

TOPBMS Official website: www.cleverbms.com ; Wechat: +8617841591535
Aliexpress website: <https://www.aliexpress.com/store/4687150>
Email: 66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

TOPBMS 3.7V BMS 21S-32S 200A 500A Bluetooth RS485
Modbus Li-ion Battery Ebike Ecar Inverter Solar

TOPBMS

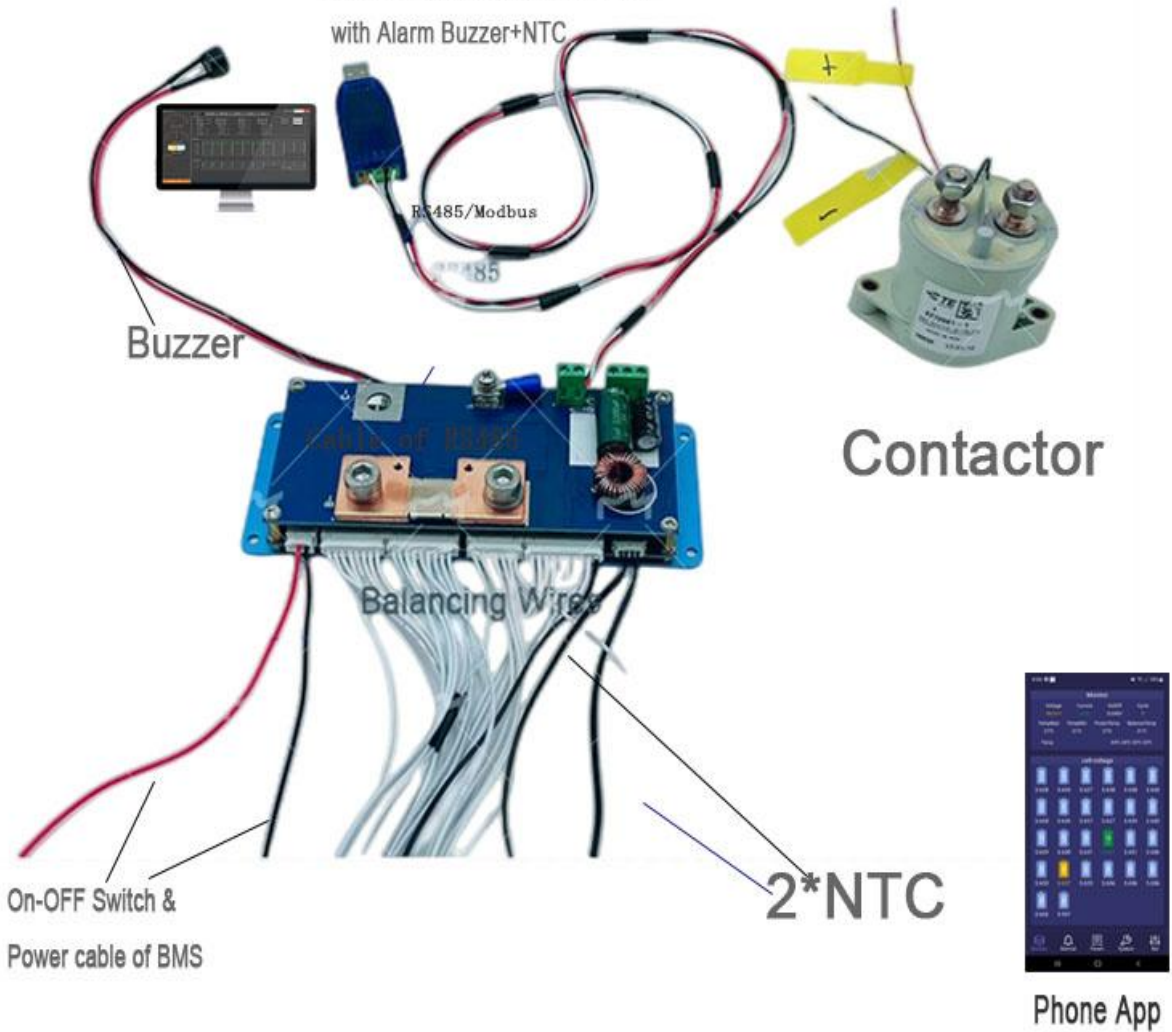
www.cleverbms.com

Smart BMS 21S-32S with B/T+RS485

Compatible with Li-ion NMC Battery/Lifepo4 Battery

Discharging/ Charging 200A-500A

with Alarm Buzzer+NTC



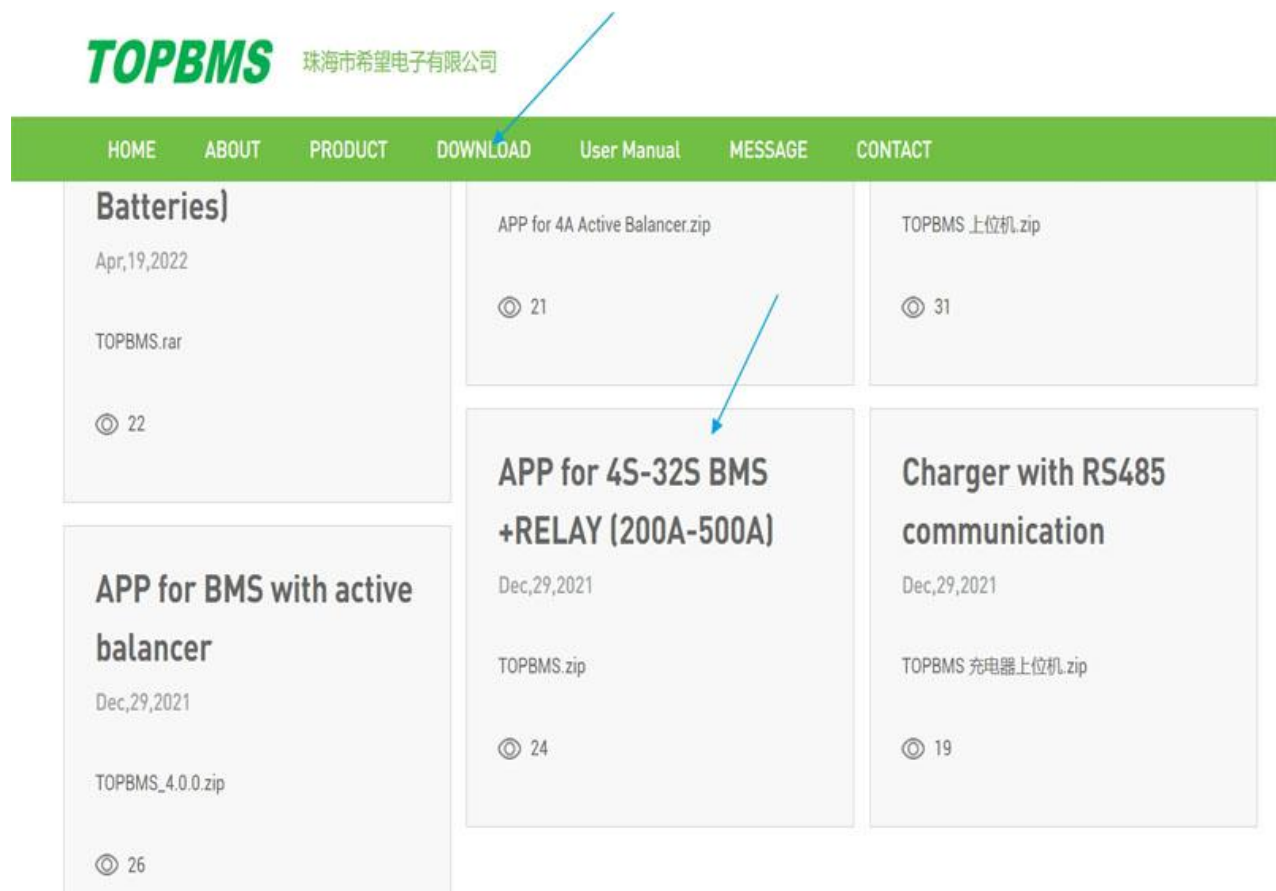
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Please go to the website :www.cleverbms.com to download bluetooth APP and rs485 software for PC

Please go to the website :

www.cleverbms.com to download

Bluetooth APP : APP for 4S-32S BMS +RELAY



TOPBMS 珠海市希望电子有限公司

HOME ABOUT PRODUCT **DOWNLOAD** User Manual MESSAGE CONTACT

| | | |
|--|---|---|
| Batteries) Apr,19,2022 TOPBMS.rar © 22 | APP for 4A Active Balancer.zip © 21 | TOPBMS 上位机.zip © 31 |
| APP for BMS with active balancer Dec,29,2021 TOPBMS_4.0.0.zip © 26 | APP for 4S-32S BMS +RELAY (200A-500A) Dec,29,2021 TOPBMS.zip © 24 | Charger with RS485 communication Dec,29,2021 TOPBMS 充电器上位机.zip © 19 |

