

# ETCR<sup>®</sup>

## AC/DC Leakage Current Clamp Meter (Car Leakage Current Clamp Meter)

ETCR 6200



<http://www.etcrc.com>

### USER MANUAL

**ETCR Electronic Technology Co., Ltd**



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## Warning



Thank you for purchasing our company's **ETCR6200 AC/DC Leakage Current Clamp Meter**, 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.
- ⌚ When test AC current, the wire should be in the jaw center, otherwise the error will increase.
- ⌚ 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.
- ⌚ If you expect not to use the leaker for a long time, please take out batteries.
- ⌚ When changing batteries, please pay attention to the polarity of battery.

- ⌚ Use, disassembly and maintenance of this leaker shall be operated by authorized personnel.
- ⌚ In case dangers would occur if continue to use a faulty 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.

## **I. Introduction**

ETCR6200 AC/DC Leakage Current Clamp Meter also named: Car Leakage Current Clamp Meter, Car Standby Current Clamp Meter, Car Inrush Current Tester, Car Charge Current Tester. It is specially designed for online measurement of DC, AC leakage current, current below 600V by adopting up-to-date CT technology and digital integration technology. It is specially suitable for measure car standby current, leakage current, inrush current. It is a product with the characteristic of relatively small size, high accuracy, strong anti-interference capability and automatic shifting. It is apply to car leakage rapid detection, consumed current detection, quickly find the fault of the wire broke leakage, equipment fled electric, line contact with iron, measuring the motor inrush current and alternator charging current etc. It could be widely use in those fields as car repair, car leave factory test, car parts test, the current detection in telecommunication room, electric power overhauling, meteorology, oil detection, etc.







It has those functions as peak holding, data holding and data storage. It obtains one RS232 interface, communication cable and software, through the computer, it can online real-time monitoring, historical query, dynamic display, MIN-AVG-MAX indication, alarm setting and indicating, data reading, saving and printing.

## II. Range and Accuracy

Function	Measure Range	Accuracy	Resolution
DC current	0.0mA~60.00A DC	$\pm 2\%rdg \pm 5dgt$	1mA
AC current	0.0mA~60.00A DC	$\pm 2\%rdg \pm 5dgt$	1mA

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


## III. Electrical Signs

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




## IV. Technical Specifications

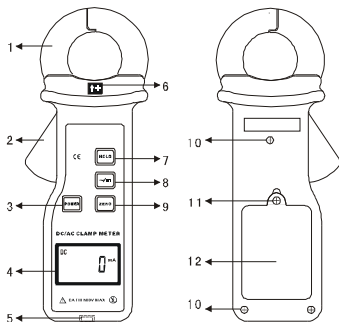
<b>Model</b>	<b>ETCR6200</b>
<b>Function</b>	Measurement of AC/DC current, leakage current, repairing the car circuit.
<b>Power Supply</b>	Zn-Mn dry battery, 6F22, 9V, continuous use for 30h
<b>Test Mode</b>	Clip-on CT, noncontact measurement
<b>Clamp Size</b>	25mm×35mm
<b>Measurement Range</b>	0mA~60.0A AC/DC
<b>Resolution</b>	1mA AC/DC
<b>Accuracy</b>	±2%rdg±5dgt (23° C±5° C, below 75%rh)
<b>Display Mode</b>	Four digits LCD display
<b>Dimension</b>	LWH: 168mm×65mm×34mm
<b>LCD Dimension</b>	35mm×21.5mm; display domain: 32mm×15mm
<b>Sampling Rate</b>	2 times/s
<b>Frequency</b>	AC: 45Hz-400Hz
<b>Polarity Indication</b>	DC current auto identified and display“—”
<b>Test Position</b>	Tested wire in the jaw center
<b>Range Shift</b>	Automatically

<b>Line Voltage</b>	Do not exceed AC 600V
<b>RS232 Interface</b>	Data stored in the memory of the meter via RS232 upload to PC
<b>Com-Configure</b>	Baud rate:9600, data bit:8, stop bit:1, check bit: NONE
<b>Data Memory</b>	99units, FULL blinks when the memory is full
<b>Reading Hold</b>	DH indicating the reading is hold
<b>Out of Range</b>	OL 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>	 Indicating the battery voltage is lower than 7.2V.Then the battery has to be changed.
<b>Weight</b>	180g (including the battery)
<b>Working Current</b>	Max 20mA
<b>Humiture</b>	-10°C-50°C, below 80%rh
<b>Limit Temperature Error</b>	-10°C-0°C and 40°C-50°C, within 2%rdg
<b>Humiture Storage</b>	-10°C-60°C,below 70%rh
<b>Insulating Strength</b>	AC 3700V/rms. (between the alloy of the clamp and the housing)
<b>Applicable</b>	IEC1010-1, IEC1010-2-032, pollution:2, CAT III

<b>safety rules</b>	(600V)
<b>Accessories</b>	Meter: 1pc; toolkit: 1pc; RS232 communication line: 1pc; disk: 1pc; case: 1pc.

