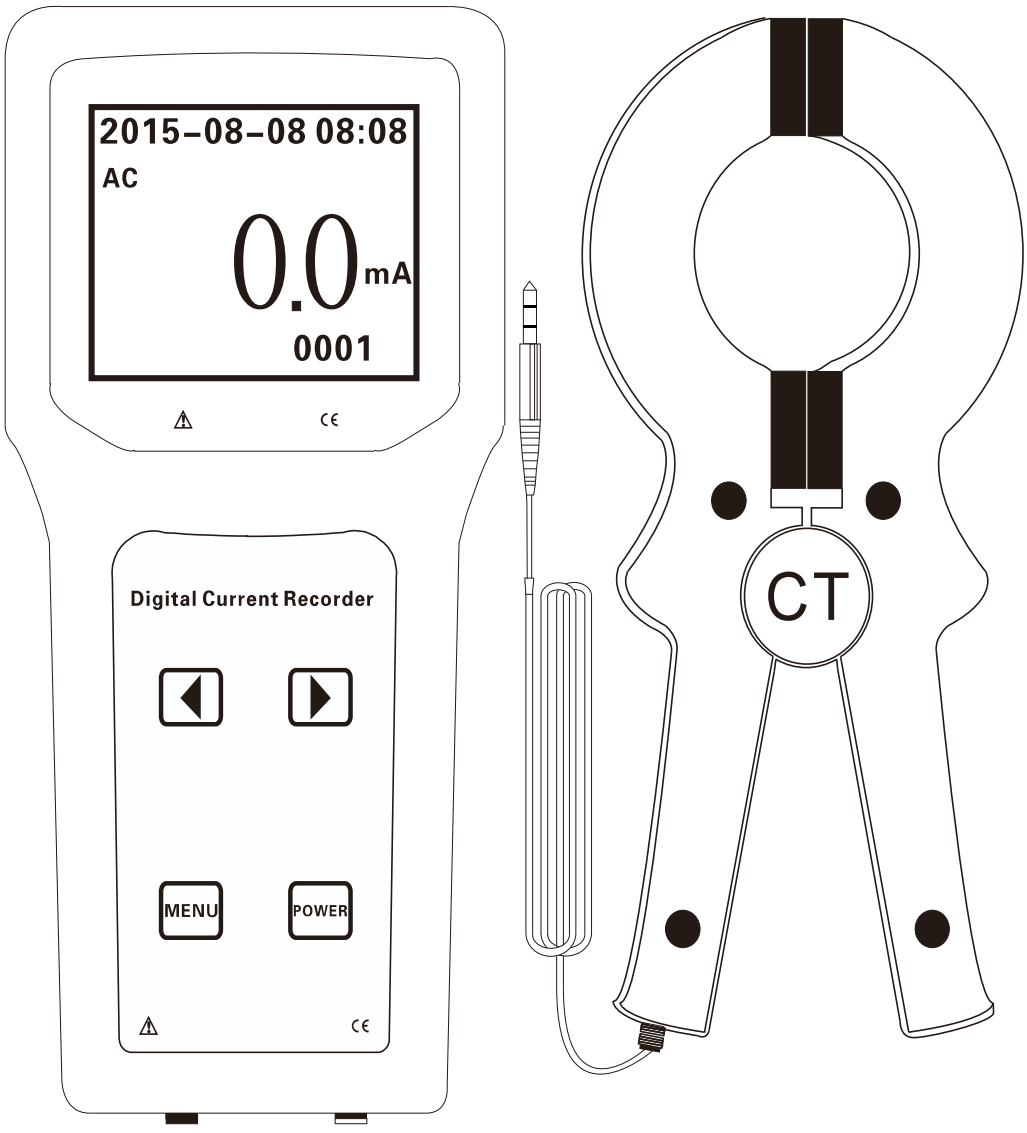
Digital Current Recorder



ES5001
USER MANUAL

Guangzhou Zhengneng Electronic Technology Co.,Ltd.

CONTENT

I. Safety Precautions and Procedures

Thank you for purchasing our **high precision clamp ammeter**. Before you use the instrument for the first time, in order to avoid possible electric shock or personal injury, please be sure to **read and strictly abide by the safety rules and precautions listed in this manual**.

