SEPLOS SMART BMS SOFTWARE

BATTERYMONITOR USER MANUAL

Dongguan Seplos Technology Co., Ltd

CONTENT

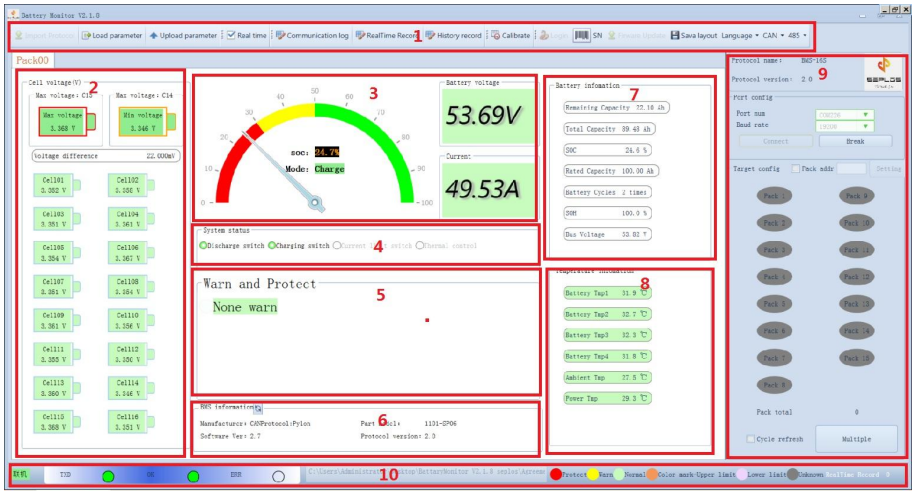
1. Applicable products

The BatteryMonitor software is used to monitor battery pack information. It's applicable to SEPLOS PUSUNG, PUSUNG-R, PUSUNG-S, MASON series and SEPLOS 24V 48V Smart BMS.

2. Compatible Operating System

The software is compatible with winXP /win7/win10/mac 6 bit operating system.

3. Software Interface



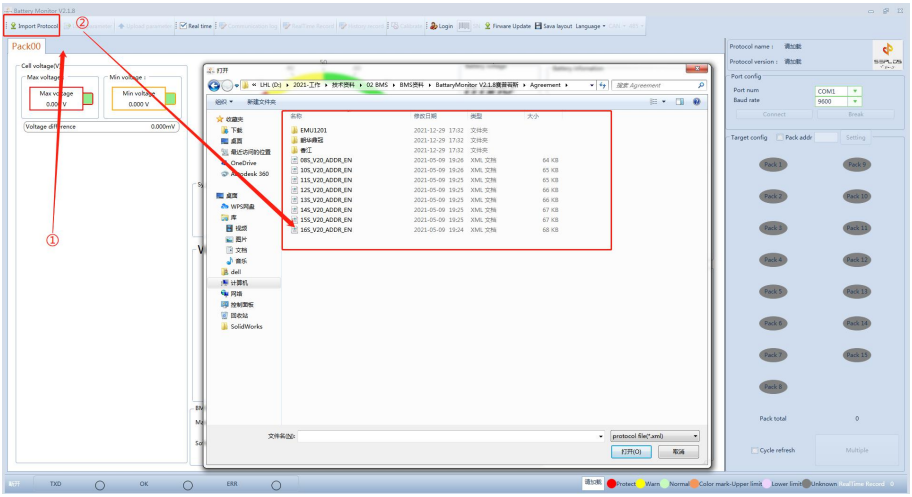
1. Menu
2. Individual cell information
3. Pack information
4. Function switch information

5. System status
6. Manufacturer information
7. Battery information
8. Temperature information
9. Connection information
10. Battery status