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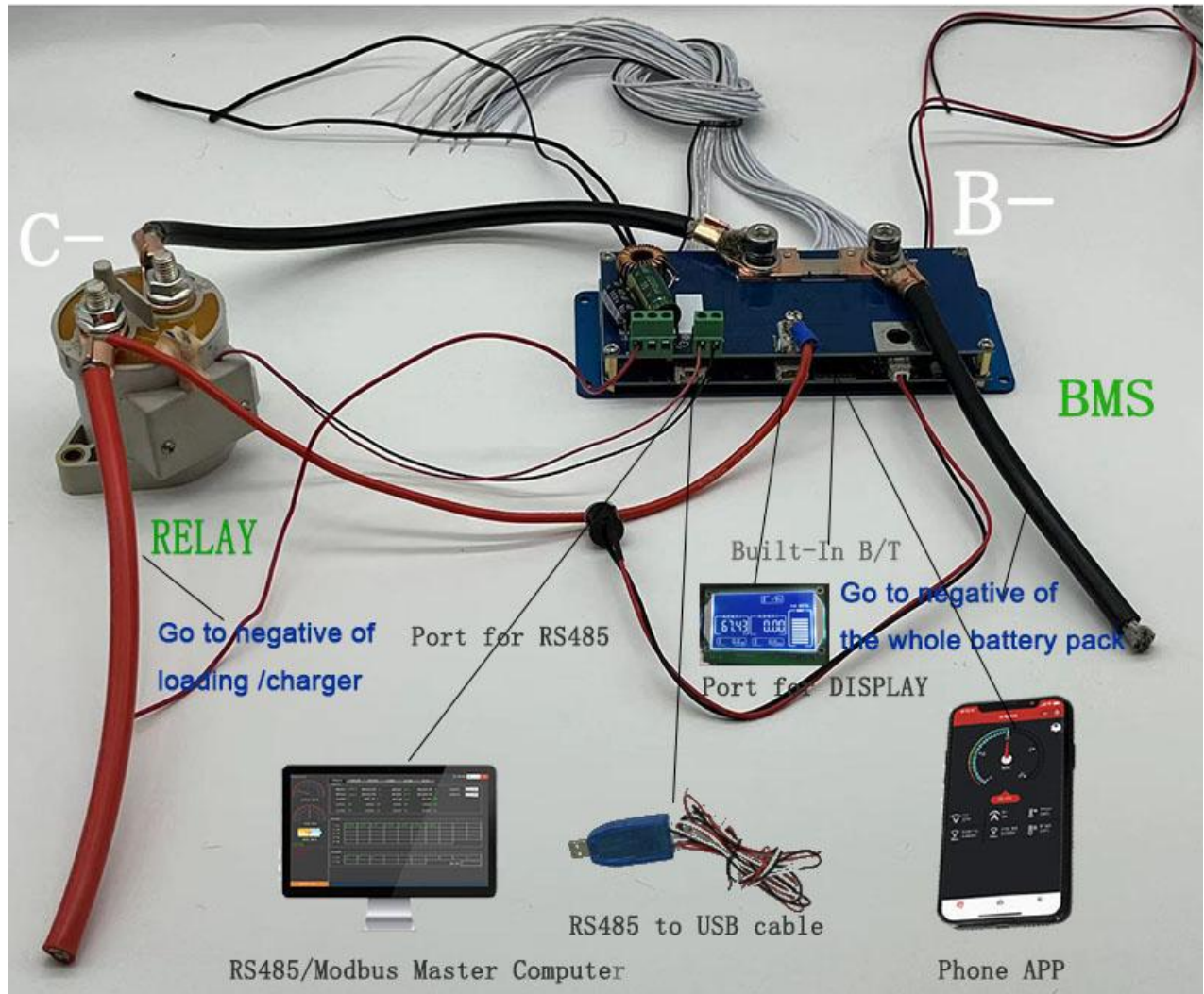
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BMS with Bluetooth +RS485/Modbus-1



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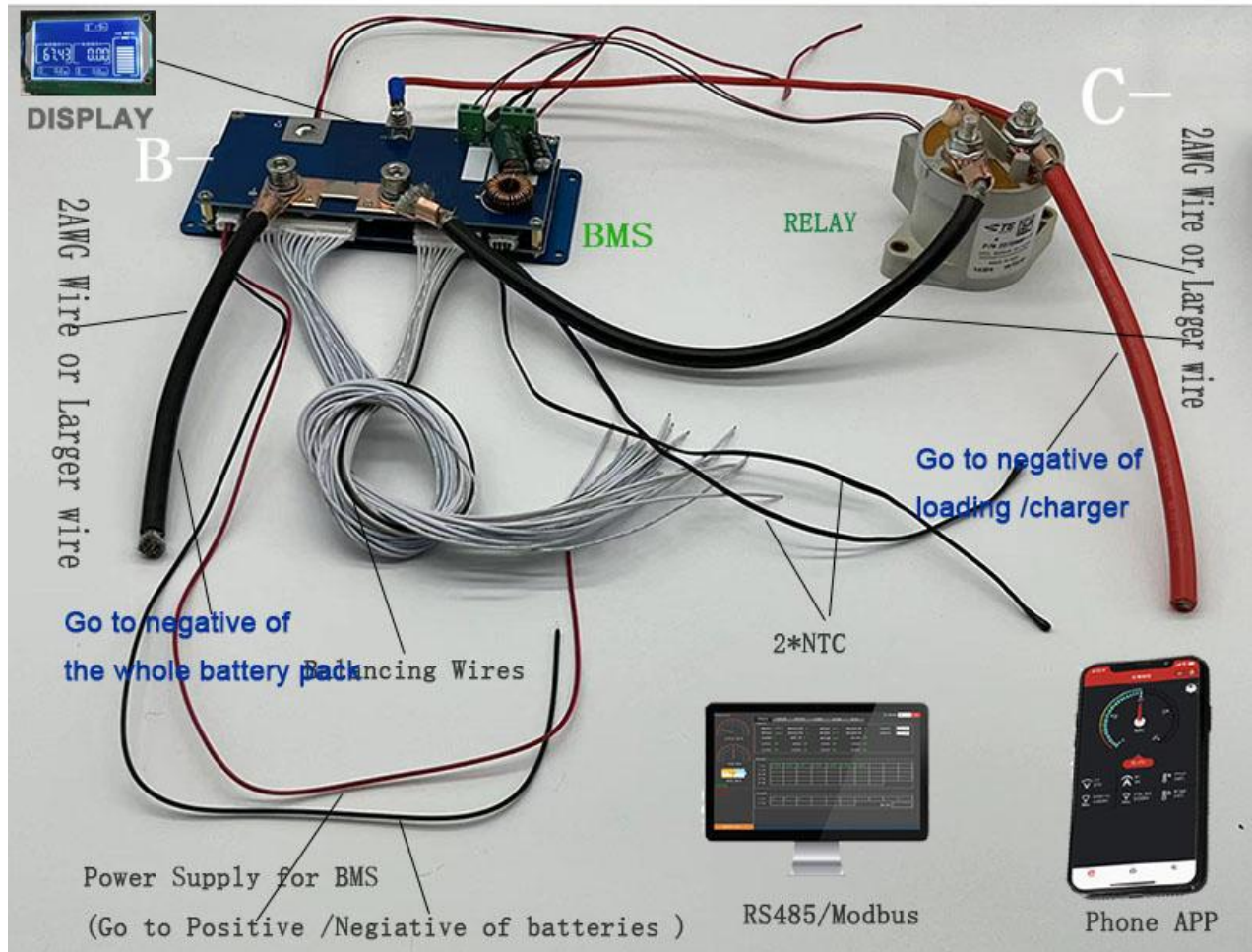
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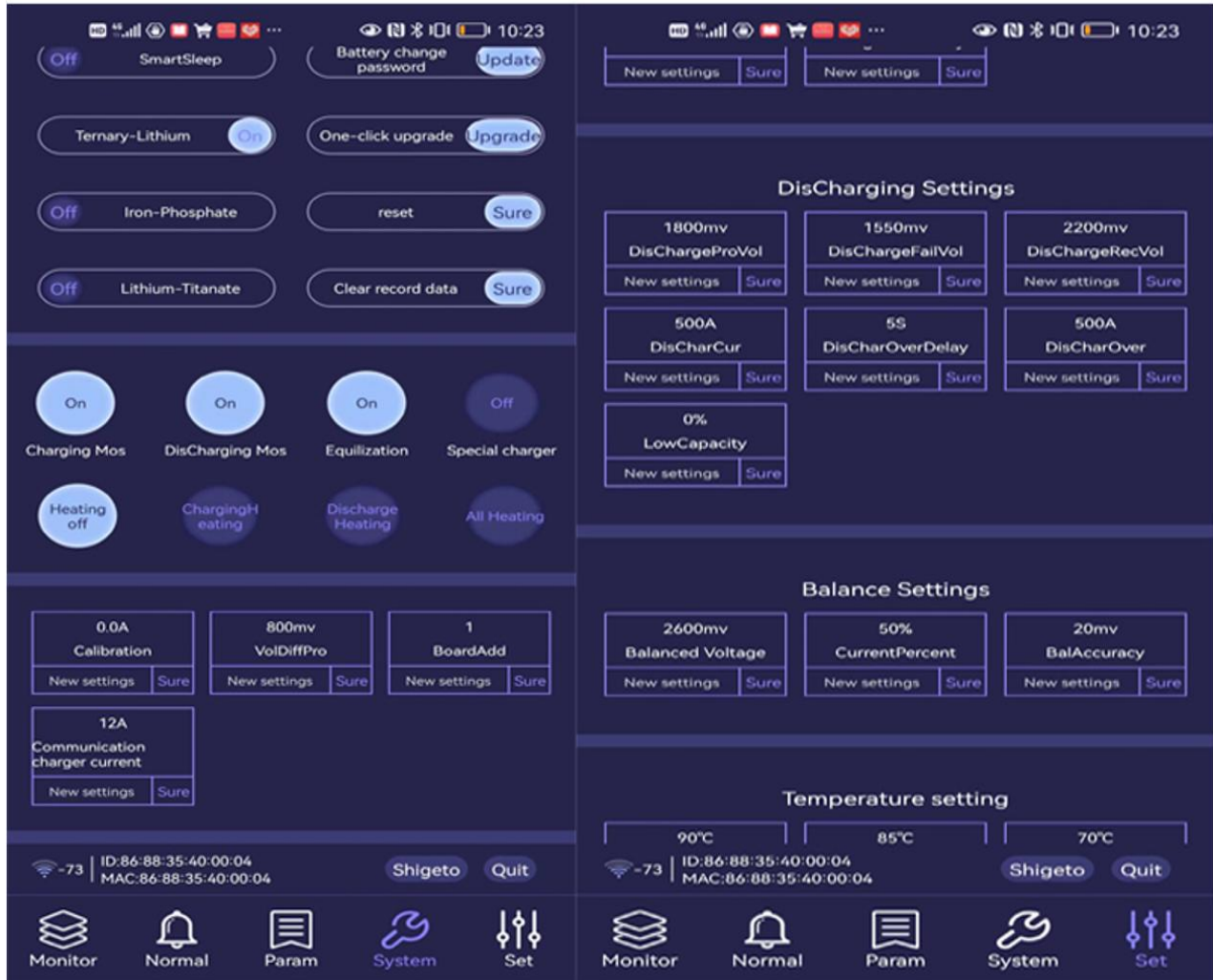
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BMS with Bluetooth +RS48/Modbus-2