- In any case, the use of this instrument should pay special attention to safety.
- Pay attention to the label text and symbols of the instrument panel and the back panel.
- Battery voltage is low, LCD display is dark, please charge in time.
- This instrument has no automatic shutdown function, please turn it off after use.
- Cannot be used to test lines above 600V or more than 1000A。
- The back cover and battery cover of the instrument are not covered. It is forbidden to use.。
- When the instrument is in use and the casing or test line breaks and the metal is exposed, stop using it.。
- Do not place and store the instrument for a long time under high temperature and humidity, condensation, and direct sunlight.。
- The instrument and current jaws must be regularly maintained and kept clean. Do not wipe the jaws with corrosives and coarses.
- Avoid current clamps from impact, especially the jaw joints。
- Replace the battery, please pay attention to the polarity of the battery. Please remove the battery if not use the instrument for a long time.
- Use, disassembly, and repair of this instrument must be performed by authorized personnel.
- Due to the reason of this instrument, if it is dangerous to continue using it, it should be stopped immediately and sealed immediately, and handled by an authorized institution.
- “  ” hazard symbol on the instrument and manual, the user must follow the instructions for safe operation.
- The “  ’ extremely dangerous sign in the manual, the user must strictly follow the instructions for safe operation.
- Please turn off the power before plugging or unplugging the SD card, otherwise the SD card will be damaged.

II. Introduction

The high precision clamp ammeter is designed and manufactured for on-line testing, monitoring, and recording of currents. It consists of a host computer, current monitoring software, current clamps, communication lines, and memory cards. It is widely used in electric power, communication, meteorology, railway, oil field, construction, measurement, scientific research and teaching units, industrial and mining enterprises and other fields.

The host uses a luxurious blue screen LCD display at a glance. At the same time, it has a large storage space of TF card, can store 9999 sets of data, and also has an automatic storage interval setting function, which is set from 1 to 60 minutes.

The high precision clamp ammeter has online real-time monitoring and history query function, and has functions of reading, reviewing and saving historical data. The current clamp is made of special alloy, and the latest CT technology ensures high precision, high stability and high reliability for continuous monitoring throughout the year.

III. Electrical Symbol

	Extremely dangerous! The operator must strictly abide by the safety rules, otherwise there is a danger of electric shock, resulting in personal injury or casualty accident.
	Danger! The operator must strictly abide by the safety rules, otherwise there is a danger of electric shock, resulting in personal injury or casualty accident.
	Warning! Safety rules must be strictly observed, otherwise there is personal injury or equipment damage.
	Double insulation
	AC
	DC