4. Brief introduction

4.1 Import protocol

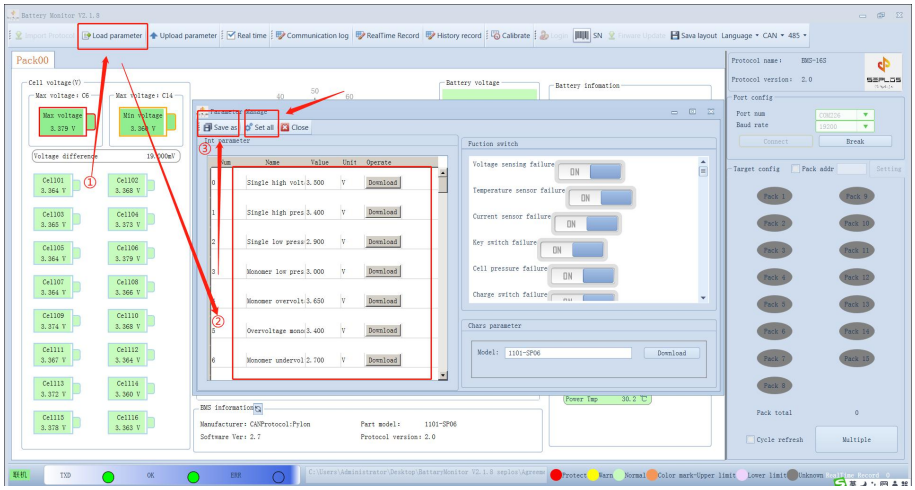
SEPLOS BatteryMonitor is compatible with PUSUNG, PUSUNG-S, PUSUNG-R, SUTEN-W, and MASON-135, MASON-280,MASON-206 series. When using BatteryMonitor for the first time, click ‘import protocol’, choose the folder "Agreement", and select the corresponding model.



4.2 Load Parameter

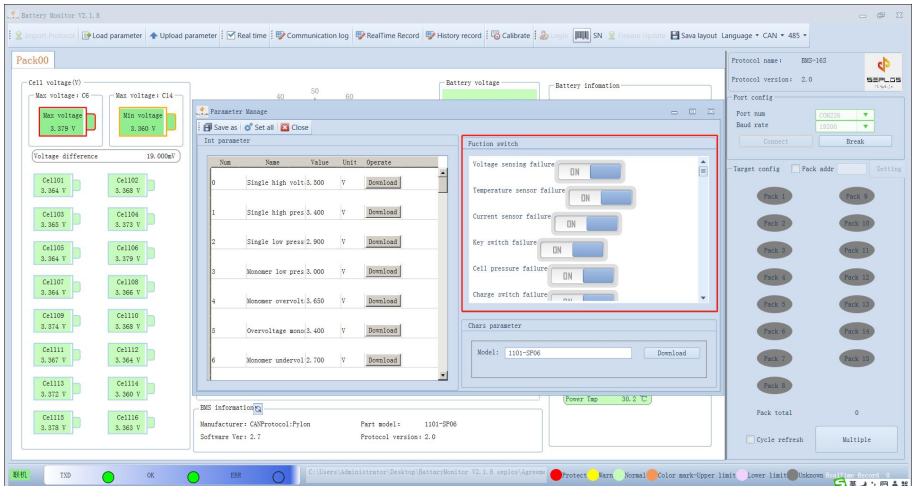
Users can set parameters according to different battery performances. Click

'save as' to save the modified parameters in your devices, and click 'load parameter' to import the document data into the BMS. After importing, click "Set all". And the modified parameters was imported successfully. (The modification of this parameter should be confirmed with SEPLOS engineers. Any unauthorized modification done to the affected the BMS would void out of the warranty.)——Appendix 1



