

# ETCR<sup>®</sup> DC/AC CLAMP METER

ETCR 6100

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USER MANUAL

ETCR Electronic Technology Co., Ltd



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## Warning





Thank you for purchasing our company's **High Accuracy AC/DC Clamp Leaker**, for better use of this product, please:

—**Read carefully the user's manual.**

—**Follow strictly safety rules and notes listed in this manual.**

- ⌋ Under any circumstances, please pay special attention to your safety in the course of using this leaker.
- ⌋ Give heed to label texts and symbols on panel and back plate of this leaker.
- ⌋ Please be more careful if the line voltage is above 60VDC or 30VAC.
- ⌋ Put the tested wire through the geometrical center of jaw when measuring AC current, error will increase if deviate the center.
- ⌋ Please don't place and store this leaker in hot and humid condition, locations with moisture condensation and under direct sunlight for a long time.
- ⌋ In case voltage of battery was low, please replace batteries.
- ⌋ In case this leaker would not be used for a long time, please take out batteries.
- ⌋ When changing batteries, please pay attention to polarity of battery.
- ⌋ Use, disassembly and maintenance of this leaker shall be operated by authorized personnel.
- ⌋ In case dangers would have with continues use of this leaker, please stop to use it and seal it for safekeeping immediately; and then, send it for disposal of authorized agency.







- ⌋ Users shall carry out operation based on danger signs “  ” on leaker and manual.
- ⌋ Users shall carry out safety operation based on instructions listed in this manual, e.g. “  ” and danger signs on this manual.
- ⌋ Please use **am** to test leakage current (test by clamping grounding line, single-phase line together).

## I Introduction

High Accuracy Clamp Leaker is specially designed for measurement of AC/DC current; by adopting up-to-date CT technology and digital integration technology. There is no exposed metal on clamp head, non-contact measurement, to ensure safe operation. It is a product with relatively small size, high accuracy and perfect function compared with similar leakers in the world. The leaker could be widely applied in those fields as electricity, communications, meteorology, railroad, oilfield, construction, measurement, scientific & research teaching institutes, industrial and mining establishments. it is an essential tool for electrician safety testing

This High Accuracy Clamp Leaker have those functions as peaking holding, data holding and data storage. It obtains one RS232 interface, communication cable and monitoring software, through which on-line monitoring, historical data inquiry is available. It also have functions such as active curve drawing, indication of max, min and average value, alarm setting and indication, saving to documents and printing when connected to PC.

## II Electrical Signs

	Extremely dangerous! Operators shall strictly observe safety rules; otherwise there would be dangers of electric shock to cause personal injuries or casualties.
	Dangerous! Operators shall strictly observe safety rules; otherwise there would be dangers of electric shock to cause personal injuries or casualties.
	Warning! Operators shall strictly observe safety rules; otherwise personal injuries or equipment damages might be caused.
	Double insulation
	AC
	DC

### III. Range and Accuracy

Function	Range	Accuracy	Resolution
DC current	0.0A~1000A DC	±2%rdg±3dgt	0.1A
AC current	0.0A~1000A AC	±2%rdg±3dgt	0.1A


(Condition: 23°C±5°C, below 75%rh,wire in the center of jaw)