IV. Rang and Accuracy

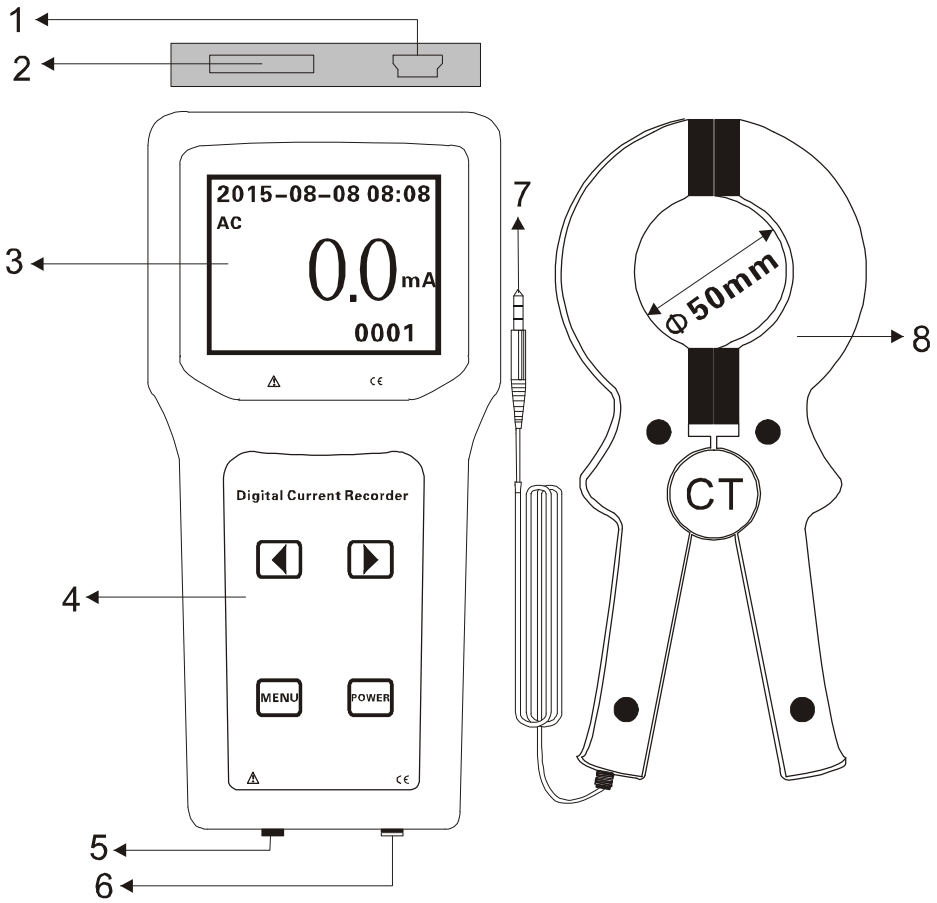
Model	Range	Resolution	Highest precision	Jaw size
ES5001	0.0mA-1000A	0.1mA	±0.5%FS	Φ50mm
ES5000	0.0mA-200A	0.1mA	±0.5%FS	Φ20mm

V .Technical Specifications

Function	AC current、Leakage current measurement，Online monitoring record, insulation fault finding, line maintenance
Power	DC6V Nickel-metal hydride rechargeable battery 1.2V×5
Test mode	Clamp CT
Display mode	LCD：128dots×64dots
Instrument size	Host：W/H/T100mm×204mm×35mm
	ES5001 current clamp：W/H/T 101mm×214mm×27mm
	ES5000 current clamp：W/H/T 60mm×160mm×20mm
Weight	Host：430g（including battery）
	ES5001 current：455.5g
	ES5000 current：260 g
LCD size	Display area：62mm×44mm
Sampling rate	2 times/sec
Data storage	9999 groups（Losing power or replacing the battery will not lose data）
time settings	Set the recording interval within 1 to 60 minutes, 0 minutes means not automatically stored
Recording time	3 days of continuous operation in power saving mode
Line voltage	Line test below AC600V
Overflow	Over-range overflow function: "OL" symbol display

display	
battery voltage	When the battery voltage drops to 5.2V, the battery voltage is low and the symbol is displayed, reminding you to charge. The measured data is also accurate.
rated power	15mA in power saving mode, up to 25mA
Lead length	Standard 2 meters
Working temperature and humidity	-10℃～40℃；below 80%rh
Storage temperature and humidity	-10℃～60℃；below 70%rh
Insulation resistance	20MΩ or more,1000V
Suitable for Safety Regulations	IEC1010-1、IEC1010-2-032、 pollution grade 2、CAT Ⅲ(600V) IEC61326(EMC stardard)

