

Smart BMS user instructions

● About cycle times calculation :

1) When the accumulated discharge capacity has exceeded the cycle capacity you have set , the cycle times will be increased at one time . and it can not affect the cycle time calculation when user charge the battery in the middle process .

2) When makes reconnection of the bms it can not affect the cycle times metering ,and the accumulated discharge capacity will start to calculate from 0 with such action .

3)When writes in new parameters or makes any calibration and any setting changes with the bms , it can affect the calculation of the cycle times . after above operation . the accumulated discharge current will be metered from 0 again .

Protection times metering

1) When protection occurred with the bms , and protection times will be increased by 1 ,for example : over-voltage protection with single cell's happened , the protection time with single cell protection will be increased by 1 .

2) Make reconnection of the BMS which will not affect the protection times metering

3) When make the changes with new parameters and any other operation with bms setting ,and the protection time will be cleared to 0 . therefore , please do not try to change the parameters setting when the BMS works stably after installation .

About capacity calculation.

Typical capacity will be the battery's real capacity value . and calibration will be done by bms after aging cycles of the battery in according to the actual discharged capacity . and in every time , the bms will make 10% calibration Minimally and 25% maximally ,. So please setting the typical capacity of your battery the same with it's real capacity .

For the big difference of the capacity comparing it's real capacity , bms will needs several more cycles to make calibration .

Aging cycle process will be : charge fully first , then discharge capacity completely and makes charge again finally . and for the fully charge condition , it meets one condition as below will be took as fully charged .

1. And average voltage has reached fully charge voltage you have set with single cell .and the charge current dropped to 500mA below .
2. and over-charge protection with whole battery pack or with single cell occurred .

CellFullVoltage 4150 mV

3. Discharge completely : average voltage has reached the single cell over-discharge protection cut-off voltage .

Cell End Voltage 3000 mV

After above process , recharge the battery again . those process will be took as a complete aging cycles .

Capacity calculation : after bms installation , bms will evaluate the remaining capacity in according to the parameter setting and battery average voltage . it depends on average voltage of battery that which ranges it will be in .

80% Capacity Vol	3900	mV
60% Capacity Vol	3800	mV
40% Capacity Vol	3600	mV
20% Capacity Vol	3300	mV
Switch Time	10	S
LED Time	10	S

In the late charge and discharge process , remaining capacity increase or decrease will be metered in integral of Current*time , the capacity will jump to 100% or drop to 0 when the battery meet the fully charge and discharge conditions .

Notes: when undervoltage protection occurred .the capacity will be cleared to 0 , any parameter setting , or bms reconnection , calibration ,and parameter restore will change the value of the remaining capacity .and BMS will meter the capacity based on voltage again . also the cycle condition will be cleared also ,

● About balance setting :

About the consistency of the battery system , if user does not have the professional test instruments , we can make judgment based on below simply conditions .

1. when makes the battery package , each single cell voltage difference should be less than 0.03V
2. After 10 times aging cycles . after fully charge of the battery , voltage difference are less than 0.03v , it will indicate the battery capacity consistency is good .
3. With one month rest , voltage difference is less than 0.03V , it indicates the battery inner resistance consistency is good .
4. when there is no electricity with the battery , and big voltage difference will be normal , it has no relation with battery consistency .

Application of Balance function :

- 1、Charge battery : balance will start works when the voltage reached the value of balance start voltage also the voltage difference is bigger than the voltage difference you have set during charge process .
- 2、Static balance : when reaches balance condition during rest time . the balance will start work .
- 3、When the battery has good consistency , we recommend to use charge balance function . as for the static balance it works more effectively when the battery voltage difference is big .
- 4、Do not set the voltage difference with below of 0.02V , our default value 0.03V will be good .

- 5、 When the battery consistency is good , you can set the balance start voltage with higher value .

About Bluetooth connection .

- 1)Connection for Bluetooth will be failed when the signal with Bluetooth is weak
- 2) For the version of 1.3 or below , Bluetooth light will flash slowly ,and it will go to hibernation status 8 seconds later together with PCB board . the light will turn on when connecting ,Bluetooth light will turn off when disconnect it 8S later .

When for version of 1.5 or above . Bluetooth will not turn on when make disconnection . and it's light will light on while connecting .

- 3) It will be better to connect an antenna on the Bluetooth if it was placed inside of the battery box , suggesting user to place the Bluetooth at outside of the battery to get a strong signal .

- 4) In the case of enabling to search the signal of bluetooth in the application process , user can click the repair button on App to see if the signal can be searched after re-start of Bluetooth .

- 5) When meet the problems frequently when makes connection of “can not support the device “,this problems usually resulted from weak signal or Mobile Bluetooth operation . you can click this repair button to make the connection successfully

Please contact us when meets other problems you can not solved on your side

Common problems

A.. Can not search the signal of Bluetooth ?

Please check wires connection is correct or not with your battery

B. When meets the battery voltage is 0.1V and IC error message shows on the software interface.

This problems usually comes from the incorrect wire connection order , please take off these wires in a reverse order of wire connection order with our diagram , correct wires connection order should start from making B- connection at first , then connect these wires from B1 ,B2 B? ,B+ is the last to be connected .When there are some battery with 0.9V voltage around, and the neighboring cell with high voltage obviously

please check the wires connection is correct or not

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