Phone APP

Password :123456



Note: Go to website(www.cleverbms.com) to see video of Phone APP Instrcution

Cells Setting

BMS talk to PC via rs485

BMS Lithium Battery Management System

PortNo: COM4
DevNo: 1
Connect
English

Remain: 0 %
Voltage: 0 V
Current: 7 A

MacCode: 342589975
BlueTooth: 26541C98068E
Factory: 2012年12月31日

Monitor Alarm Param Normal DLoad Graph Update LeaseSet

cell string

Battery Info

| | | | |
|-----------------|---------|----------------------|------|
| CapacitySet: | 20 ah | CellSet: | 14 C |
| CurrentPercent: | 50 % | LowCapacity: | 0 % |
| BalAccuracy: | 20 mv | DisCharCapacity: | 0 ah |
| BalanceVol: | 3800 mv | CalibrationCapacity: | 0 ah |

Battery Operation

Ternary-Lithium Iron-Phosphate Lithium-Titanate

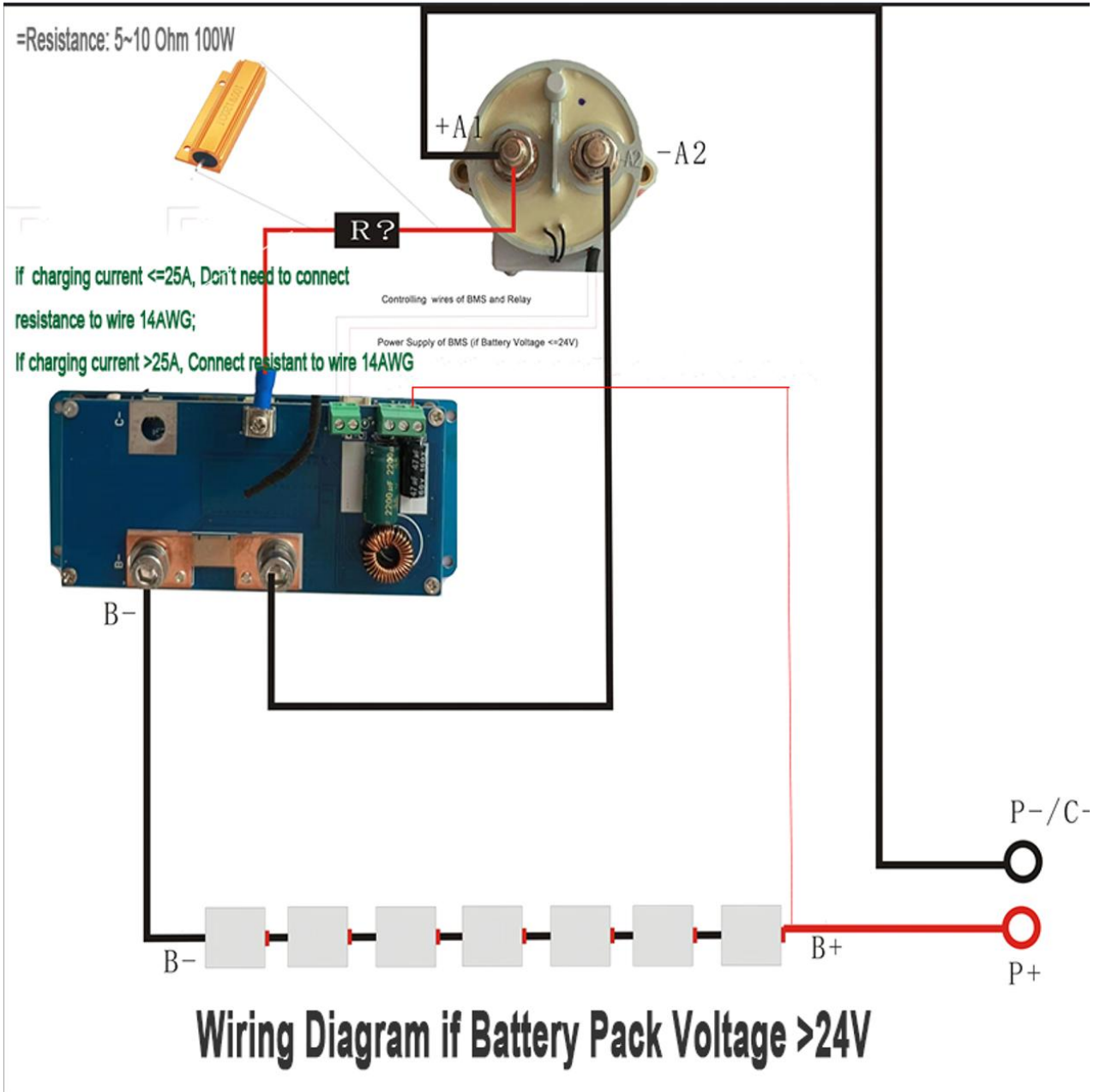
ReStart Reset Modify

Charge MOS: Discharge MOS: Equalization: Special Charger:

HeaterClose: ChargeHeater: DisChargeHeater: AllHeater:

四 Parameters Sheet

| TOPBMS 3S-32S BMS 200A-500A | | | | | | |
|--------------------------------------|--|---------------|---------------|----------------|------------|--|
| L*W*H 165*65*35mm | | | | | | |
| 功能 | 项目 | 功能 | Voltage | | | Comment |
| | | | Li-ion (3.7V) | LiFePo4 (3.2V) | LTO (2.3V) | |
| Over Voltage Protection | Level 1 Charging Protection | 1500mV-4500mV | 4200mV | 3650mV | 2800mV | Level 1 protection Voltage |
| | Level 2 Charging Protection | 2950mV-4800mV | 4300mV | 3750mV | 2950mV | Level 2 Protection voltage shall be set larger than Level 1 protection Voltage |
| | Over-charging Protection Delay Time | 4S-10S | | | | |
| | Over-charging Protection Recovery Voltage | | 4100mV | 3550mV | 2700mV | 充电恢复设置电压必须小于充电保护电压 Over-charging Protection recovery Voltage shall be set smaller than Level 1 protection Voltage |
| Under Voltage Protection | Level 1 Discharging Protection | 1500mV-4500mV | 2750mV | 2500mV | 1800mV | |
| | Level 2 Discharging Protection | | 2500mV | 2250mV | 1600mV | Level 2 discharging protection shall be set smaller Level 1 |
| | Over-discharging Protection Delay Time | 4S-10S | | | | |
| | Over-discharging Protection Recovery Voltage | | 3100mV | 2900mV | 2200mV | Over-discharging Protection Recovery Voltage shall be set larger than Level 1 Discharging Protection Voltage |
| High Temperature Protection | Power Module of BMS | | 90°C | | | |
| | Balancing Module of BMS | | 70°C | | | |
| | | | 65°C | | | |
| High Temperature Protection Recovery | Power Module of BMS | | 85°C | | | |
| | Balancing Module of BMS | | 65°C | | | |
| | Batteries | | 60°C | | | |
| Low Temperature Protection | | -30degree Max | | | | MANUAL SET |
| Low Temperature Protection Recovery | | -10degree Max | | | | MANUAL SET |
| Current | Charging Current | 0-500A | | | | For example :If you order bms 40A , you can set the max value of charging current to 40A |
| | Continuous discharging current | 0-500A | | | | For example :If you order bms 40A , you can set the max value of discharging current to 40A |
| | Peak discharging current | 600-1500A | | | | For example :If you order bms 40A , you can set the max value of peak current to 120A |
| Balancing | Balancing start Volt | 1000mV-4300mV | 4100mV | 3400mV | 2600mV | |
| | Voltage Diff | 1-30mV | 20mV | 20mV | 20mV | |
| | Balancing Current | 2-40mA | 40mA | 40mA | 40mA | |
| Voltage acquisition resolution | | 5mv | | | | |
| Temp Acquisition Tolerance | | 1-5% | | | | |
| SOC Acquisition Tolerance | | 1-10% | | | | |
| BMS Communication | Bluetooth | | | | | |
| | 485-1 | | | | | The port for charger with RS485 |
| | 485-2 | | | | | The port for PC |
| | CAN | | | | | Not Applicable |
| Consumption | BMS +Bluetooth | 2.5mA | | | | |
| | BMS+CAN | 7.5mA | | | | |
| | Sleep Mode | 50uA | | | | |
| 供电 | | 20V-150V | | | | 电池组供电 |