VI. Structure



1.USB data download interface

2.TFMemory card socket

5. Current clamp signal input

6. Power charging DC seat

3.LCD（Window size 62*44mm，）

4.Function button area

7. Current clamp signal output plug

8. Φ50mm Round current clamp

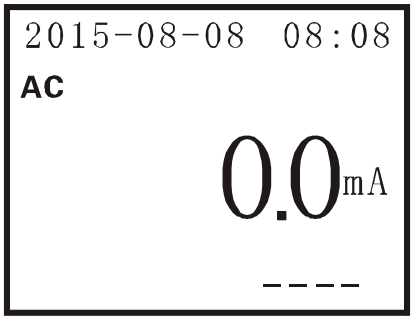
VII.Instrument Operation

1. Power On/Off

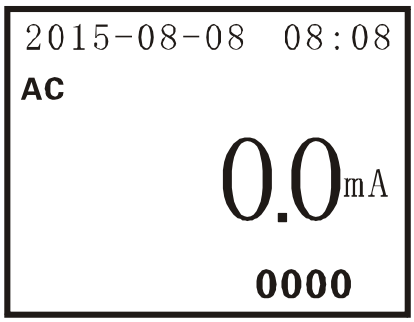
Press POWER button to start, LCD display, after normal boot, the following picture (a) is displayed: If the LCD display is dark after booting, the battery voltage may be insufficient, please charge, then press POWER button to shut down. The instrument does not have an automatic shutdown function. Please turn it off after use.

2. Test Display Mode

In the test mode, when the memory card is not inserted, as shown in (a), when a blank memory card is inserted, as shown in (b), it is 0 data.



(a)



(b)

3. Power Saving Function

In the test state, the amount of LCD backlight, it will enters the power saving mode if no operation after 5 minutes. The power consumption in the power saving mode is equivalent to 20% of the power consumption of the backlight, which is suitable for long-term online monitoring and recording.。

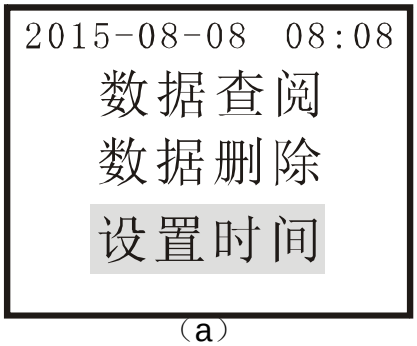
4. Time settings

The meter has a clock function. It only needs to be set once in the power state. When the battery is pulled out, the meter will start to return to the interface clock state next time.

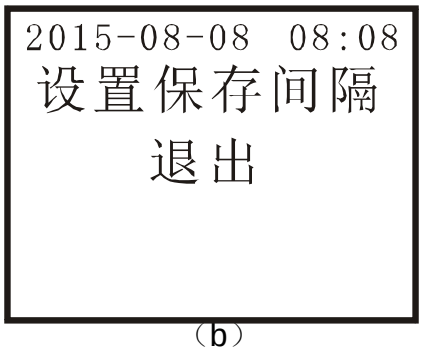
In the test state, press the **MENU** button to enter the function catalog, as shown in (a) and (b). Press the key ◀ and the key ▶ to move the cursor to the "**set time**" , then press the **POWER** button to enter the date and time setting mode. In the date and time mode, press the key ◀ and the key ▶ to change the value, press **POWER** to move the cursor, and when the last bit of the time is set, press **POWER** to return to the function directory state. If you make a mistake, press the **MENU** button to return to the function list or set the last time of the time, press

POWER to return to the function catalog state. As shown in Figure (c) (d)

Set up the recording time, return to the measurement state, the instrument according to the storage time interval that is set automatically stored records. The instrument can record up to 9999 sets of data. If it is full, it indicates "**FULL**", it must be deleted before it can be re-recorded.。



（a）



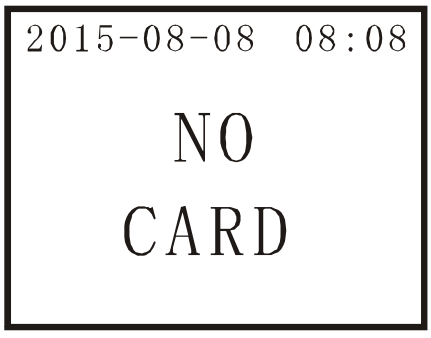
（b）

（c）

（d）

5. Set Save Interval

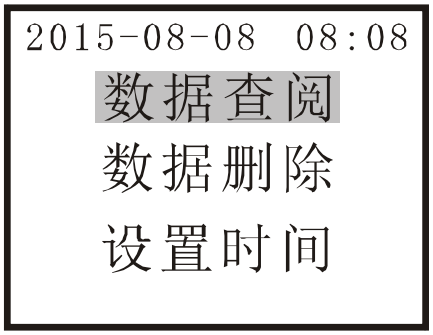
Set the measurement data save time, save the data from 1min, save the data, and save the data for the time you set how many minutes is a set of data. **The meter does not insert a memory card, set the save interval display "NO CARD" as shown**