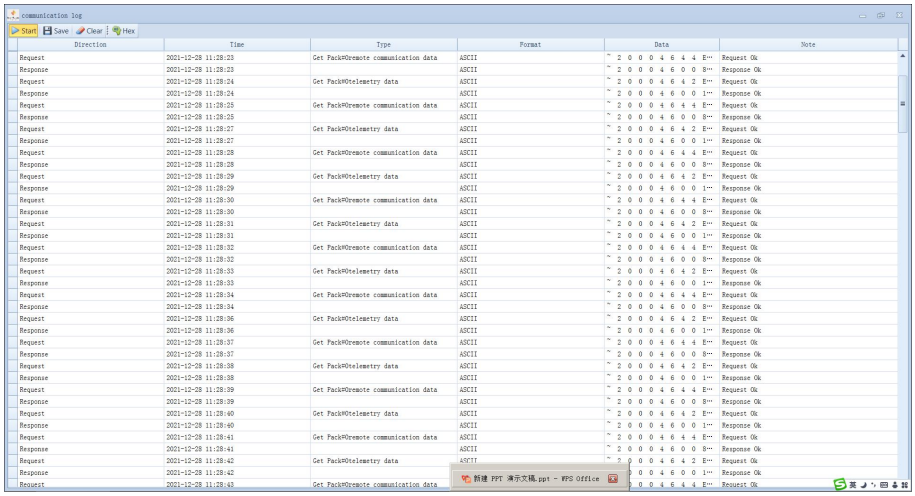
4.3 Upload Parameter

As mentioned in 3.1, users can set parameters according to different battery performances. There's function switches on the right. Which is to control the ON/OFF of each BMS functions. After modifying the parameters, click "Set all" to save. (The modification of this parameter should be confirmed with SEPLOS engineers. Any unauthorized modification done to the affected the BMS would void out of the warranty.)



4.4 Communication log

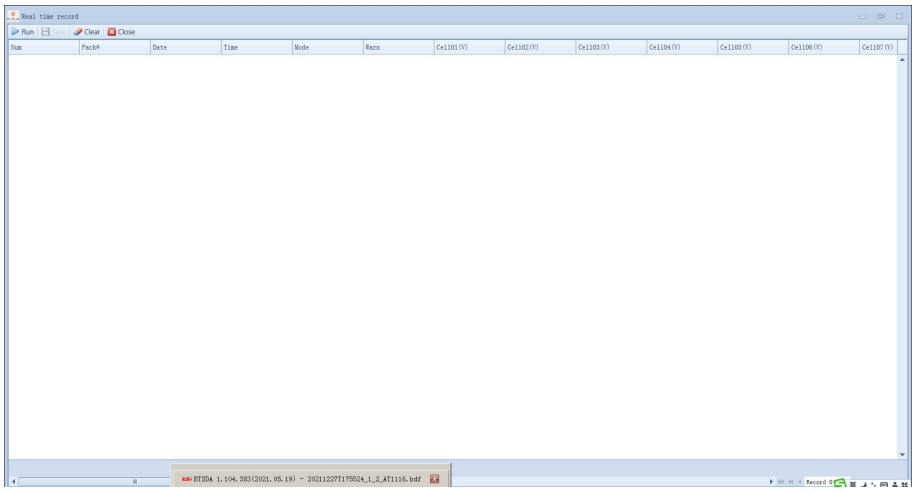
Record the detailed communication information between BMS and BatteryMonitor in real time. And save the communication information as a document for easy viewing afterwards.



4.5 Real Time Record

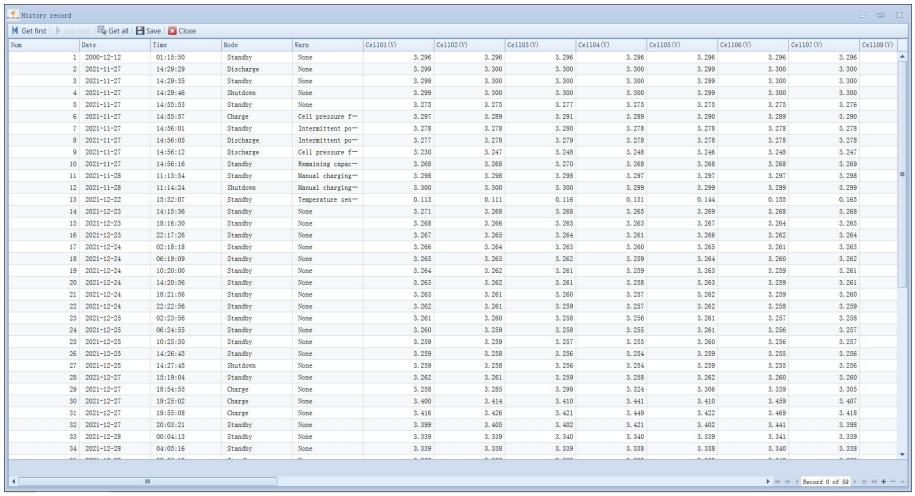
Click ‘Real Time Record’. And By clicking “Run” to record the battery status information in real time, including key information like the warning information,

the cell voltage, total battery voltage and so on. After recording, click ‘save’ to save the record as EXCEL file. (The capacity of the record storage depends on the capacity of the device).



