

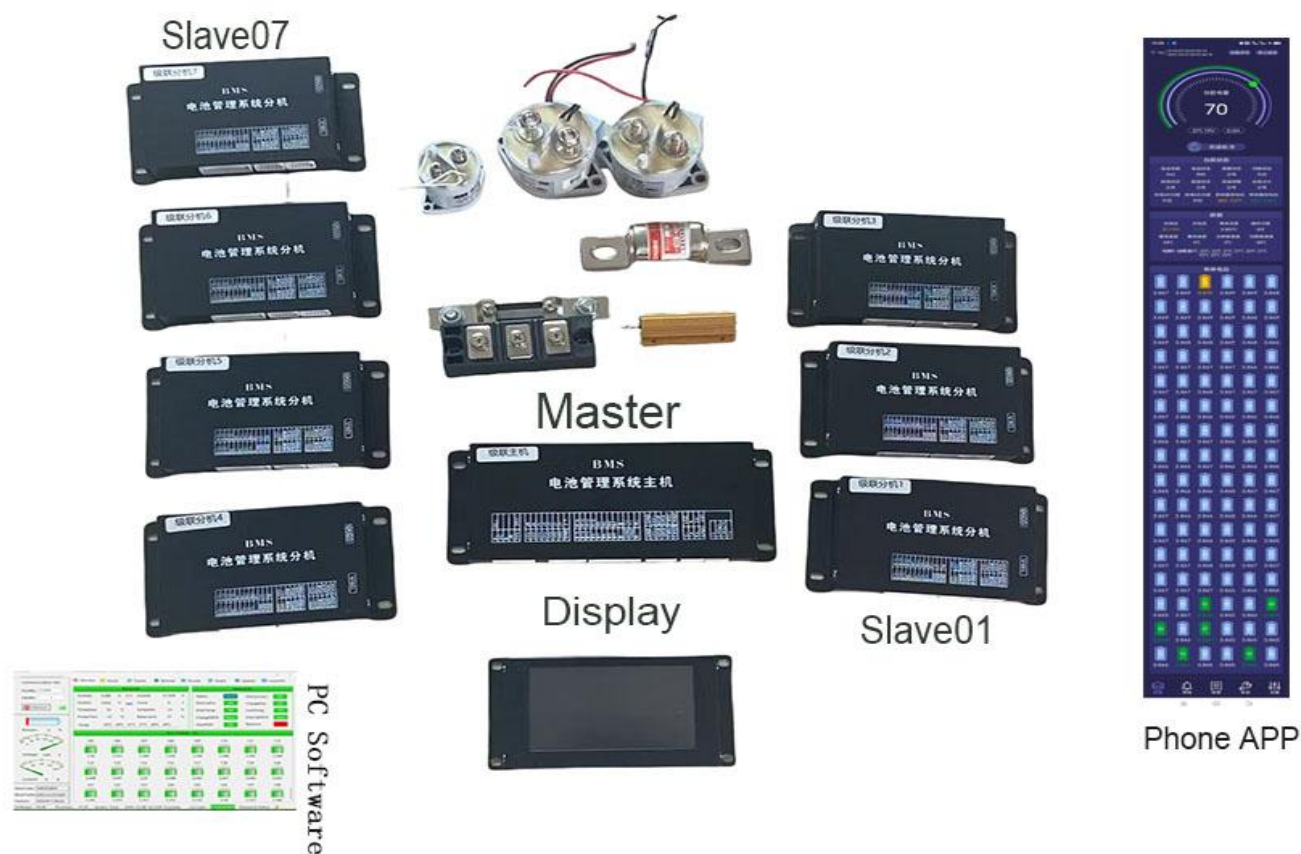
Manual of BMS 5S-256S

Product Mode: TOPBMS--5S-256S

Feature	Parameter	Feature	Parameter
Strings	5-256S	RS485 Port	Yes
Apply to	Lithium-ion battery /Lifepo4 Battery / lithium-titanate Battery/Sodium-ion Battery	URAR Port	No
Contonuoous Current	1A-500A	CAN Port	Yes
Chip	集撤	Wire harness	2.54 10+10 500MM
GPS	Yes	Bluetooth	Yes
Balance	Yes	Over Cuurent Protect	Yes
Current Measure	900a max supported	Display	Supported