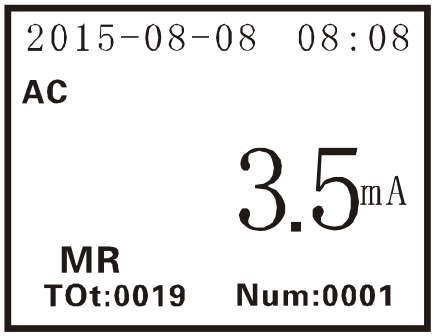


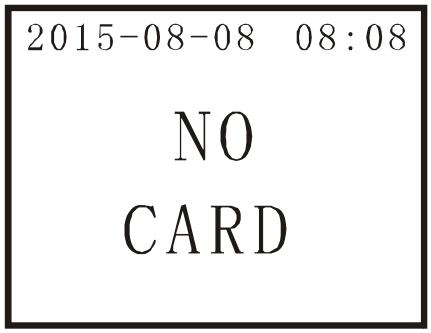
6. Data Review

In the test state, press **MENU** to enter the function list, press key ◀, key ▶ to move the

cursor to “Data View” item, then press **POWER** button to enter the query interface.The top of the data review shows the time when the current is saved. The bottom of the data view shows the total number of groups and the number of Num groups, and the AC current value of the data is saved in the middle.When you press and hold the button, the first few digits change quickly and can be quickly viewed. Press the **MENU** button to return to the function list.**The meter does not insert a memory card, set the save interval display "NO CARD" as shown in the figure**.

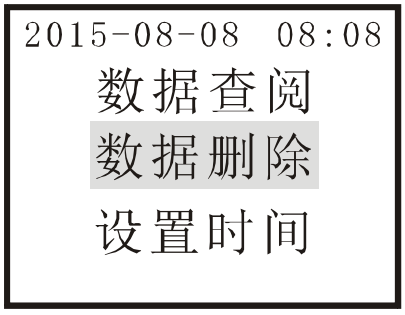


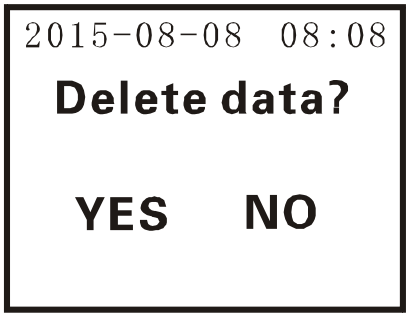




7．Data Deletion

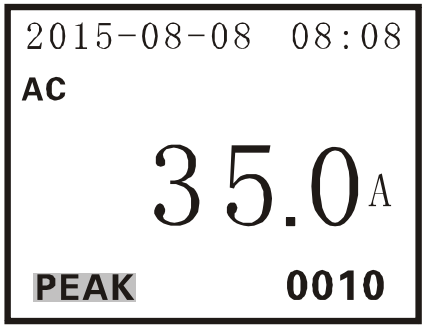
In the test state, press MENU to enter the function list, press the key ◀ and ▶ to move the cursor to the “DATA DELETE” item, and then press the POWER button to enter the delete data prompt. When the cursor is at the YES position, press the POWER button to delete the saved data. When the cursor is in the NO position, press the POWER button to not delete it and return to the previous directory. As shown:





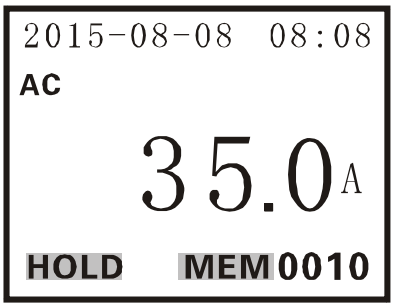
8. peak function

In the test state, long press the key ◀ to enter the peak function mode, the screen displays PEAK, and the value displayed on the screen is the current measurement peak value. Press and hold ◀ to exit to return to the test state. As shown:



9.HOLD function

In the test state, long press the key ▶ to enter the HOLD function mode, the screen displays HOLD, MEM flash one time, the meter saves the current current value of the current clamp. Press and hold ▶ to exit to return to the test state. As shown:



⚠	**After delete the data, you can't recover it. Please be cautious.**
	The delete operation deletes the stored data all at one time.