4.6 History Record

When the battery status changes, the BMS will record the real-time data of the battery at this time. Click "Get all", And the BatteryMonitor will read all historical records of BMS (the upper limit of records is 500). Click "Save" to save as an Excel spreadsheet. (If a battery failed, this is an important reference for after-sales personnel to judge the cause of the failure).



4.7 Calibrate

Zero calibration

When the battery is in the standby state, the BMS should read 0A. If there is any deviation in the current, click "Execute" to calibrate.

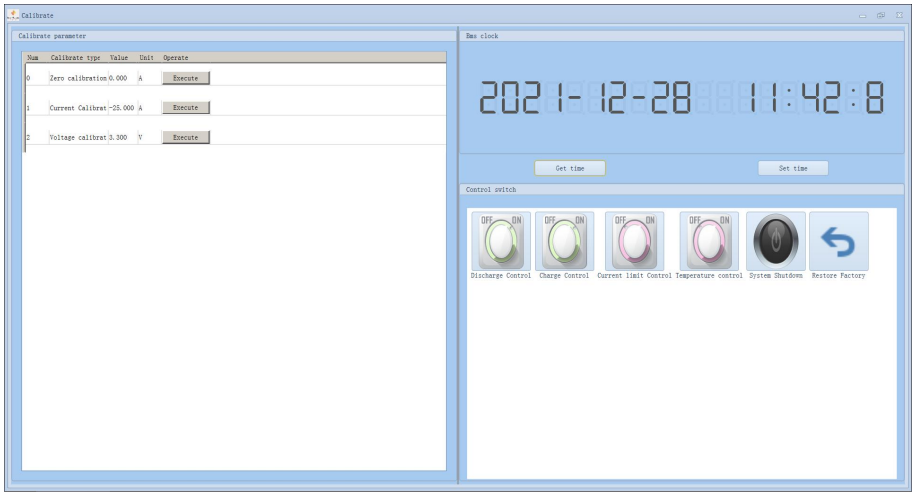
"Current Calibration" and "Voltage Calibration" are the function buttons for BMS factory calibration and professional manufacturer's secondary calibration. It is forbidden to use without high-precision equipment.

Clicking "Get time" BMS will get computer time automatically.

Clicking "Set time" to manually edit the time.

Control Switch

This functional area is a key function switch button that is convenient for engineers to debug the new system.