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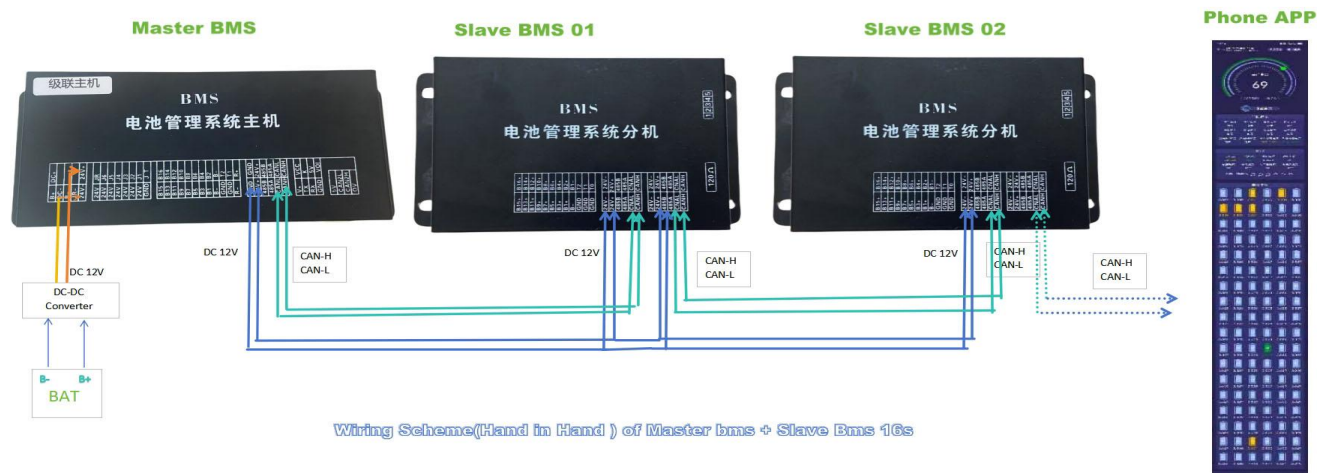
High Voltage BMS 5S-256S



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Master BMS communicate with slave bms via canbus



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A. Brief Introduction

This chapter mainly describe the principle structure , features of the 5s-128s high voltage version of the BMS battery management system,which is produced by TOPBMS , and the application of the module interface and the use of the application scenario.。

B. Product Features

- Customized Canbus communication Supported ; it is used for external devices ,such as ECU ,databoard and charger
- RS485-1 Port : RS485 communication, baud rate 9600, (connected to GPS with 12V power supply or display)
- RS485-2 Port: this port with isolation 2500V, connected to the special charger support, RS485 communication . Baud rate 9600, (connected to the external communication of the PC computer).

➤ Built-In Bluetooth

- This high voltage can work with GPS GPRS remote control

➤ Balance:

(1) Balance switch: in the case of switch on and off, any cell voltage exceeds the balancing start voltage, charging automatically starts the balance until stopping the balance, and the balance will stop when the balance temperature reaches the protected value and the cell wirings cut Off

(2)Balance start : When any one string exceeds the balance start voltage and the set voltage difference, balance is activated , and it automatically balances cell to be within the range the set cell voltage and the set ce voltage difference and then Balance stops

Balance starting : any cell voltage exceeds the balanced start voltage, exceeds the set voltage difference , start the balance , automatic balance to the start voltage and set voltage, stop the balance, there is current and battery offline

(3)Passive balancing ; Balancing current: 70-100mA

- Current calibration: in the case of discharge, use the multimeter to check the correct current, Bluetooth APP and PC computer,enter the actual value in the Bluetooth APP and PC computer, directly press the "calibration" button to correct the value , and then go to the home page to see if the current is displayed correctly.

- First of all , fill the actual capacity of the battery pack into the capacity setting of phone app . Set the charging and discharging protection voltage, and then charge the battery until it reaches the BMS charge cut-off voltage . SOC is correctly calibrated SOC Calibration: First of all .Please fill in the actual capacity of the battery pack into the capacity setting, set the charge and discharge cut-off voltage, and then charge the battery until the BMS protection and SOC can be calibrated automatically.

C. Product Parameters

Item		Specification			Unit	Comment
		Min	Nominal	Max		
Charge Current		40	200	600	A	
Discharge Current		40	200	600	A	可持续工作电流
Low-power mode current		-	-	100	μA	休眠
Self-consumption working current		-	20		mA	整机待机状态下
Working condition	operating temperature	-20		+70	°C	正常工作温度范围
	operating humidity	0%		90%	RH	湿度低于90%，无凝结
storage environment	storage temperature	-40		+85	°C	正常存储温度范围
	Storage humidity	0%		90%	RH	湿度低于90%，无凝结
current integration	SOC Estimation Accuracy	<5%				
	Current calculation	Test frequency <250mS, accuracy 5%				
RS485 Port		Dual 485 Port				
Bluetooth Supported		The Bluetooth app can quickly detect and analyze the battery's health status;				
cell voltage cables drop-out detection		Support				
Cell voltage detection		Measurement range: 1.0V to 4.35V				
Total voltage detection		Range :0-1000V				
Supported battery types		NMC Battery LiFepo4 Battery LTO Battery Sodium Battery				Parameter Adjustable
Battery Strings		5-256S				Battery Strings Adjustable

