

H56CH HALL COULOMB METER USER MANUAL V3.0

一. Product Introduction

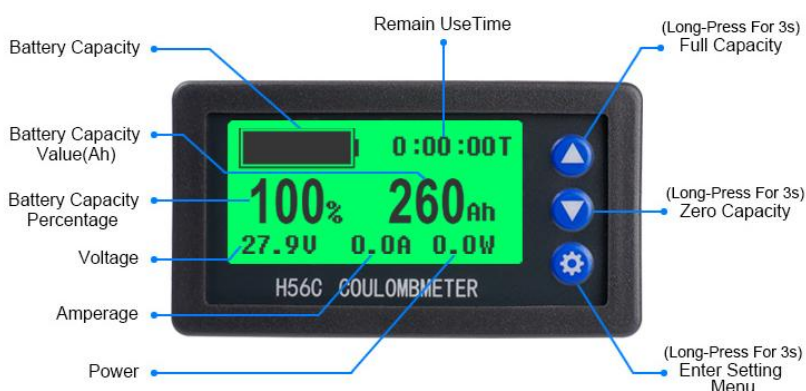
This product is a high-precision battery Gauge (Hereinafter referred to as this product or Coulomb meter) based on current acquisition type. It can accurately detect the voltage, current, power, real capacity and remaining time of the battery pack, etc. The working status of the battery is obtained accurately at any time.

This product is suitable for Touring car, wheeled litter, electric vehicles, emergency power supplies, energy storage power supplies, measuring equipment, medical equipment, various instruments and so on.

二. Applicable Battery Specifications

This product is suitable for various types of batteries or battery packs (hereinafter referred to as battery packs) with voltage ranging from DC10-100V, including lithium batteries, lithium iron phosphate, lead-acid, nickel hydrogen, etc. Note: This product must be used in conjunction with the matching Hall sensor!

三. Display & Buttons



四. First use method

Normally, the default capacity and percentage of the battery pack for a Coulomb meter are both 0. To use a Coulomb meter for the first time, you need to first set the parameters and then follow the process to fill it up before it can be used normally!

(一) Manual mode usage steps (this mode requires understanding of the actual battery parameters, professional mode)

This mode mainly involves two parameters in the menu: nominal capacity value (01CA) and full capacity voltage value (02FV); The nominal capacity value usually refers to the actual full capacity value of the battery pack; The full capacity voltage value usually refers to the highest virtual charge voltage value of the battery pack when fully charged, which is usually marked on the standard charger equipped with the battery; If not available or uncertain, it is recommended to set the highest voltage displayed by the Coulomb meter after the battery is fully charged and the charger power is not unplugged.

1. Wiring and checking current:

After completing the connection according to the wiring diagram, the screen should be able to display when powered on; If it cannot be displayed, please first turn off the power and check if the connection wire is correct. After the screen displays normally, charge and discharge the battery pack, and check if the displayed voltage and current values are close to the actual values. If the deviation is relatively large, please check if the connection wire is correct again (please pass the current bus of the positive or negative pole of the battery through the hole of the Hall sensor according to the current direction shown in the diagram;). If the newly installed Coulomb meter does not display a zero current value when unloaded, Please reset the current display value to zero first when there is no load. (item 15 in the operation menu).

2. Set parameters (see usage settings):

When using or replacing the battery for the first time, it is recommended to set the nominal capacity value (01CA) and full capacity voltage value (02FV) correctly, or only set the nominal capacity value (01CA). For specific usage methods, please refer to the following instructions:

(1) The nominal capacity value and full capacity voltage value are both set correctly (in this case, if the battery pack reaches the set nominal capacity value or full capacity voltage value, it can be judged as fully charged)

After setting the parameters, charge the battery pack; After the battery pack is fully charged, the capacity will automatically display 100%.

(2) Only set the nominal capacity value (in this case, the battery pack can only be judged as fully charged when it reaches the set nominal capacity value; this method is mainly used in situations where the full charge voltage value is uncertain or the full charge voltage value detection is not suitable;)

A> If the nominal capacity value of the battery pack is known, complete the nominal capacity setting according to the usage settings, then charge the battery pack. After the battery pack is fully charged, press the ▲ key for about 2 seconds to manually fill it up, and the capacity will display 100%.