4.8 Login

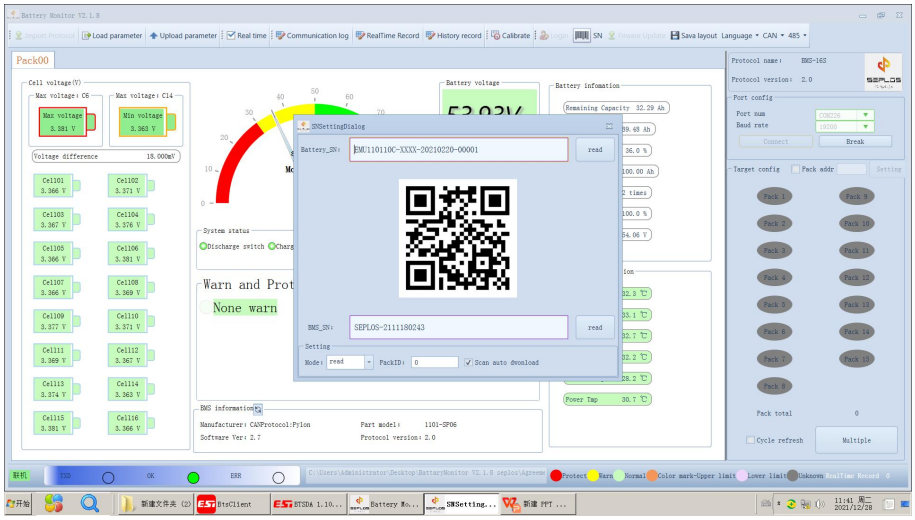
Account: admin

Password: admin

Most functions should log in for further modification

4.9 Serial Number

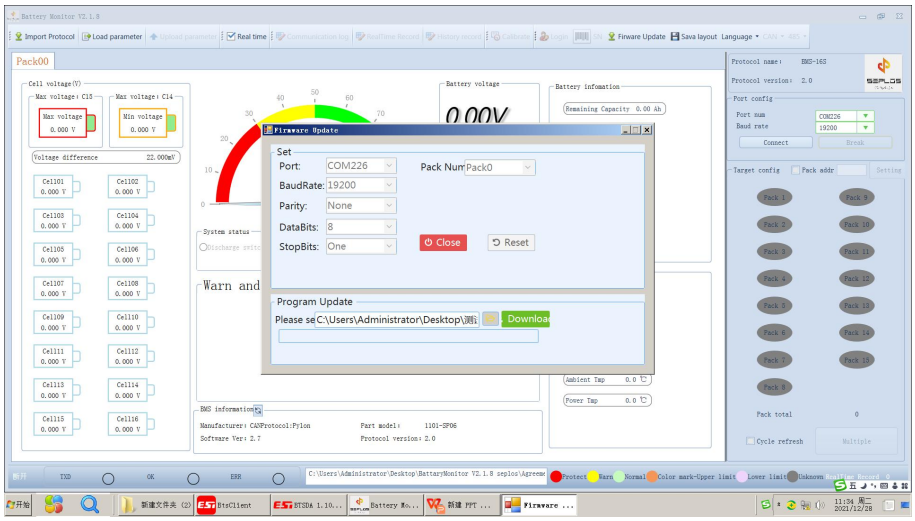
SN code is the identification of a BMS.



4.10 Firmware Update

Firmware update is for BMS program update. First, Select the right Port number. And click ‘Open’.

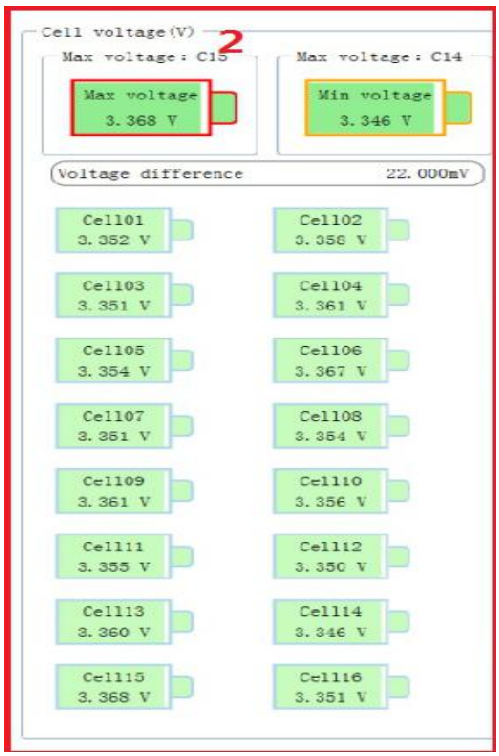
Then click the file pattern next to ‘Download’ and choose the updated program. Then click Download. After downloading to 100%, the update of the BMS program will be completed.



5. Software interface introduction

5.1 Individual cell voltage display area

It displays the voltage value of all cells, the maximum cell voltage value, and minimum cell voltage value. And the voltage difference between the maximum cell voltage and the minimum cell voltage.



5.2 Pack information

The pack information area shows the battery SOC, battery status (turning off, turning on, standby, charging and discharging), input and output current, and voltage value.

5.3 Function switch information

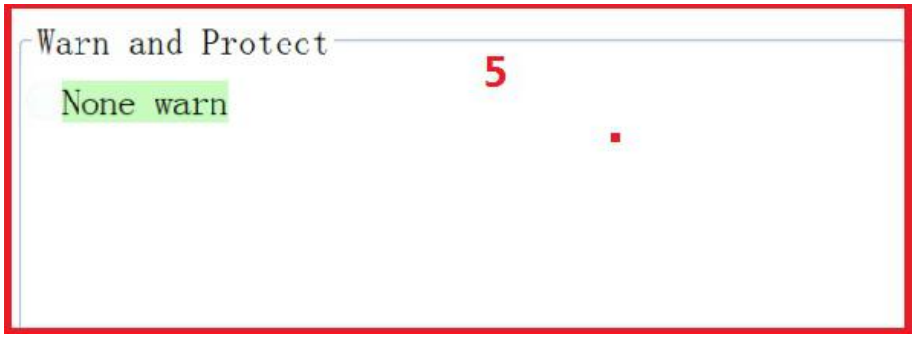
Discharging switch, charging switch, current limiting switch and temperature control switch.