10、Current Test

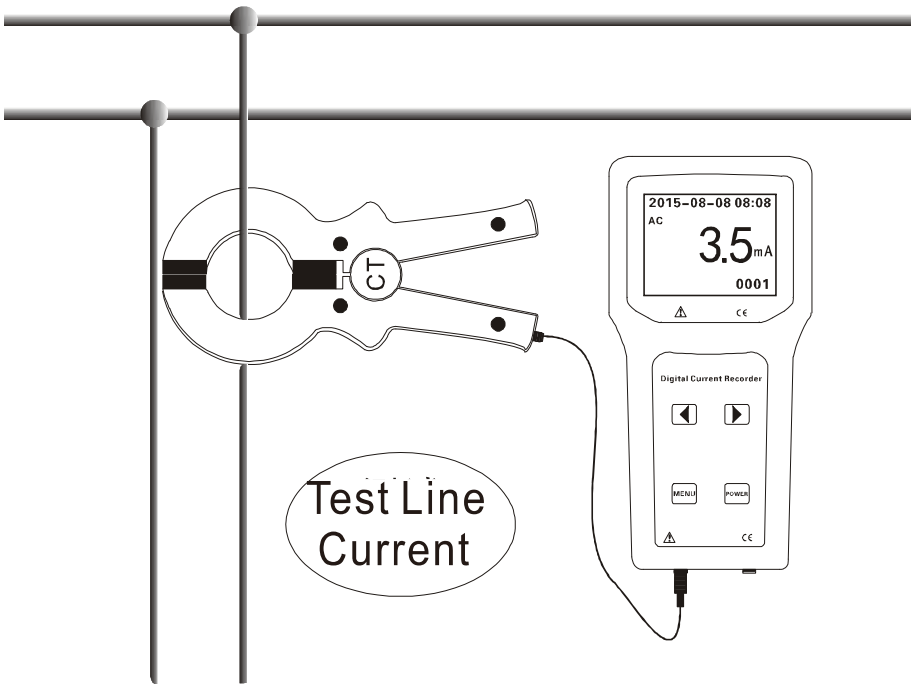
⚡	**Danger: electricity! It must be operated by trained and authorized personnel, and the operator must strictly abide by the safety rules, otherwise there is a risk of electric shock, resulting in personal injury or equipment damage.**
	Cannot be used to test lines over 600V or 1000A. Otherwise there is a risk of electric shock, resulting in personal injury or equipment damage.

1）Connect the current clamp to the host and boot into test mode.

2）Clamp the current clamp to the line under test (note that the clamp head is fully closed) and observe the reading. If the meter displays the "**OL**" symbol, the measured current exceeds the upper limit of the meter.

3）Reference legend：

⚠	**Clamp the main line to measure the total current of the main line. (note a single root)**
	For safety, when measuring high voltage and high current, after confirming that the test has been performed correctly, move the meter away from the conductor under test.



11. Real Time Monitoring

Open the host to enter the test state, connect the computer and the host computer with a randomly configured USB communication cable, and run the **current monitoring software** installed in the computer. If the communication is normal, the computer can monitor the online current in real time.

12. Data Download

Connect the instrument host and computer with the randomly configured USB communication cable, turn on the instrument, run the **current monitoring software**, select the history to review, and then read the data. The more the data storage, the longer the reading time.

VIII. battery Charging

⚠	**Pay attention to battery polarity, otherwise damage the meter。**
	The battery is low, please charge it in time。

1）When the battery voltage drops to 5.2V, the meter displays “▭” symbol, indicating that the battery is low, please charge it in time.

IX. Accessories

Host	1PC
Current clamp	1PC
Instrument box	1PC
Nickel-metal hydride rechargeable battery1.2V	5PCS
Charger	1PC
Memory card	1PC
Data line	1PC
CD	1PC
Manual	1PC

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