B> If the nominal capacity value of the battery pack is unknown, please refer to the following steps:

a. Enter the menu to check if the nominal capacity value (01CA)whether is 0. If it is not 0, it needs to be modified to 0;

b. After the battery pack is discharged (empty) , press the ▼ key for about 2 seconds to manually reset it to 0% capacity, and then charge the battery pack;

c. After the battery pack is fully charged, set the current displayed capacity value to the nominal capacity value (01CA) of the Coulomb meter;

(二) Steps for using automatic mode (this mode is simple and convenient)

This mode does not require the setting of nominal capacity value and full capacity voltage value. During the charging process, the Coulomb meter module mainly relies on the changes in charging voltage and charging current to determine whether the battery pack is fully charged. The values are more accurate and the operation is simpler.

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2. Change charging mode to automatic mode

Change menu item 22AM to automatic working mode A

3、 battery pack capacity Clear zero and Fully charged

The capacity value displayed by the Coulomb meter after the first use or replacement of the battery is not the actual value of the battery, and a zero capacity operation is required:

(1) Enter the menu to check if the nominal capacity value (01CA)whether is 0. If it is not 0, it needs to be modified to 0;

(2) After discharging the battery pack (empty), press the ▼ key for about 2 seconds to manually reset it to 0% capacity, and then charge the battery pack;

After the battery pack is fully charged, the capacity will automatically display 100%, and the current full capacity value (Ah) of the battery will also be displayed;

Special situation: If the capacity of the battery still does not display 100% after being fully charged by the charger, it may be due to the special charging mode of the charger, and the internal calculation of the Coulomb meter is not compatible. You can manually fill it up by pressing the ▲ button for about 2 seconds.

五. Wiring method

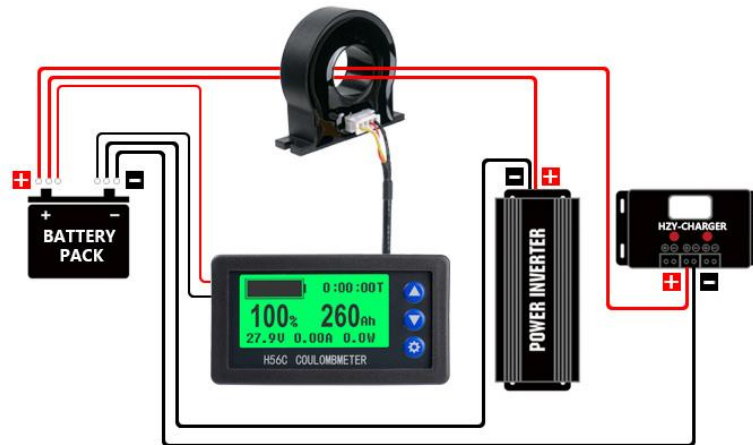
1. The Hall sensors can be connected to the positive or negative bus circuit of the battery pack in the direction of current, and the arrow direction on the sensor label represents the charging current direction of the battery pack.

2. The red wire on the Coulomb meter is connected to the positive pole of the battery pack, and the black wire is connected to the negative pole of the battery pack, used for power supply and voltage collection of the Coulomb meter.

3. Connect the sensor to the meter with a ribbon cable or shielded wire, confirm accuracy, and then power on.

4. Wiring principle: The codes on the display and codes on the Hall sensor codes must correspond one-to-one, and cannot be exchanged with each other! All charging and discharging currents of the battery pack must pass through Hall sensors!

六. Wiring diagram



七. Display Page

Measurement display page



A. Correct full capacity value.

B. Accumulated electrical energy. (When charging, display the accumulated charging energy; When discharging, display the accumulated discharge energy)

C. Number of battery pack cycles (Accumulate one full charge and one discharge to zero, forming one cycle)

D. Accumulated discharge time of battery pack (D days, H-hour)

八. Using Settings

Long press the  key for 3 seconds to enter the menu settings page:



There are 26 setting objects in the setting menu. Read the setting detail chart below for details.