Green means on; White means off.

5.4 System status

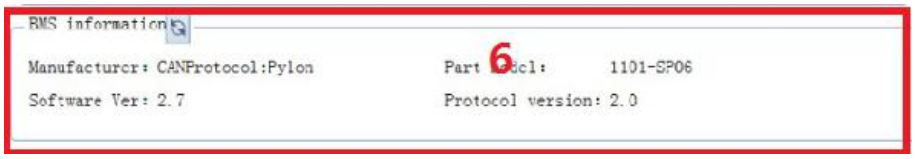
No alarm, cell high voltage alarm, cell low voltage alarm, cell overvoltage protection, cell undervoltage protection, total voltage high voltage alarm, total voltage low voltage alarm, total voltage overvoltage protection, total voltage undervoltage protection, charging overvoltage Protection, charging high temperature alarm, charging low temperature alarm, charging over

temperature protection, charging under temperature protection, discharging high temperature alarm, discharging low temperature alarm, discharging over temperature protection, discharging under temperature protection, charging over current alarm, discharging over current alarm, over charge current protection, discharging overcurrent protection, residual capacity protection, residual capacity alarm, etc.



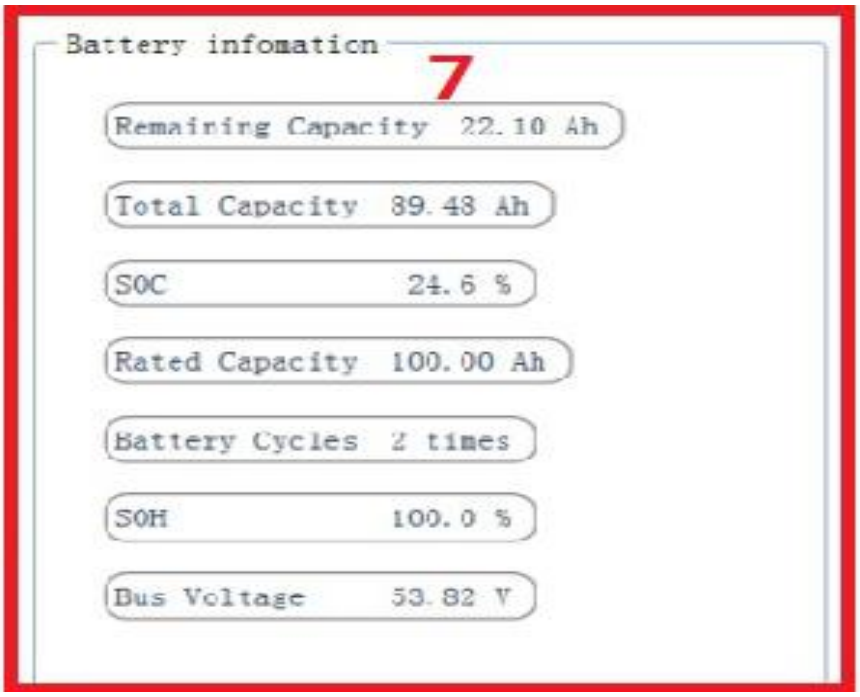
5.5 Manufacturer information

Manufacturer information area displays inverter protocol, BMS product number, software version and protocol version.



5.6 Battery information

Battery information area shows the remaining capacity of the battery, battery capacity, battery SOC, rated capacity, number of cycles (80% DOD), battery SOH status, and the total voltage.



