Select "No"。
	No signal received
	The measured current is 0.2mA
	Lock the display data, this data is automatically stored as group 06. The measured current is: 27.6A.
	The measured current is: 486A battery voltage low symbol display, when the battery voltage is lower than 5.5V, this symbol shows, please replace the battery in time.
	The measured current of the stored 06th data is: 27.6A

IX Receiver Operation

1. Power On/Off

Press POWER button to turn on, LCD display, enter the receive data mode. If the LCD display is dark after power on, the battery voltage may be low. Replace the battery in time.

After the receiver is turned on for 15 minutes, the LCD continues to blink, indicating that the LCD will automatically shut down. After the LCD flashes for 30 seconds, the LCD will

automatically shut down to reduce battery consumption. If the LCD continues to flash, press the POWER button to continue working.

Under data reference, first, press **POWER** button(for 3 seconds) to exit data reference mode, then come back to data receive mode, press **POWER** button once again to power off.

2. Data Reception

After normal power on, the receiver will under receiving mode. If there are emission data, the receiver will display the test result real time. If it has not received any signal, the receiver will search signals constantly, and display "NO SIGNAL- - - -"symbol dynamically.

3. Data Maintenance

Under Data Reception mod, press **HOLD** button, keep LCD display, "**HOLD**" symbol indication. Press **HOLD** button once again to relieve data lock, returns to data reception mode, "**HOLD**" symbol disappears.

4. Data Storage

Under Date Reception mode, press **HOLD** button to maintain data, meanwhile, the receiver will automatically form serial numbers, and memory the current preserved data. During the storage, "**MEM**" symbol will display once by flash.

The receiver can memory 200 groups of data, in case of full storage, "**FULL**" symbol will display by flash continuously, and it cannot continue to memory until cleaning out the previous memory.

5. Data Reference

Under Data Reception mode, press **HOLD** button for more than 3 seconds to enter Data Reference mode, "**MR**" symbol display, meanwhile, it will automatically display data saved in the group 1. Then press **HOLD** button or **POWER** button to read the stored data by turning upwards or downwards in cycle. It will return to the group 1's data automatically after reaching

the last group's data in storage.

Press **HOLD** button for more than 3 seconds to exit from data reference mode, returning to receiving data mode.

6. Data Deletion

Under any mode, press **POWER** button for more than 3 seconds, "Delete data?" appears, clear all stored data long press "YFS" (more than 3 seconds) to delete, otherwise select "No", and return to receive data mode

. X Batteries

	Warning! In case that the battery's cover board is not well closed, it is forbidden to make test. Otherwise, it is dangerous.
	Pay attention to the polarity of battery, in case of damage to the meter.
	Do not mix in the use of new and old batteries.

1. When the battery voltage is below 5.5V, the meter will display "  " symbol, indicating the batteries have no sufficient power content. Please replace batteries.

XI. Accessories

Tester	1PC
Insulation Rod	1SET(5m)
Meter Bag	1PC
Tester (battery) DC6V 7# alkaline battery	4 PCS
User's Manual	1SET

The contents of this user manual cannot be used as a reason to use the product for special purposes.
The company is not responsible for other losses caused by use.
The company reserves the right to modify the contents of the user manual. If there is any change, it will not be notified.

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