九. Parameter settings

menu	Adjustment range	Default value	Annotations
01CA (Nominal capacity)	0-9999Ah	0Ah	When leaving the factory, the default capacity is zero. Please set it according to the actual effective capacity of the battery pack, otherwise the capacity percentage will be displayed incorrectly.
02FV (Full capacity voltage)	10-100V	0.00V	When the voltage is higher than this, the capacity percentage is automatically set to 100% (full), which only works in manual mode.
03ZV (Zero capacity voltage)	0.0-100V	0.00V	When the voltage is lower than this, the capacity percentage is automatically set to 0% (Zero clearing), and this function is applicable to all modes
04OV (Overvoltage alarm)	10-100V	100V	When the voltage of the battery pack is higher than this value, the voltage display value flashes and an alarm is triggered.
05OC (Overcurrent alarm)	0-Maximum range value	Maximum range value	When the charging or discharging current of the battery pack exceeds this value, the current display value will flash and an alarm is triggered.
06LV (Low voltage alarm)	10-100V	0.00V	When the voltage of the battery pack is lower than this value, the voltage display value will flash and an alarm is triggered.
07LB (Low capacity alarm)	0—100%	0.0%	When the remaining capacity of the battery pack is below this value, the percentage and battery symbol will flash an alarm is triggered.
08HT (High temperature alarm)	-9 至 99℃	99℃	When the measured temperature is higher than this value, the temperature display value will flash an alarm is triggered.
09FT (Capacity delay full time)		10S	When the voltage is higher than the full capacity voltage, the delay time for setting the capacity to full.
10ZT (Capacity delay zero clearing time)		10S	When the voltage is lower than the zero capacity voltage, the delay time for setting the capacity zero clearing
11BT (Backlight delay off time)		30S	When in a quiescent state, the backlight delay turns off time (0 indicates not turning off the backlight)
12ST (Delay sleep time)		60S	When in a quiescent state, delay the sleep time (0 indicates not entering sleep)
13VC (Voltage adjustment)			When there is a deviation in the displayed voltage value, it can be adjusted within a certain range.
14CC (Current adjustment)			When there is a deviation in the displayed current value, it can be adjusted within a certain range.
15CZ (Current Zero)			At no load, the current is not zero, zero spot calibration is required.
16TC (Temperature adjustment)			When there is a deviation in the displayed temperature value, it can be adjusted within a certain range.

17AD (Mailing address)	001-247	1	Modify communication address
18BR (Baud rate)	1200/4800/9600/ 1152000	9600	Select baud rate
19RZ (Current zeroing threshold)		0.1	The current display value drops below this value, it will return to zero
20RC (Capacity automatic Correction trigger threshold)		1%	Working conditions for this value: 1. 21AK item set to open 2. Reasonably set the full capacity voltage of 02ZV (no need to set it in automatic mode) 3. Reasonably set the zero capacity voltage of 03ZV 4. Set the 20RC trigger threshold After completing the above settings, when the battery pack is in a discharge state and the voltage is below 03ZV zero capacity voltage, and the current battery percentage value is greater than or equal to the 20RC setting value, the capacity self correction function will be triggered. When fully charged again, the capacity will be corrected to the new displayed capacity value.
21AK (Capacity automatic correction switch)	OPen/Close	Close	After long-term use, the capacity of the battery pack will experience a certain degree of attenuation. When the battery pack is fully charged, there is a certain deviation between the current remaining capacity and the set capacity, the automatic modification switch can be turned on for capacity correction.
22AM (Charging mode)	A/M	M	Automatic working mode A (Coulomb meter automatically determines whether it is fully charged based on charging parameters) Manual working mode M (Coulomb meter determines whether it is fully charged based on the set full charge voltage value or effective capacity value)
23CF (Full capacity current threshold)		0.00A	Working in manual mode, when the battery charging voltage reaches the full capacity voltage value, if the charging current is greater than this value, to prevent incorrect settings, the capacity will not be automatically set to full (0 indicates invalid)
24CR (Reset current capacity value)	0-9999AH	0AH	Reset the current capacity value (not recommended for customers to modify)
25LK (Data lock)	LOCK/UnLOCK	LOCK	When the value of this menu is UnLock, the contents of items 01-24 can be modified (LOCK closes data lock/UnLOCK opens data lock)
26DF (Restore default parameters)	yes/no	no	Select yes and all current parameters will be restored to their factory settings.

Precautions:

1. Do not set the 02FV and 03ZV items without understanding the voltage characteristics of the battery pack (full capacity voltage and zero capacity voltage). The default factory setting for items 02FV and 03ZV is 0.0V, which is invalid;

2. Only by opening the data lock can the menu contents of items 01-24 be modified. Long pressing the ▲ key and ▼ key on the normal measurement interface will take effect

3. Among the above functions, buzzer alarm and temperature measurement are optional functions. If a Coulomb meter with a buzzer is equipped, in the alarm settings (04-08), when an alarm occurs, the buzzer will follow the display to flash and sound an alarm; If a Coulomb meter with temperature measurement is included, it can be set in menu 16TC.