5.7 Temperature information

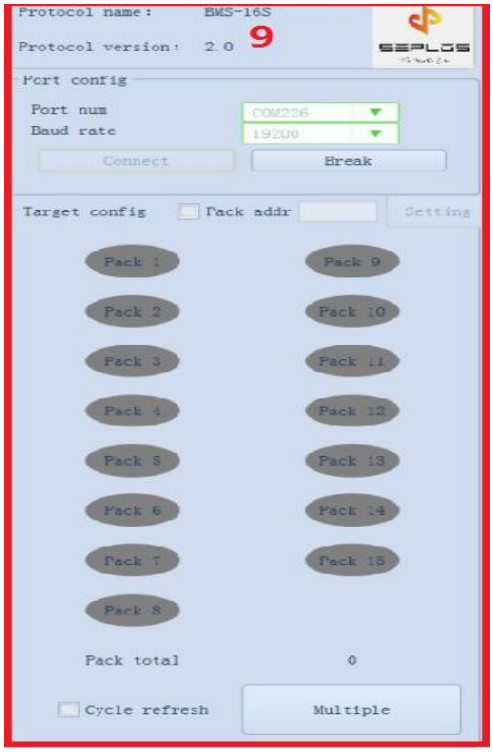
BMS detects the temperature of cells, ambient and BMS board.

Cell temperature from 4 cells in the different positions, namely Battery Tmp1, Battery Tmp2, Battery Tmp3, Battery Tmp4.

BMS temperature is the temperature from BMS MOSFET namely Power TMP.

5.8 Connection information

15 batteries can be connected in parallel at the same time for monitoring. Click on the number of which battery information is needed, and the battery information will be automatically displayed among the 15 batteries if there is no operation.



5.9 Battery status

Disconnected: off-white

Connected: Green

Red light is protection, yellow light is warning, light green is normal, white means reaching an upper limit, and gray is unknown problem.

6. Appendix 1

- Voltage sensor failure

OFF

➢ Temperature sensor failure

When the cell temperature exceed 20 ℃, the cell temperature failure warning will be activate.

- Current sensor failure

OFF

➢ Button switch failure

The failure of power switch would activate the button switch failure warning

➢ Cell voltage difference failure

If the voltage difference value exceeds the setting value, cell voltage difference failure will be activated.

- Charging switch failure

OFF

- Discharging switch failure

OFF

- Current limiting switch failure

OFF

➢ Cell high voltage warning

When an individual cell voltage value exceeds the setting value, the cell high voltage warning will be activated, and BMS would ask the inverter for a Maximum of 10A charging current.

➢ Cell low voltage warning

When a individual cell voltage value is lower the setting value, the cell low voltage warning will be activated.

➢ Cell over voltage protection

When an individual cell voltage value exceeds the setting value, the cell over voltage protection will be activated, and the BMS will cut off the charging MOSFET.

➢ Cell under voltage protection

When an individual cell voltage is lower than the setting value, cell low voltage protection will be activated, and the BMS will cut off the discharging MOSFET.

➢ Cell low voltage forbidden to charge

If an individual cell is lower than the setting value, no charge could be conducted.

➢ Pack high voltage warning

When the pack voltage value exceeds the setting value, the pack high voltage warning will be activated, and the BMS would ask for a Maximum of 10A charging current from the inverter.

➢ Pack low voltage warning

When the pack voltage value is lower than the setting value, the pack low voltage warning will be activated,.

➢ Pack over voltage protection

When the pack voltage exceeds the setting voltage, the pack over voltage protection will be activated, and the BMS will cut off the charging MOSFET.

➢ Pack under voltage protection

When the Pack voltage is lower than the setting value, the pack under voltage protection will be activated, and the BMS will cut off the discharge MOSFET.

➢ Charging high temperature warning

When at the charging status, and the cell temperature exceeds the setting value, the charging high temperature warning will be activated. And the BMS will ask the inverter for a Maximum of 10A charging voltage.

➢ Charging over temperature protection

When at the charging status, and the cell temperature exceeds the setting value, the charging over temperature protection will be activated. And the BMS will cut off the charging MOSFET automatically.

➢ Charging low temperature warning

When at the charging status, and the cell temperature is lower than the setting value, the charging low temperature warning will be activated.

➢ Charging under temperature protection

When at the charging status, and the cell temperature is lower than the setting value, the charging low temperature protection will be activated. And the BMS will cut off the charging MOSFET automatically.

➢ Discharging high temperature warning

When at the discharging status, and the cell temperature exceeds the setting value, the discharging high temperature warning will be activated.

➢ Discharging over temperature protection

When at the discharging status, and the cell temperature exceeds the setting value, the discharging high temperature protection will be activated. And the BMS will cut off the discharging MOSFET automatically.