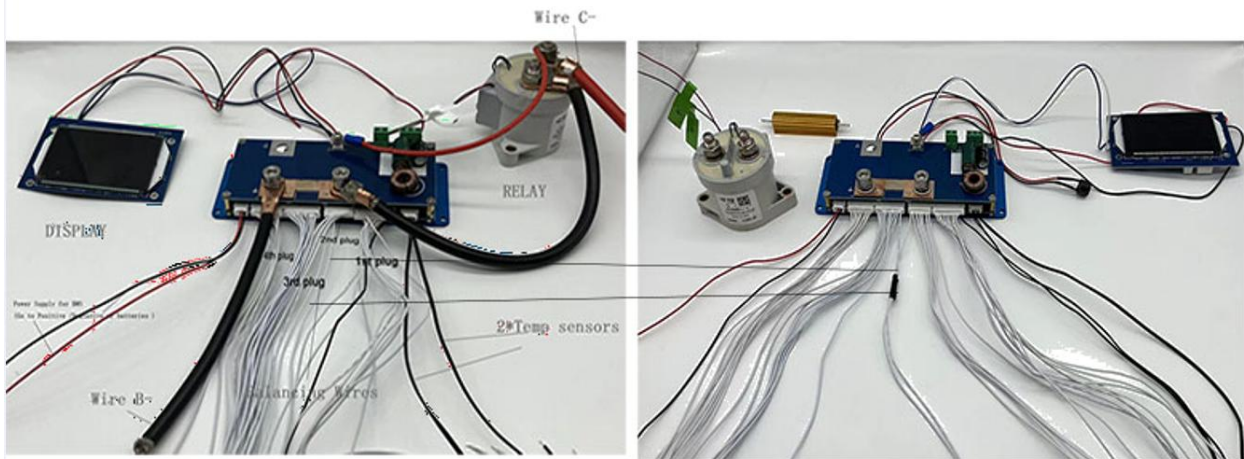
Points For Attention

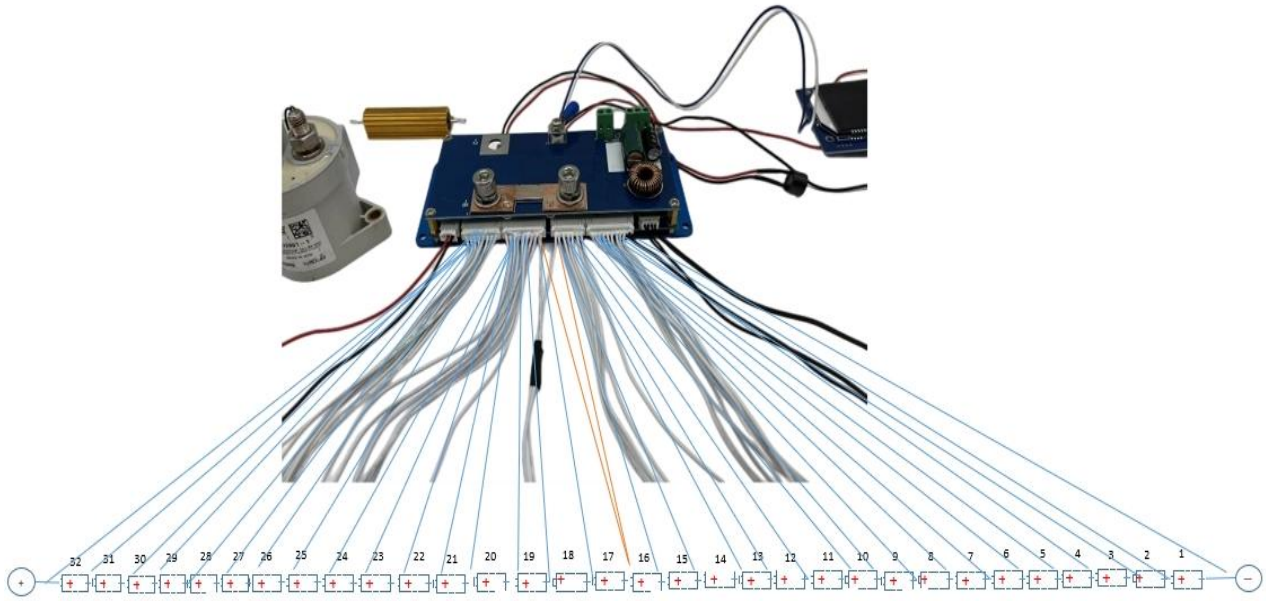
Step1. First of all, B- wire goes to the negative of batteries pack

Step2. C- wire goes to the negative of charger/loading

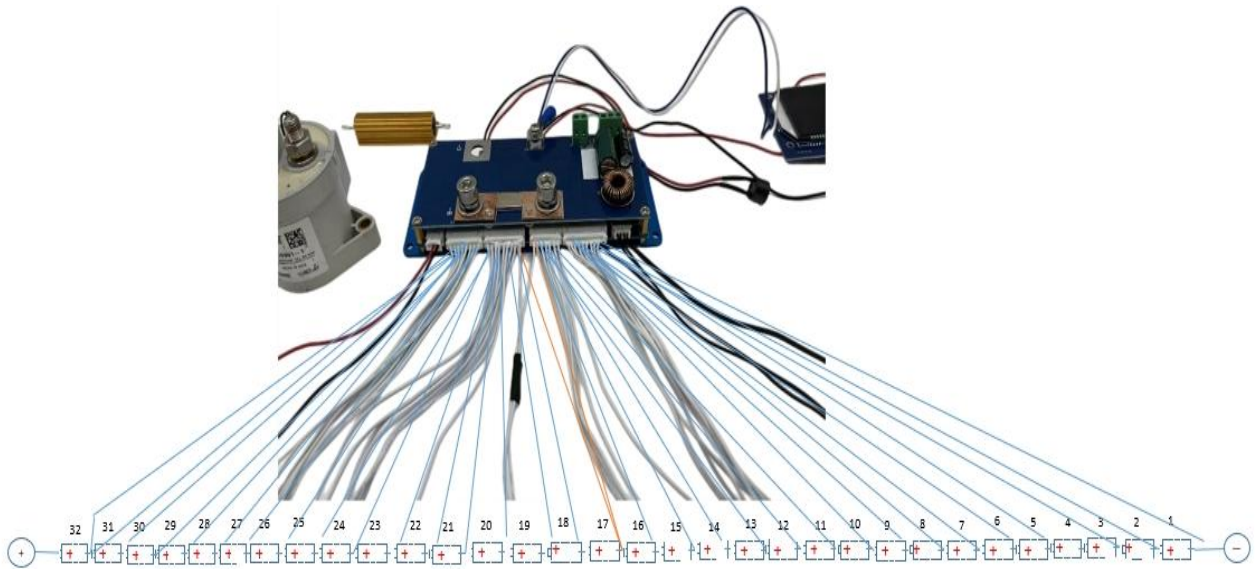
Step3. Starting with black wire, the last wire of the 2nd plug and the first wire of 3rd plug combines together

Step4 . please connect all extra wires to the positive of entire batteries when you want BMS 32S to be used as BMS 31S, BMS 30S, BMS 21S