功能指标项目		出厂默认数值	备注
过充保护 Cell OverVoltage Protect	单节过冲保护电压	Lithium NMC 4.25V LiFePO4 battery :3.65V LTO Battery:2.8V Sodium Battery:4.0V	1.5-4.5V, 可设置 1.5-4.5V, adjustable
	单节过冲保护延时时间	1.0S, 可设置	软件控制, 可设置 You can adjust the value in the BMS pc software
	单节过冲保护解除电压	三元4.15V / 铁锂3.5V	3.0-4.5V, 可设置 You can adjust the value in the BMS pc software
	单节过冲保护解除	单体电压下降到恢复点, 自动恢复	
过放保护 Cell UnderVoltage Protect	单节过放保护电压	三元 2.75V / 铁锂 2.3V	可设置, 过放保护后, 单体电压铁锂 <2.1V、三元 <2.5V 时进入低功耗模式
	单节过放保护延时时间	1.0S, 可设置	
	单节过放保护解除电压	三元 3.0V / 铁锂 2.9V	
	单节过放保护恢复方式	接入充电器	
总体过充保护 Pack OverVoltage Protect	总体过充保护电压	三元电池组串数 * 4.25V 铁锂 电池组串数 * 3.6V	Adjustable
	总体过充保护延时时间	1.0S, 可设置	Adjustable
总体过充保护解除 Pack OverVoltage Release	总体过充保护解除电压	三元电池组串数 * 4.0V 铁锂电池组串数 * 3.5V	Adjustable
	总体过充保护解除	总体电压下降到恢复点, 自动恢复	
总体过放保护 Pack UnderVoltage Release	总体过放保护电压	三元电池组串数 * 2.8V 铁锂电池组串数 * 2.3V	可设置, 过放保护后, 单体电压铁锂 <2.1V、三元 <2.5V 时进入低功耗模式
	总体过放保护延时时间	1.0S, 可设置	
总体过放保护解除 Pack UnderVoltage Release	总体过放保护解除电压	三元电池组串数 * 3.1V 铁锂电池组串数 * 2.9V	
	充电解除	接入充电器	

3.2、 Basic Features

需 电 流 积 分 功 能 才 支 持	Charge Over Current Protect	充电过流保护 CHARG OC Protect	电流值 Threshold	持续 时间	恢复延时	备注
		过流保护	40-500A	5S	5S	Adjustable
	Charge Over Current Release	Automatic Release	延时后自动恢复			Set in the bms pc software
	Discharge Over Current Protect	充电过流保护	电流值	持续 时间	恢复延时	备注
		过流保护	40-500A	120 S	10S	Adjustable
		峰值过流保护	1000A	100 mS	10S	Adjustable
	Discharge Over Current Release	Automatic Release	延时后自动恢复			Set in the bms pc software
	BMS高温保护 BMS Temp Protect	MOS 高温保护温度	90° C, 可设置			Adjustable
		MOS 高温保护解除温度	85° C, 可设置			Adjustable
	电芯温度保护 Battery Temp Protect	充电低温保护温度	-39° C, 可设置			Adjustable
		充电低温保护解除温度	-35° C, 可设置			Adjustable
		充电高温保护温度	65° C, 可设置			Adjustable
		充电高温保护解除温度	55° C, 可设置			Adjustable
		放电低温保护温度	-39° C, 可设置			Adjustable
		放电低温保护解除温度	-35° C, 可设置			Adjustable
		放电高温保护温度	65° C, 可设置			Adjustable
		放电高温保护解除温度	55° C, 可设置			Adjustable

均衡功能 Balancec	均衡开启电压 Balance start Voltage	三元 3.9V / 铁锂 3.3V，可设置	软件控制 You can adjust the value in the BMS pc software
	均衡开启压差 Balance start of Cell volage difference	50mV，可设置	软件控制 You can adjust the value in the BMS pc software
	均衡电流 Balance Current	30~80 mA	
内阻 Internal resistance	放电回路内阻	<40 mΩ	
容量默认设置	低电量警告 Low Volume Alarm	SOC<10%，可设置，充电时不告警	
Battery capacity setting	满容量设置 Full capacity Setting	1AH- 800AH，(adjustable)	

3.3、BMS wake-up

Sleep mode

When the product detects the discharge secondary protection voltage, it will enter a sleep mode to prevent the battery from being damaged due to complete depletion of power.