➢ Discharging low temperature warning

When at the discharging status, and the cell temperature is lower than the setting value, the discharging low temperature warning will be activated.

➢ Discharging under temperature protection

When at the discharging status, and the cell temperature is lower than the setting value, the discharging low temperature protection will be activated. And the BMS will cut off the discharging MOSFET automatically.

➢ Ambient high temperature warning

When the ambient temperature exceeds the setting value, the ambient high temperature warning will be activated.

➢ Ambient over temperature protection

When the ambient temperature exceeds the setting value, the ambient high temperature protection will be activated. And the BMS will cut off both charging and discharging MOSFET automativally.

➢ Ambient low temperature warning

When the ambient temperature is lower than the setting value, the ambient low temperature warning will be activated.

➢ Pack over temperature cooling

Preserved functions

➢ Over current protection (Transient）

Within the setting period, when the discharging current is lower than the setting value, the transient current over-current protection will not be activated.

Recovery conditions: charging or 60 seconds after the protection conducted.

➢ Transient over current locking

If the transient current over-current protection was continuously activated for 5 times, the transient over current locking will be activated.

Recovery conditions: charging

➢ Discharging current short circuit protection

When the discharging current exceeds 500A, and the duration is 100us exceeds the setting duration, the discharge current short circuit protection will be activated.

Recovery conditions: charging, or 60 seconds after the protection conducted.

➢ Discharging current short circuit locking

If the discharging current short circuit protection was continuously activated for 5 times, the discharging current short circuit locking will be activated.

Recovery conditions: charging

Cell low temperature heating

When at the charging status, if the cell temperature is lower than the setting value, the heating function will be activated.

➢ Ambient under temperature protection

When the ambient temperature is lower than the setting value, the ambient under temperature protection will be activated. And the BMS will cut off both discharging and charging MOSFET automatically.

➢ MOSFET high temperature warning

When the MOSFET temperature exceeds the setting value, the MOSFET high temperature warning will be activated.

➢ MOSFET over temperature protection

When the MOSFET temperature exceeds the setting value, the MOSFET over temperature protection will be activated. And the BMS will cut off both discharging and charging MOSFET.

➢ Charging over current warning

When at the charging status, if the charging current exceeds the setting value, the charging current over-current warning will be activated.

➢ Discharging over current protection

When at the discharging status, if the discharging current exceeds the setting value, the charging current over-current protection will be activated. And BMS will cut off the discharge MOSFET automatically.

➢ Charging over current protection

When the charging current exceeds the setting value, the charging over current will be activated. And the BMS will cut off the charging MOSFET.

➢ Intermittent power supply function

When the SOC reaches 100%, if the SOC exceeds the setting value (which is 96%), the charging MOSFET will be cut off. And the battery can not be charged.

➢ Remaining capacity warning

When the SOC percentage is lower than the setting value, the remaining capacity warning will be activated.

➢ Remaining capacity protection

When the SOC percentage is lower than the setting value, the remaining capacity protection will be activated. And the BMS will cut off the discharge MOSFET.

➢ Output reverse polarity protection

OFF

➢ Connection failure

OFF

➢ Output soft start function

When the BMS is power on, the voltage value between P+ terminal and P- terminal will get closer to the battery real voltage gradually.

➢ Charging equalization function

When at the charging status, if the cell voltage is higher than setting value, and the voltage difference value exceeds the setting value, the BMS charging equalization function will activated.

➢ Equalization over time forbidden

When the equalization period exceeds the setting time, the charging equalization function will be turned off.

➢ Equilization over temperature forbidden

When at the charging over temperature protection status, equalization function can not be activated.

➢ Automatic charging activation

OFF

➢ Active charging current limiting

When the active charging current limiting function is turned on, the charging current will be limited to 10A.

➢ Passive charging current limiting

When charging current exceeds the setting value, the passive charging current limiting function is turned on. And the charging current will be limited to 10A.

➢ Switch turn-off function

To control the external switch status, if this function is turned on, the RESET button will be invalid.

➢ History record function

Click to record the historical data of the battery

➢ LCD display function

To control the function of the LCD Screen button.

➢ Warning protection connection point

OFF

➢ multiple circuits expansion connection point

OFF