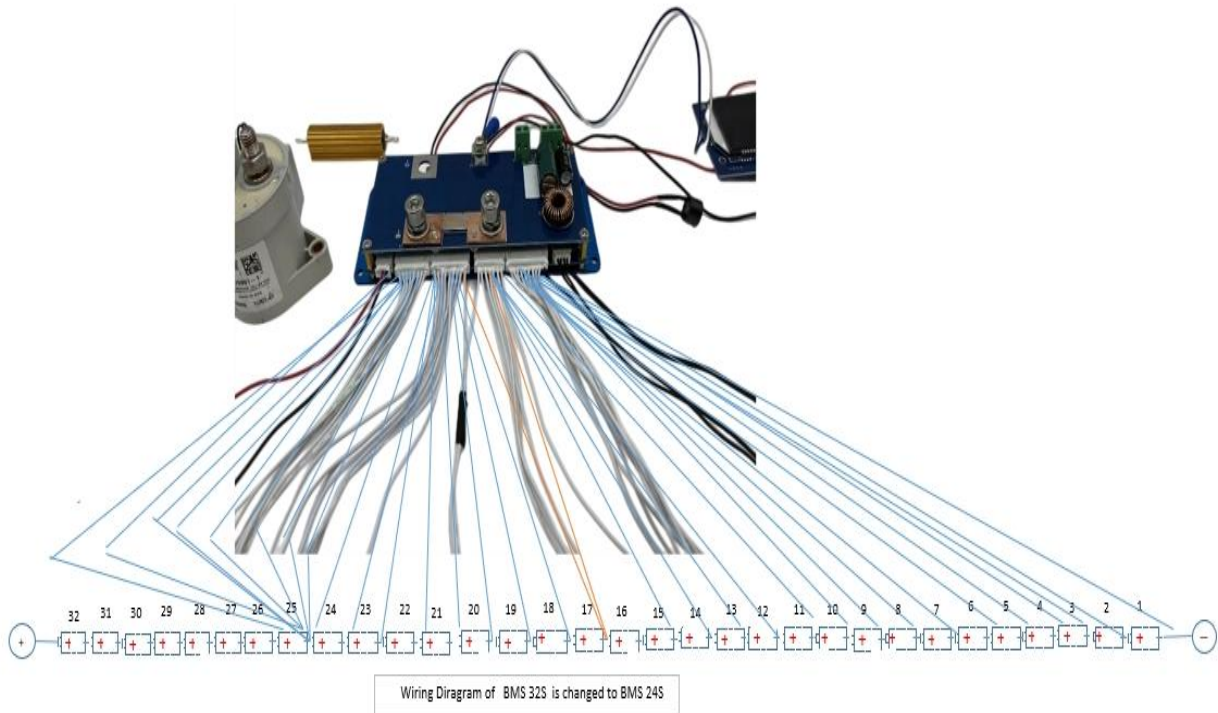
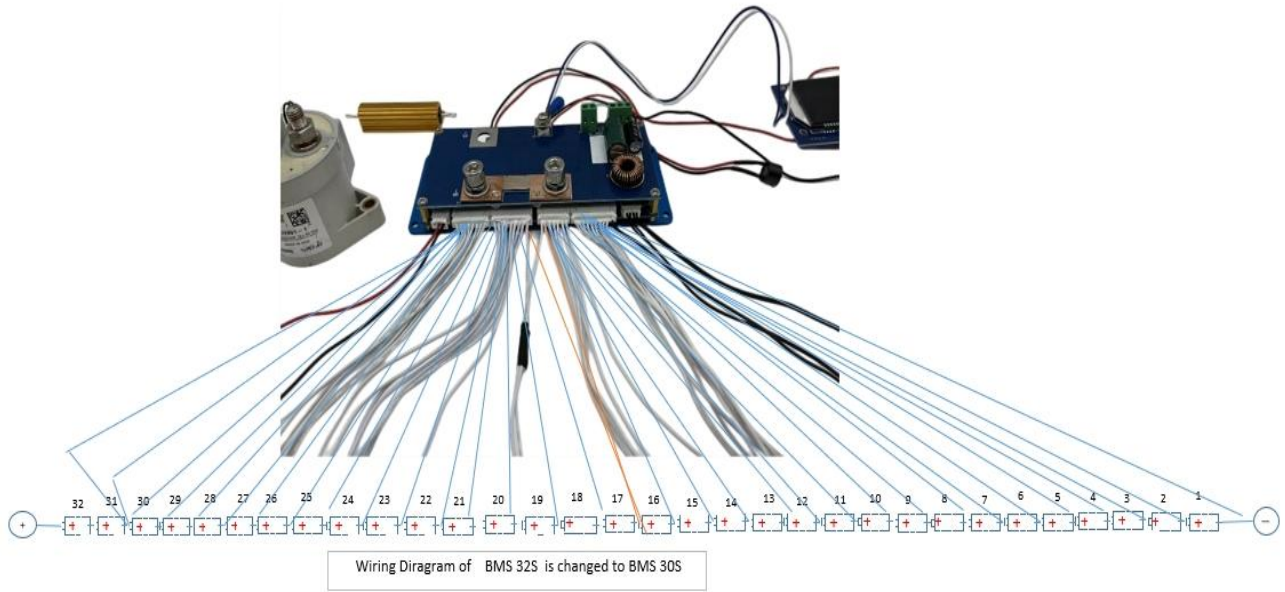




Wiring Diagram of BMS 32S



Wiring Diagram of BMS 32S is changed to BMS 31S

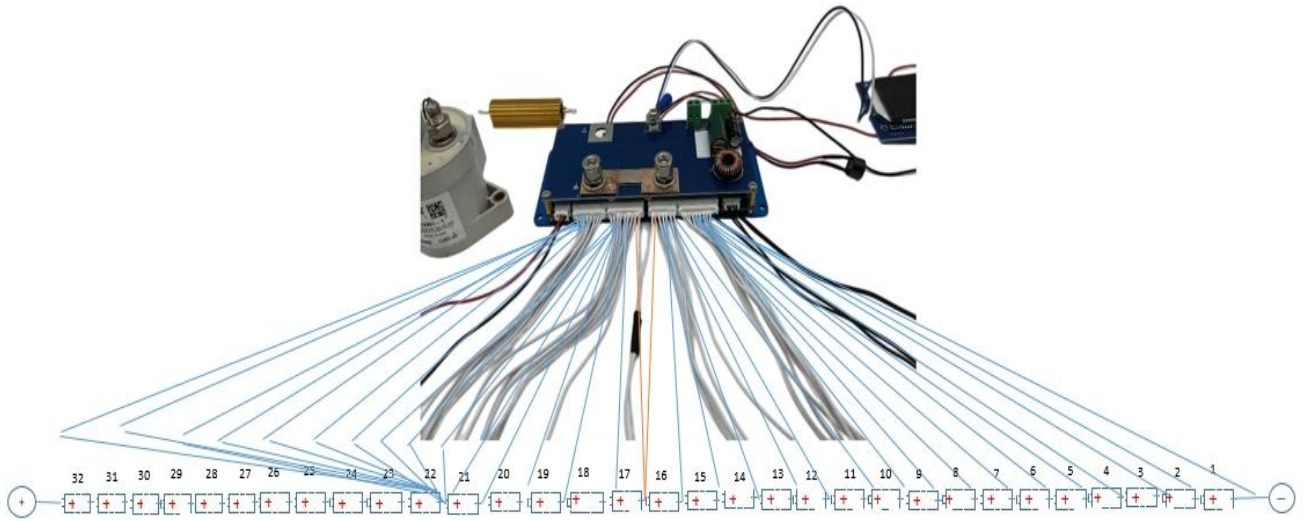


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Wiring Diagram of BMS32S is changed to BMS 21S

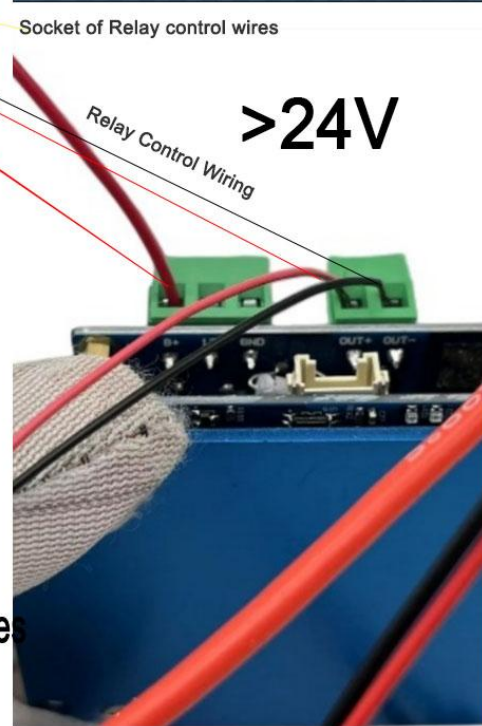
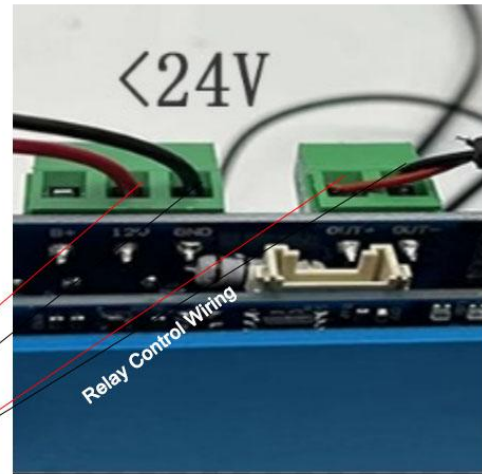
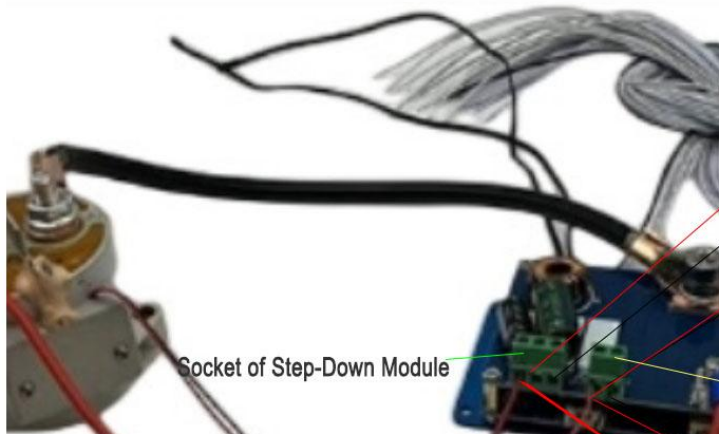
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Step-Down Module Wiring :