十. Instructions for use

1. When charging or discharging, the Coulomb meter must be in working condition, otherwise it cannot accurately calculate the battery capacity. This product is designed for low power consumption and has very low power consumption during sleep. It is recommended to keep the Coulomb meter power supply line connected to the positive and negative electrodes of the battery at all times.

2. When the battery pack is in a discharge state, the current display value should be negative, the backlight should be constantly on. If the current display value is positive, the backlight flashes, it indicates that the direction of the Hall sensor is reversed and needs to be adjusted in the correct direction; During the charging or discharging process, if the current fluctuates significantly, the remaining time of charging or discharging will also fluctuate accordingly, which is a normal phenomenon.

3. When the battery pack is in a quiescent state, the current display value is 0, without button operation, after about 30 seconds, the backlight will turn off, and the Coulomb meter will enter a low-power state. After about 60 seconds, the screen display will turn off, and the Coulomb meter will enter a sleep state. Every 30 seconds, the current will be automatically detected once. When the charging or discharging current values are not 0 or the setting button is pressed, the Coulomb meter will automatically wake up and resume normal operation.

4. Capacity reset

The battery pack may experience capacity deviation due to various factors during long-term use. It can be manually capacity zero clearing or manually capacity full, which is applicable to all modes;

A. After the battery pack is discharged (empty), press the ▼ key for about 2 seconds to set the percentage display value to 0%;

B. After fully charging the battery, press the ▲ key for about 2 seconds to set the percentage display value to 100%.

If there is still a deviation, the battery capacity may decay, and battery capacity correction needs to be carried out again. Please refer to the first use method - if the effective capacity value of the battery pack is unknown, please refer to the following steps.

5. This product has a power-off capacity memory function.

6. A certain error may occur in the case where the current changes drastically, which affects the capacity value.

十一. Communication Function

This product can customize TTL level or RS485 serial communication function, upload the electricity meter parameters Upload various parameters to computer software or other main control devices.

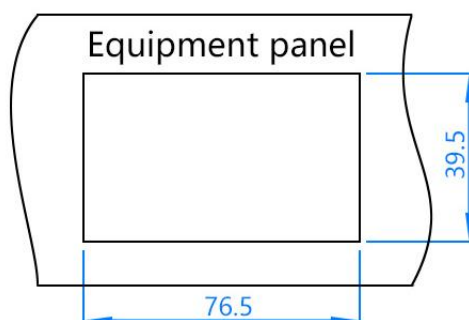
For details, see "H56CH Coulomb Meter Serial Port Communication Protocol".

十二. Output Control Function

This product can be customized with output control function. It can be connected with an extended relay, a high-power alarm, Take corresponding control when an alarm occurs.

十三. Installation Method

On the panel where a Coulomb meter needs to be installed, Process a rectangular hole according to the dimensions shown in the diagram, install the monitor from the front and clamp the meter to the panel as shown below.



十四. Technical parameter

Parameter	Min.	Regular	Max.	Unit
operating voltage	10.0	-	100	V
Backlight on power consumption	3.0	6.0	15.0	mA
Backlight off working power consumption	2.1	4.0	11.0	mA
Sleep power consumption	300	400	500	uA
Accuracy of Voltage Collecting		±1.0		%
Accuracy of Current Collecting		±1.0		%
Accuracy of Capacity Collecting		±1.0		%
Capacity detection range	0.1	-	9999	Ah
50ASampler Current	0.05	-	50	A
100ASampler Current	0.10	-	100	A
200ASampler Current	0.20	-	200	A
300ASampler Current	0.30	-	300	A
500ASampler Current	0.50	-	500	A
Temperature Range in Application Environment	-10	25	60	℃
weight	Net weight:95 Gross weight:110			g
H56CH Size	79×43×27			mm

十五. Precautions and warranty

1.This product cannot be exposed to sunlight for a long time,and cannot be exposed to extreme conditions below -10℃ and above 50℃ for a long time,otherwise it will shorten the life of the LCD.

2.The Warranty period is within one year from the date of purchase. It can be repaired free of charge when non-human quality problems occur.

3.This product may be technically improved or updated. If the product you purchased has any discrepancies with the appearance, technical parameters, etc. described in this manual, please refer to the actual product or website introduction for accuracy.