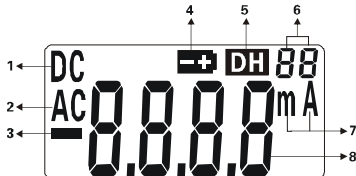
## V. Structure of the Leaker

1. Clamp.
2. Totoid opening lever.
3. **POWER** key.
4. LCD.
5. USB interface.
6. DC current positive input indication.
7. **HOLD** Key.
8.  AC / DC switch key.
9. **ZERO** Key.
10. The screw of connect the upper and lower cover together.
11. The screw to fix the battery cover.
12. Battery cover.



## VI. LCD Display

1. DC indication
2. AC indication
3. AC indication
4. Low battery symbol
5. Data hold indication
6. Stored data code
7. Unit of current indication
8. Value of current




## VII. Operating Method

### 1. Startup, 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.

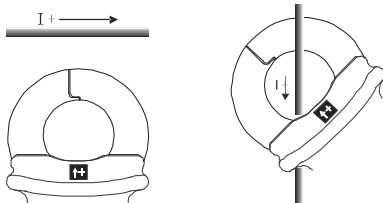
### 2. AC / DC switch

After startup, instrument default into DC current testing. Press  to switch the AC and DC current. LCD display DC indicates DC current, display AC indicates AC current.



### 3. Reset

Before measuring, long press the **ZERO** key to reduce the residual magnetism to zero, and then conduct measurement.

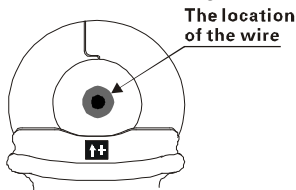
Rational usage of this adjust zero function will make the results more accurate. For example, after boot, before measurement, we can take the jaw close to the DC current wire, LCD will show an inductive current. Adjust **ZERO** key to calibrate to deduct the inductive value.




### 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 60A; otherwise there would be risk of electric shock to cause personal injuries or equipment damages.</b>

- 1) Power on
- 2) Switch AC/DC key to choose the kind of measurement.
- 3) Adjust zero
- 4) Release the toroid lever to open clamp mouth and clamp measured conductors.
- 5) Read LCD display data. In case **OLA** 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.



	<b>Note! For your safety, when measure the large current, after the correct operation, put the instrument removed from the tested wire.</b>
	<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>

## 5. Peak Holding

Pressing **HOLD** key continually in the course of measurement (More than 3 seconds), the leaker will 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 unit ID; 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 computer and the tester with RS232 communication wire, switch on the tester and run monitoring software. In the software directory setting: the editor / communication settings / serial number: COM1 ~ COM5. If the connection is successful, then it can read the stored historical data, upload to company, preserve and print.

The monitoring software has those functions as online real-time monitoring, historical query, dynamic display, MIN-AVG-MAX indication, alarm setting and indicating, data reading, saving and printing.

## VIII. Application

Car leakage usually makes the car starting difficult or the appliances abnormal operation, such as the lights dim, central controlled lock can not open. The driver often want to replace the battery when the car has no electricity. Actually, the following situations cause the battery empty:


1. The appliances are not shutdown (such as headlight isn't turn off).
2. The faults of appliance, wiring harness, control unit and sensor.
3. Wires contact with iron.
4. The motor do not generate electric.
5. The battery plate short circuit or oxidation and fall off.

If the reason is 1, 2, 3 or 4, replay the battery not only waste repair cost, but also not solve the essential problem. Use the **ETCR6200 Car Leakage Current Clamp Meter**, there is no need to power off and clearing to measure



the battery standby current, the appliance standby current and working current, the motor charging current, safe and rapid to find out the fault location, save time and cost. When the appliance shutdown, clamp the positive power line, measure the leakage current and standby current, when the appliance startup, clamp the positive power line, measure the working current.

## IX. How to Change Battery

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

- 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 the polarity of battery; at last, cover battery cover plate.

## X. Accessories

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



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