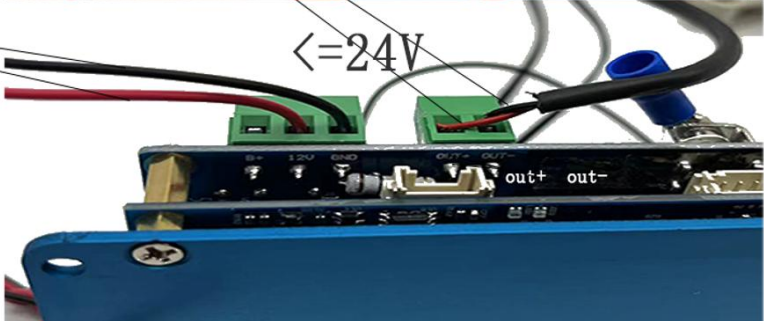
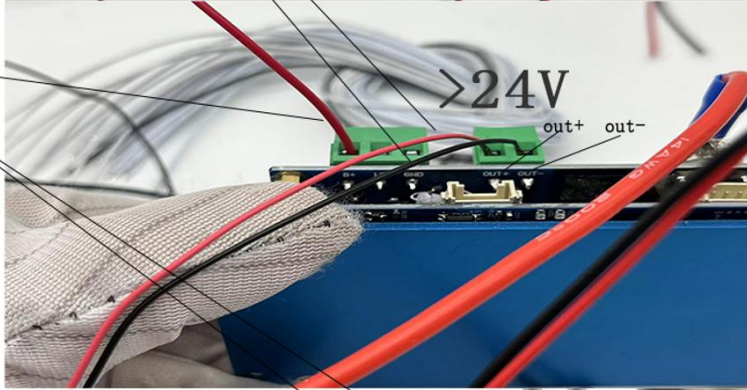
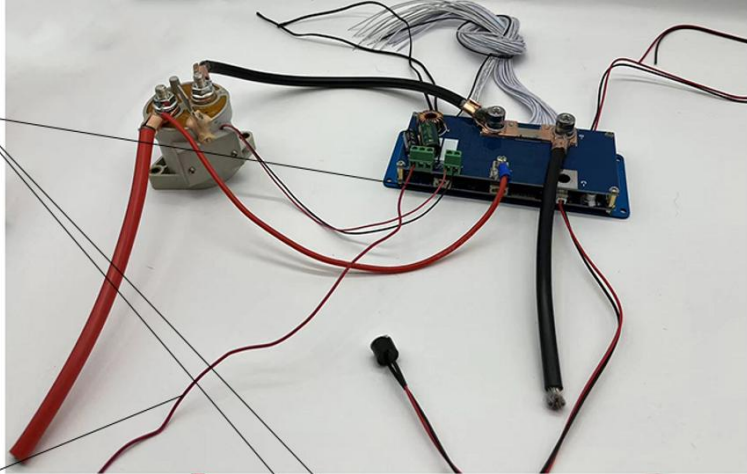
If Nominal Voltage of batteries pack >24V,

Wires go to the total positive of batteries

If Nominal Voltage of batteries pack <=24V,

Wires go to the total negative and positive of batteries

Wiring of Relay and Main Board



If Nominal Voltage of batteries pack >24V, Wires go to the total positive of batteries

If Nominal Voltage of batteries pack <=24V, Wires go to the total negative and positive of batteries

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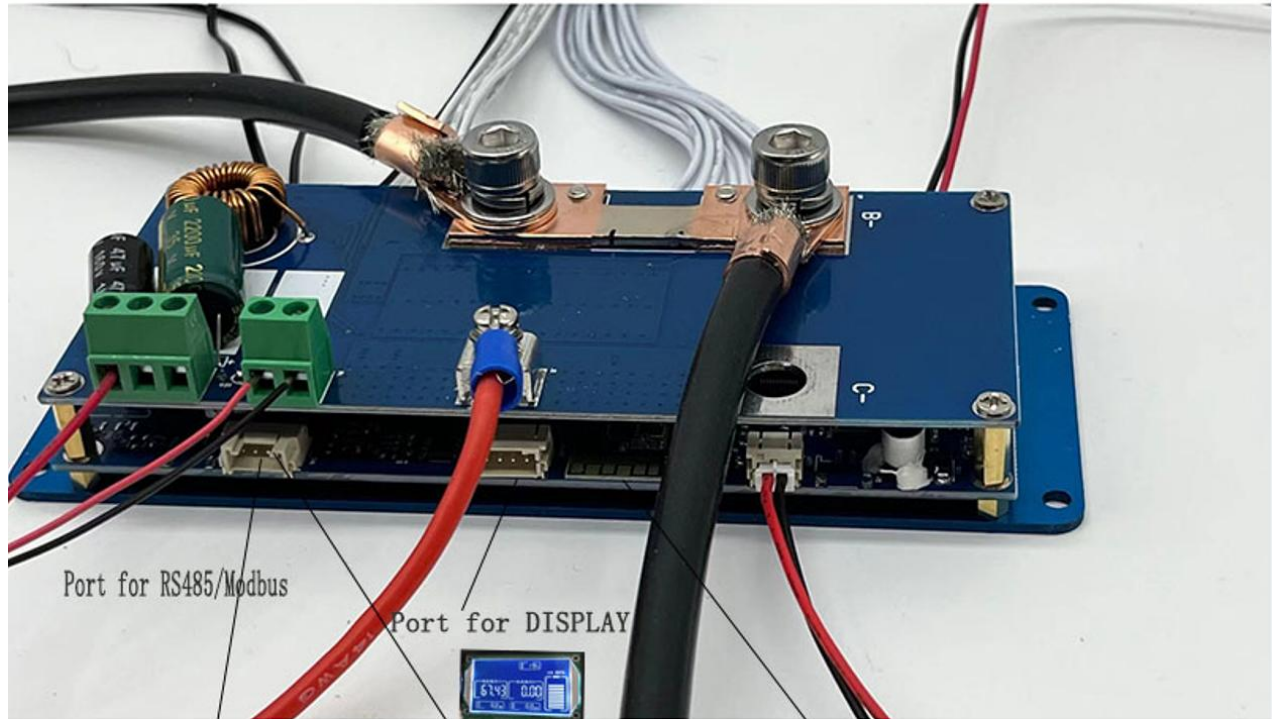
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BMS Communication Ports Description

Email: 66057580@qq.com



Port for RS485/Modbus

Port for DISPLAY

Built-In B/T



RS485/Modbus Master Computer



RS485 to USB cable



Phone APP

Phone APP Setting Instruction

STEP1 Start Up of BMS and Relay

After you enter the phone app, please go to the button “SET” and then set the correct batteries capacity and cell series in the app.



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Step 2: How to Set Discharging /Charging

Charging Setting:

Please make sure to set charging current larger than actual one in the charging settings

Discharging Setting :

Please make sure to set discharging current larger than the actual one in the discharging settings;
Discharging over current is 2 times larger than discharging current

Attention: the bms will be dead if the set discharging/charging is less than actual one !!



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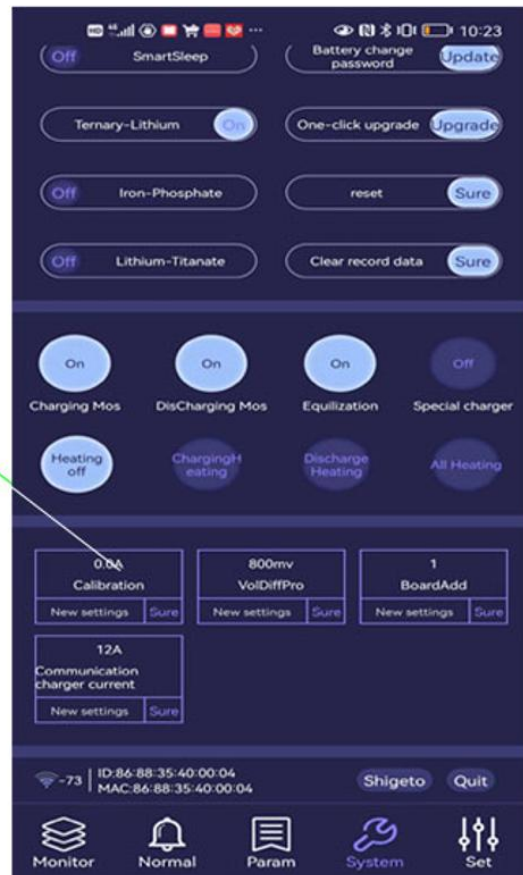
Email: 66057580@qq.com; Skype ID: live:.cid.8a15dc87c5ffe40c

Step 3.1

Current Calibration-1

In the beginning. The BMS and relay can't work without the loading and without *current calibration*;

Please set the correct discharging current in the *current calibration* after connect loading; Afterwards, the BMS and relay works

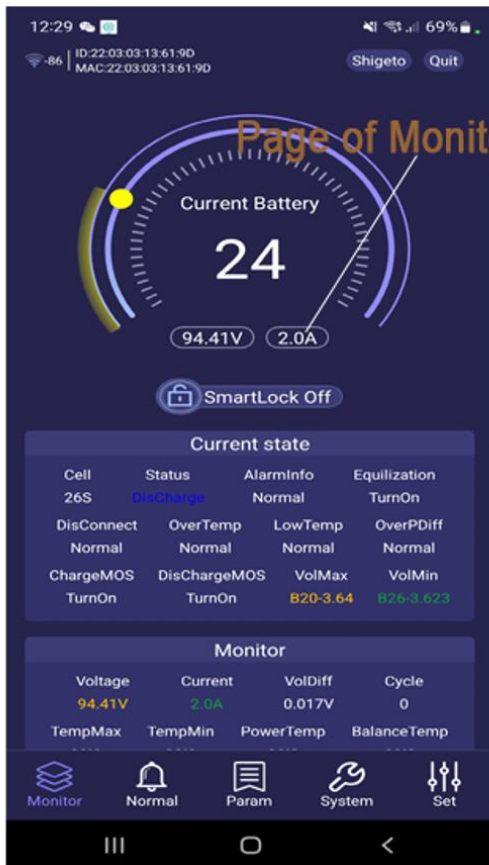


Step 3.2

Current Calibration-2

Enter 2A in calibration and check if page of “monitor” shows 2A;