Another 12V at LC-6 port is used to activate the bms

3.4、Display Features

This BMS uses the TTL-RS485 interface to support the display to show battery pack status, including battery voltage, current, individual cell voltage, temperature and other related information on the screen.

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Touchable Display



D. TTL and RS485 communication

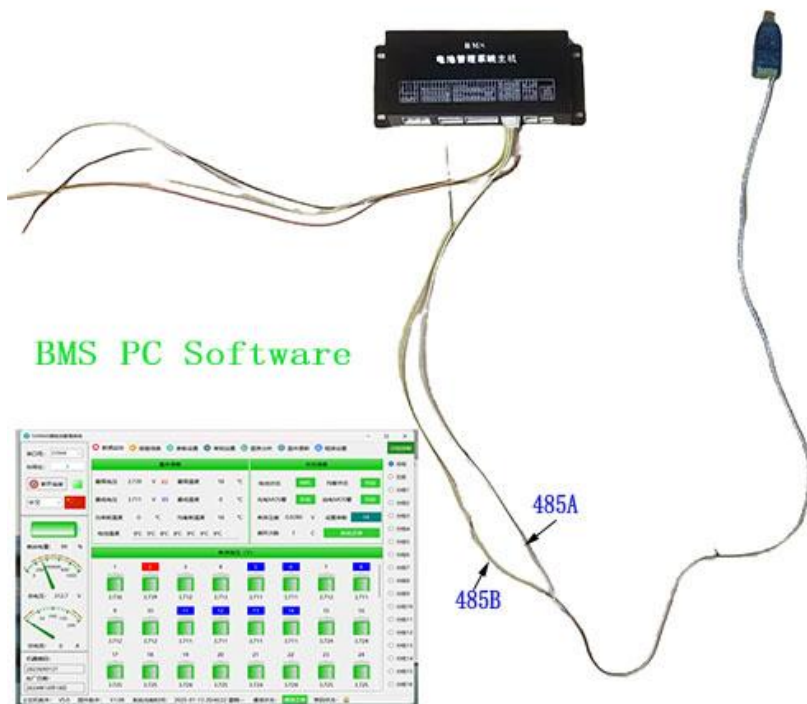
This product supports the function of converting TTL to RS485 communication interface, and it can support the display

The BMS can communicate with the computer via the RS485 interface, allowing users to check /set partameters of the battery on the computer. The RS485 default baud rate is 9600bps.

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BMS is connect to PC via RS485 Adaptr