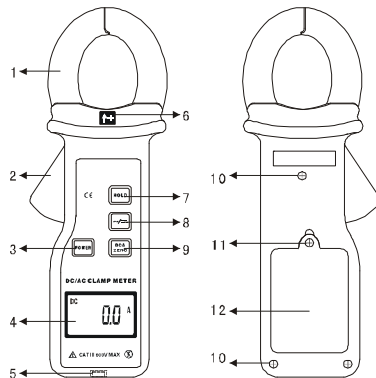
### IV Technical Specifications

<b>Function</b>	Measurement of AC/DC current, Peak value hold, On-line monitoring
<b>Power Supply</b>	Zn-Mn dry battery,6F22,9V
<b>Test Mode</b>	Clip-on CT, integral mode
<b>Display Mode</b>	Four digits LCD display
<b>Dimension</b>	LWH: 175mm×70mm×38mm
<b>LCD Dimension</b>	35mm×21.5mm; display domain: 32mm×15mm
<b>Sampling Rate</b>	2 times/s
<b>Frequency</b>	50/60Hz Automatically
<b>Polarity Indication</b>	DC current auto identified and display“—”
<b>Clamp Size</b>	30mm×35mm
<b>Test Position</b>	Tested wire in the jaw center; Error will increase to 1.5%rdg max if deviate the center
<b>Range Shift</b>	Automatically
<b>Line Voltage</b>	AC600V
<b>RS232 Interface</b>	Data stored in the memory of the meter via RS232 upload to PC, or on-line monitoring
<b>Com-Configure</b>	Baud rate:9600, data bit:8, stop bit:1
<b>Data Memory</b>	99units, <b>FULL</b> blinks when the memory is full
<b>Peak Hold</b>	Push <b>HOLD</b> without release, the meter will show the peak value during the pushing period
<b>Reading Hold</b>	<b>DH</b> indicating the reading is hold
<b>Out of Range</b>	<b>OL</b> indicating the current is out of range
<b>Auto Power-off</b>	5 Minutes after power on, it will power off automatically to lower the power consumption
<b>Battery Voltage</b>	<b>+</b> Indicating the battery voltage is lower than 7.2V.Then the battery have to be changed

<b>Weight</b>	180g (including the battery)
<b>Consumption</b>	10mW
<b>Temperature and Humidity</b>	Working: -10℃~50℃,below 80%rh Storage: -10℃~60℃,below 70%rh
<b>Max error refer to environment</b>	-10℃~0℃,40℃~50℃,Error will increase max to 1%rdg
<b>Insulating Strength</b>	AC2kV/rms (between the alloy of the clamp and the housing)
<b>Applicable safety rules</b>	IEC1010-1, IEC1010-2-032, Pollution level 2, CAT III(600V)

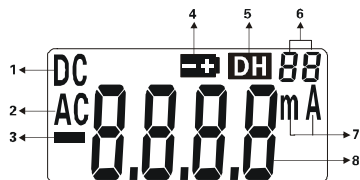
## V Structure

1. Double input toroid
2. Toroid opening lever
3. **POWER** key
4. LCD
5. RS232 interface
6. Positive direction
7. **HOLD** Key
8.  AC/DC switch key
9. **DCA ZERO** Adjust 0 key
10. Housing Screws (3 PCS)
11. Battery cover screw
12. Battery cover



## VI LCD Display

1. DC indication
2. AC indication
3. Negative polarity indication
4. Low battery symbol
5. Data hold indication
6. Stored data code






## VII Operating Method

### 1. Start-up, Shutdown

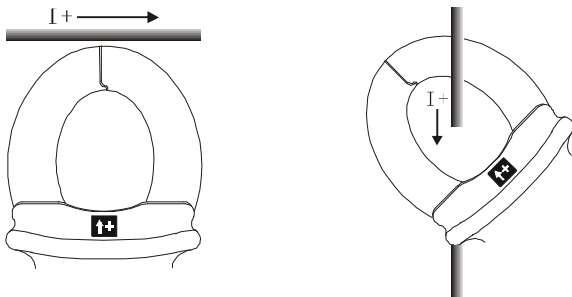
Press **POWER** key to start up, LCD will begin to display; Press the **POWER** key again, the leaker will shut down. After starting up for 5 minutes, LCD will flicker notes that the leaker will shut down automatically; after flickering for 30s, it will shut down formally to reduce battery consumption. In case you have pressed **POWER** key when LCD was flickering, the leaker will continue to work for 5 minutes. If LCD was very dark after starting up, it might be caused by low-voltage battery, in this case, please change battery immediately.

### 2. AC/DC measurement switch



The tester default to DC measurement after boot up. Press  to switch the AC/DC function. LCD will display DC or AC to corresponding switch function.


### 3. DC Calibration

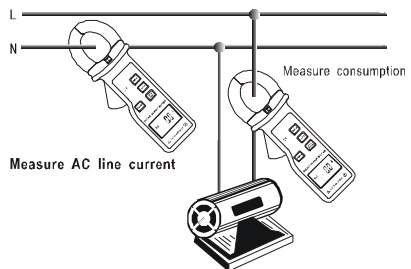
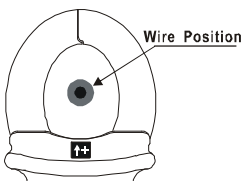
Before measuring DC current, press DCA ZERO key to reduce the residual magnetism to Zero, and then conduct measurement. Rational usage of this Adjust Zero function will make the results more accurate. For example, after boot, before measurement, we can take the jaw close to the DC current wire. LCD will show an inductive current. Press DCA ZERO to calibrate, which deduct the inductive value. Showing below:

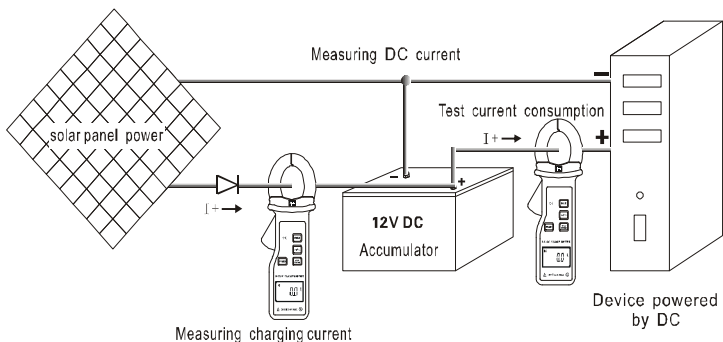



#### 4. Current Measurement

	<b>High voltage, extremely dangerous! Operators shall strictly observe safety rules; otherwise there would be risk of electric shock to cause personal injuries or casualties.</b>
	<b>Dangerous! Please don't use it to measure current higher than 300A; otherwise there would be risk of electric shock to cause personal injuries or equipment damages.</b>

- 1) Power on
- 2) Press  to DC or AC measurement. Conduct Adjust Zero before measure DC current.
- 3) Release the toroid lever to open input toroid and clamp measured conductors. Be attention that the two input toroid must be totally closed and the measuring wire passing through the center of the jaw.
- 4) Read LCD display data. In case **OL am** symbol was displayed, it means that current of measured line is beyond the maximum limit of this leaker; with this case, please choose leaker with much higher range limit.





	<p><b>Attention! For your safety, when measuring heavy current, after confirmed the completion of correct operating test, please move the leaker away from measured conductor.</b></p>
	<p><b>In locations with difficulty to read out data, please use the data holding function. If [DH] symbol displayed, please discharge data holding state first, and then do the test.</b></p>

## 5. Peak Holding

Pressing **HOLD** key continually in the course of measurement (More than 3 seconds), the leaker will display **PEHd** and capture current peak values of lines in this period of time; release the key, it then will return to measuring state.

## 6. Hold, Storage and Access Reading

1) Pressing **HOLD** key for a short time in the course of measurement (less than 3 seconds), **DH** symbol will display, the leaker will hold current measuring data and automatically stored in the memory with a code; press **HOLD** key again to release the hold state, and the leaker continues its measuring; in case stored data reached to 60 groups, press **HOLD** key again, the **FULL** symbol will display, which means storage memory is full; press **HOLD** key to cancel **FULL** flickering and return to measuring mode.


- 2) Press **HOLD+POWER** keys to enter into data access mode and display Unit 1 storage data automatically; and then press **HOLD** key again to turn the page of stored data; **NULL** will display when there is no data in stored in the memory, press **POWER** key to exit data access mode.
- 3) After entering into data access mode, press **HOLD** key for more than 3 seconds will clean up all stored data; when the leaker displaying "**DEL**" symbol, it means that it has finished cleanup process, and then return to measuring state automatically.


## 7. Data Upload

Make good connection of company with RS232 communication wire of the Tester, switch on the Tester and run monitoring software, and if the software displays that interface is open and the connection is successful, then it can read the stored historical data, upload to company and preserve.

Monitoring software has the function of online real-time monitoring and historical inquiry, dynamic display, with the maximum, minimum, and average value indication, with alarm value settings and alarm indicator, and the function of historical data access, reading, preserve, print and other functions.

## VIII How to Change Battery

	<p><b>Warning! It is dangerous to carry out test when the battery cover plate was not on its position.</b></p>
	<p><b>Please pay attention to polarity of battery to avoid damaging the leaker.</b></p>
	<p><b>Chang the low battery in time</b></p>
	<p><b>If not use the meter for a long time, please get off the battery to storage.</b></p>

- 1) “ ” symbol means the battery is undercharge and need to be replaced.
- 2) Press **POWER** key to shut down the leaker; before opening the battery cover, please confirm the leaker is in off position, and then replace with qualified new battery; special attention shall be paid to polarity of battery; at last, cover battery cover plate.

## IX Accessories

Clamp tester	1 pc
RS232 Com cable	1 pc
Software	1 disk
Battery (6F22 9V)	1 pc
User Manual	1 copy
Warranty card / Certification	1 copy





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