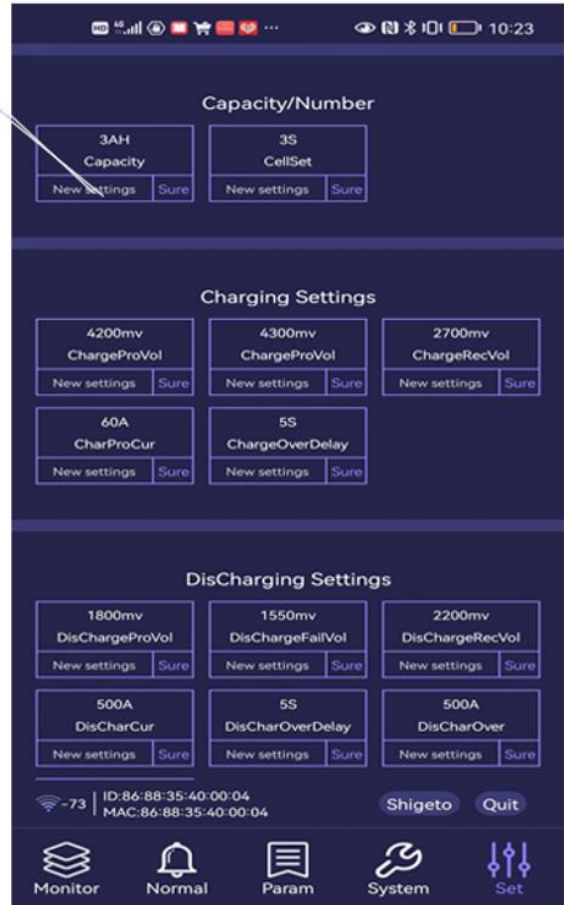
If yes, the calibration is completed successfully



Attention:you can enter 2~more in the calibration

STEP 4 SOC Calibration

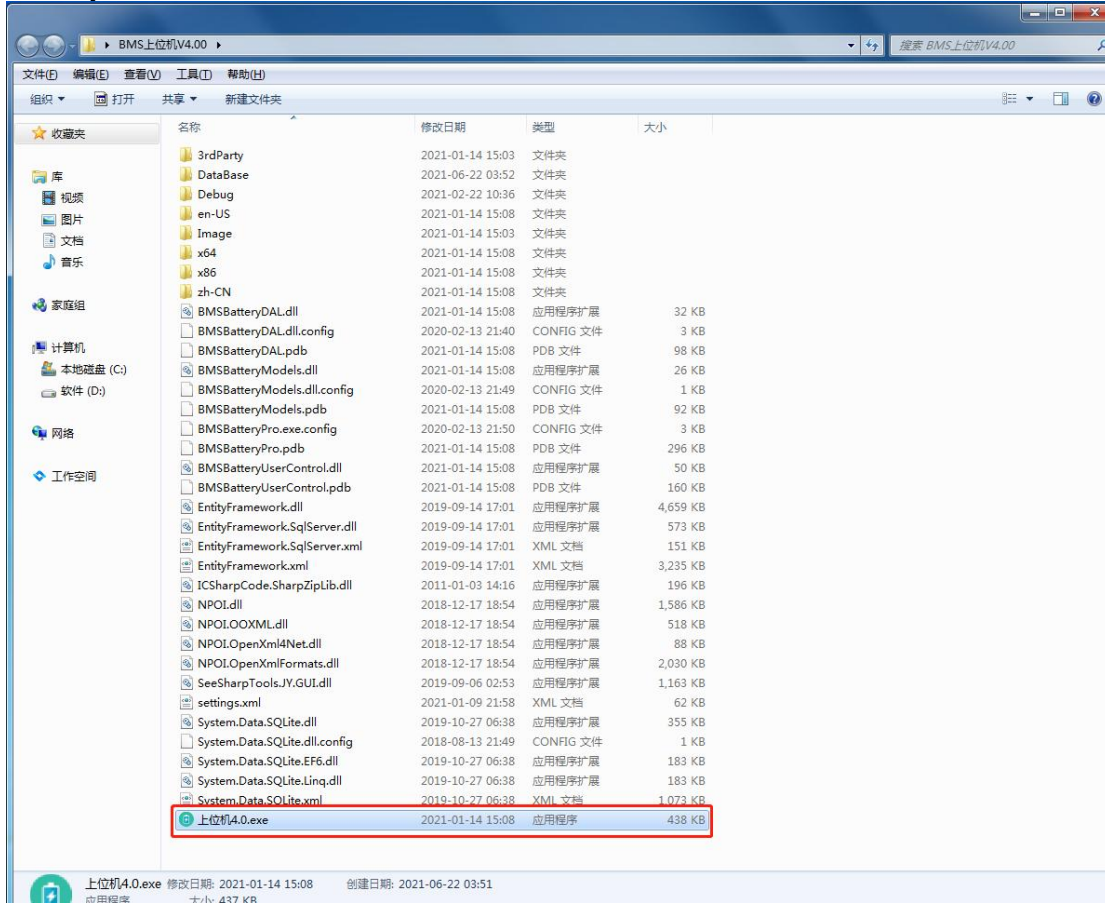
Set the actual capacity of the batteries pack in the phone APP ,and Discharge the batteries to under-voltage protection and then Charge batteries to the over voltage protection and then SOC can be corrected and calibrated



PC Software Instruction OF

BMS talk to PC

Step1 : PC Software Installation





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Step2 : Select the correct Port

BMS Lithium Battery Management System

The interface features a top navigation bar with buttons for Monitor, Alarm, Param, Normal, DLoad, Graph, Update, and LeaseSet. The left sidebar contains configuration options for PortNo (COM4), DevNo (1), a Connect button, language selection (English), and a battery icon. The main area is divided into two sections: Battery Info and Battery Operation.

Battery Info

| | | | | | |
|-----------------|------|----|---------------------|----|----|
| CapacitySet: | 20 | ah | CellSet: | 14 | C |
| CurrentPercent: | 50 | % | LowCapacity: | 0 | % |
| BalAccuracy: | 20 | mv | DisCharCapacity | 0 | ah |
| BalanceVol: | 3800 | mv | CalibrationCapacity | 0 | ah |

Battery Operation

Chemistry selection buttons: Ternary-Lithium, Iron-Phosphate, Lithium-Titanate. Action buttons: ReStart, Reset, Modify.

Control indicators (Green = On, Grey = Off):

| | | | |
|--------------|----------------|------------------|------------------|
| Charge MOS: | Discharge MOS: | Equalization: | Special Charger: |
| HeaterClose: | ChargeHeater: | DisChargeHeater: | AllHeater: |

Left sidebar details:

Remain: 0 %
Voltage: 0 V
Current: 7 A
MacCode: 342589975
BlueTooth: 26541C98068E
Factory: 2012年12月31日



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Step3 : The address " 1 "cannot be changed. After this, press the botton "Connect"

The screenshot displays the TOPBMS-V1 software interface. On the left, there are control elements including a 'PortNo' dropdown, 'DevNo' set to '1', a 'Connect' button, a language selector (English/中文), and a battery level indicator showing 00.0%. Below these are two analog gauges for Voltage (0.000 V) and Current (0.000 A). At the bottom left, there are input fields for MacCode (00000000), BlueTooth (00000000), and Factory (2000-01-01). The main area features a navigation bar with 'Monitor', 'Alarm', 'Param', 'Normal', 'DLoad', 'Graph', 'Update', and 'LeaseSet'. The 'Monitor' section is active, showing 'BasicInfo' and 'StatusInfo' panels. The 'BasicInfo' panel lists various parameters like VolMax, VolMin, TempMax, PowerTem, and Temp, all showing 0.000 values. The 'StatusInfo' panel shows 'Stand' status and 'OK' indicators for DisConnect, DisChaPro, OverTemp, ChargeMOS, and OverPDif. A 'Cell-Voltage (V)' panel at the bottom shows 24 individual cell voltage readings, all at 0.000 V. The status bar at the very bottom indicates 'Software: V4.10', 'Firmware: V4.10', 'System Time: 2022-02-16 15:54:00 Wednesday', and 'Password Status: 🔒'.

Step 4: According to different customers ,the PC software has English and Chinese version ; The monitoring can be used to check the data of each cell, battery situation



Step 5: if you want to set the parameters, please enter password :123456

The screenshot displays the TOPBMS software interface. On the left, there are control panels for '串口号' (COM3), '站地址' (1), '断开连接', '中文', and battery status indicators (90% remaining, 80.78V total voltage, 0A total current). The main area is divided into '基本信息' (Basic Information) and '状态信息' (Status Information). A '密码验证' (Password Verification) dialog box is open in the center, with a red box around the password input field containing '*****' and another red box around the '确定' (Confirm) button. The background shows a grid of 20 battery cells with their respective voltages. The bottom status bar shows '上位机版本: V4.00', '固件版本: V1.9', '系统当前时间: 2021-06-22 04:01:02 星期二', and '密码状态: 锁'.

| 基本信息 | | | | 状态信息 | | | | |
|-------|---------|-----|-------|----------|--------|----|--------|----|
| 最高电压 | 4.06 V | B3 | 单体压差 | 0.0380 V | 电池状态 | 待机 | 电池掉线状态 | 正常 |
| 最低电压 | 4.022 V | B14 | 循环次数 | 0 T | 放电保护失效 | 正常 | 充电保护失效 | 正常 |
| 最高温度 | 26 °C | | 最低温度 | 0 °C | 电池超温状态 | 正常 | 电池低温报警 | 正常 |
| 功率板温度 | 26 °C | | 均衡板温度 | 23 °C | 充电MOS管 | 开启 | 放电MOS管 | 开启 |
| 电池温度 | | | | | | 正常 | 均衡状态 | 开启 |

| Cell No. | Voltage (V) | Cell No. | Voltage (V) | Cell No. | Voltage (V) |
|----------|-------------|----------|-------------|----------|-------------|
| 1 | 4.037 | 6 | 4.054 | 11 | 4.031 |
| 2 | 4.054 | 7 | 4.054 | 12 | 4.029 |
| 3 | 4.054 | 8 | 4.054 | 13 | 4.028 |
| 4 | 4.058 | 9 | 4.026 | 14 | 4.022 |
| 5 | 4.026 | 10 | 4.031 | 15 | 4.026 |
| 16 | 4.026 | 17 | 4.027 | 18 | 4.026 |
| 19 | 4.028 | 20 | 4.052 | | |

Step6 :Enter data to be set to confirm the modification. The modification is successful





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Step7 In the "Normal";No of battery in series can be set based on the actual situation ; In the meanwhile, according to the battery properties you can select the protection mode

BMS Lithium Battery Management System

PortNo: COM4
DevNo: 1
Connect
English
Remain: 0 %
Voltage: 0 V
Current: 7 A
MacCode: 342589975
BlueTooth: 26541C98068E
Factory: 2012年12月31日

Monitor Alarm Param **Normal** DLoad Graph Update LeaseSet

Battery Info

| | | | | | |
|-----------------|------|----|----------------------|----|----|
| CapacitySet: | 20 | ah | CellSet: | 14 | C |
| CurrentPercent: | 50 | % | LowCapacity: | 0 | % |
| BalAccuracy: | 20 | mv | DisCharCapacity: | 0 | ah |
| BalanceVol: | 3800 | mv | CalibrationCapacity: | 0 | ah |

Battery Operation

Ternary-Lithium ReStart
Iron-Phosphate Reset
Lithium-Titanate Modify

Charge MOS: Discharge MOS: Equalization: Special Charger:
HeaterClose: ChargeHeater: DisChargeHeater: AllHeater:

Setting of CELL in series



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Step 8: you can set the protection parameters you expect

BMS Lithium Battery Management System

PortNo: COM5
DevNo: 1
Connect
English

Remain: 0 %
Voltage: 0 V
Current: 7 A

MacCode: 342589975
BlueTooth: 26541C98068E
Factory: 2012年12月31日

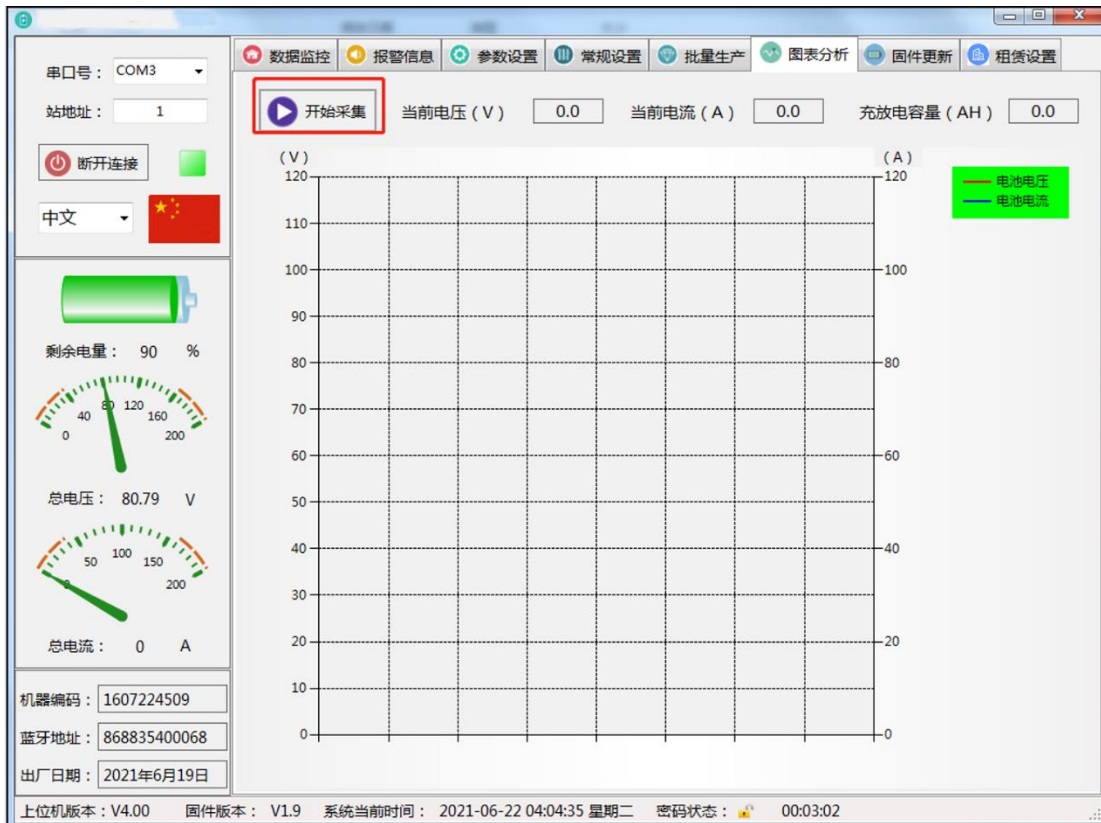
Monitor Alarm Param Normal DLoad Graph Update LeaseSet

Mass Production ParamSet

| Parameter | Actual | Set | Result |
|---------------------------|--------|-----|--------|
| Charge-Pro (mv) : | 4350 | | |
| Charge-Pro (mv) : | 4200 | | Open |
| Charge-Rec (mv) : | 4150 | | |
| Charge-Pro (A) : | 40 | | |
| Discharge-Fail-Pro (mv) : | 2550 | | |
| Discharge-Pro (mv) : | 2750 | | |
| Discharge-Pro (A) : | 80 | | |
| Balance Voltage (mv) : | 3800 | | |
| Capacity (AH) : | 20 | | |
| Cell-Set (Cell) : | 14 | | |
| PasswordSet: | 123456 | | |
| BlueToothName: | | Set | |
| Bluetooth-Reading: | 0 | | Read |

Save
DLoad

Step9: You can view the voltage curve and current curve



Step 10 Firmware can be updated for one-key

The screenshot displays the TOPBMS software interface, which is used for monitoring and controlling a battery management system. The interface is divided into several sections:

- Left Panel:** Contains connection and status information. It shows the serial port set to COM3 and station address 1. There is a '断开连接' (Disconnect) button. The language is set to '中文' (Chinese). Below this, there are three gauges: a battery level gauge showing 90%, a total voltage gauge showing 80.79 V, and a total current gauge showing 0 A. At the bottom of the left panel, there are fields for '机器编码' (Machine Code: 1607224509), '蓝牙地址' (Bluetooth Address: 868835400068), and '出厂日期' (Production Date: 2021年6月19日).
- Top Menu:** Includes '数据监控' (Data Monitoring), '报警信息' (Alarm Information), '参数设置' (Parameter Settings), '常规设置' (General Settings), '批量生产' (Batch Production), '图表分析' (Chart Analysis), '固件更新' (Firmware Update), and '租借设置' (Lease Settings).
- Main Area - Firmware Update Process:** Titled '固件更新过程' (Firmware Update Process), it lists seven steps: STEP 1: 选择固件文件 (Select firmware file), STEP 2: 发送重启命令 (Send restart command), STEP 3: Baud9.6K连接 (Baud9.6K connection), STEP 4: 发送0x20指令 (Send 0x20 command), STEP 5: 发送0x31指令 (Send 0x31 command), STEP 6: 正常返回0x43 (Normal return 0x43), and STEP 7: 发送固件信息 (Send firmware information). A '文件选择' (File Selection) button is next to Step 1, and a '一键更新' (One-Click Update) button is next to Step 2. A large red circular progress indicator is visible. The '烧录段号' (Burn segment number) and '总计段长' (Total segment length) are both set to 0. The '固件更新耗时' (Firmware update time) is shown as 00:00:00.
- Main Area - Other Settings:** Titled '其他设置' (Other Settings), it includes '电流校准' (Current calibration) set to 0 A, '保护板地址' (Protection board address) set to 1, and '压差保护值' (Voltage difference protection value) set to 800 mv. A '一键休眠' (One-Click Sleep) button is located at the bottom right of this section.
- Bottom Status Bar:** Shows '上位机版本: V4.00', '固件版本: V1.9', '系统当前时间: 2021-06-22 04:05:16 星期二', '密码状态: [lock icon]', and '00:03:43'.