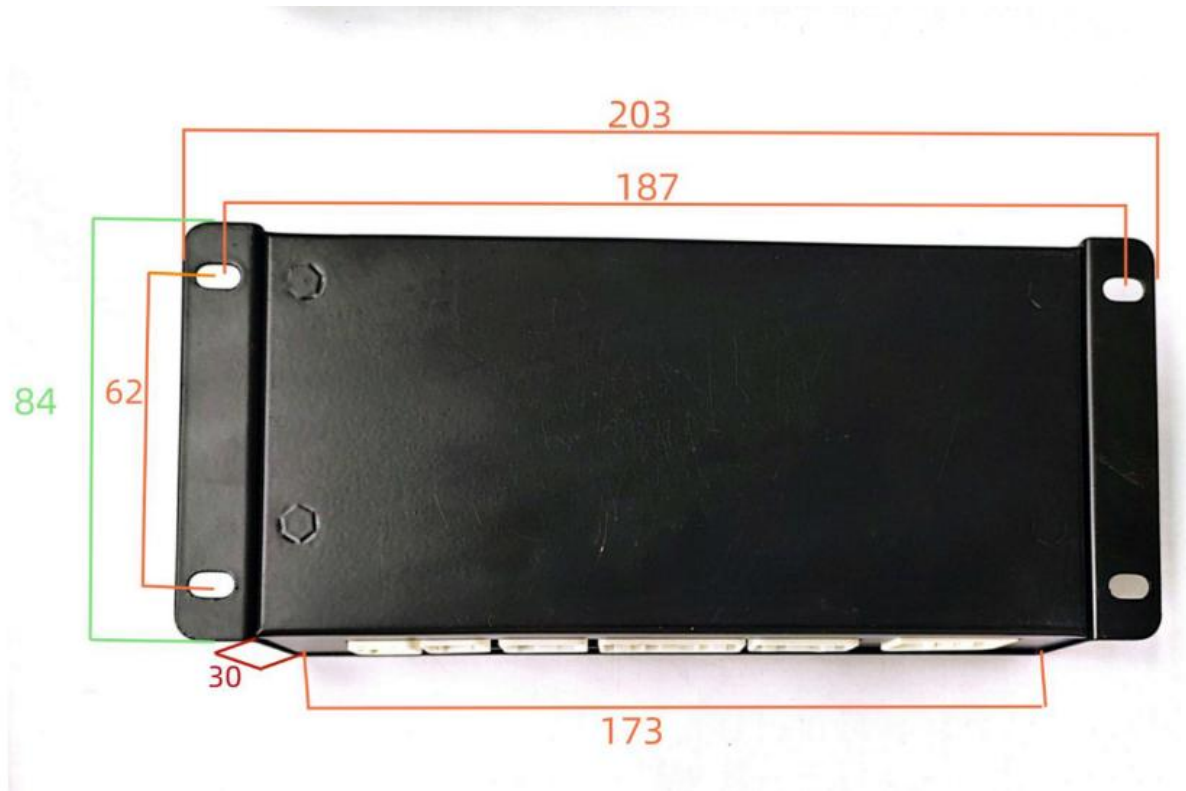
BMS
电池管理系统主机

B+	DC+
B-	DC-
24V+	24V-
24V JR	
24V J6	
24V J5	
24V J4	
24V J3	
24V J2	
24V J1	
GND J1	
B15 B16	
B13 B14	
B11 B12	
B9 B10	
B7 B8	
B5 B6	
B3 B4	
B1 B2	
B- B-	
GND T2	
GND T1	
R- R+	
GND T GND	
24V+ 24V-	
485B M5B	
485A M5A	
CAN+ CANL	
CANH CANH	
V+ VCC	
TX RX	
GND V01	
5V CANP	
CANM	
GND	

LC-6 LC-5 LC-4 LC-3 LC-2 LC-1

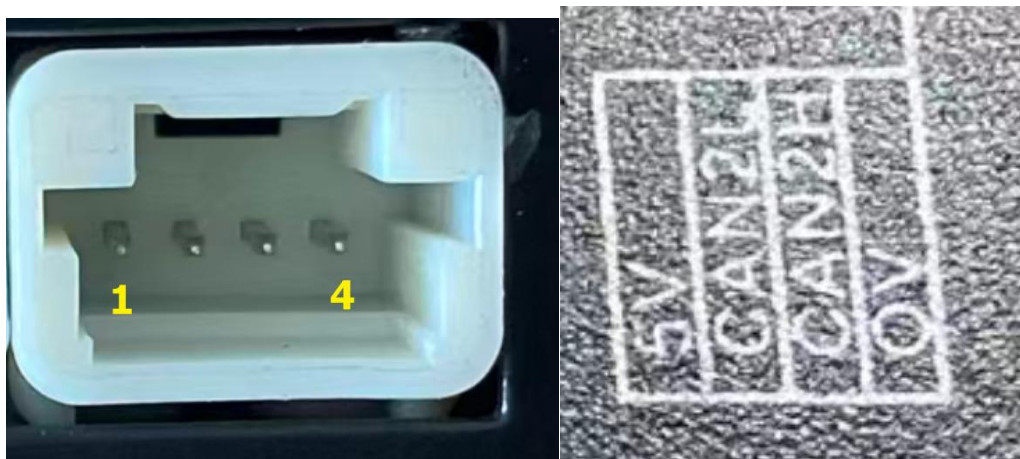
12V is supplied to BMS;
12V only is allowed;
24V is not allowed

E>.Dimension of Master BMS



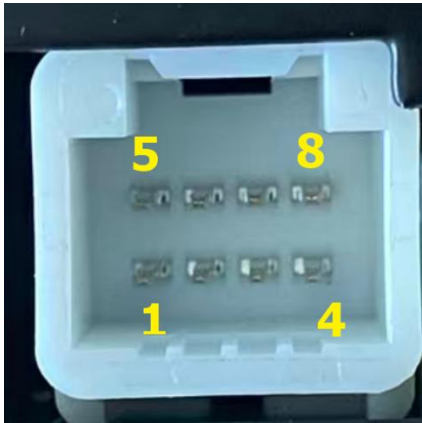
6、 Pin definition of each port of master bms

6.1、 LC-1 Port Description



No	Interface	Pin Definition	Remark
4	0V	Minus of 5V	Not Available
3	CAN 2H	CAN H	Not Available
2	CAN 2L	CAH L	Not Available
1	5V	Plus of 5V	Not Available

6.2、 LC-2 Port Description



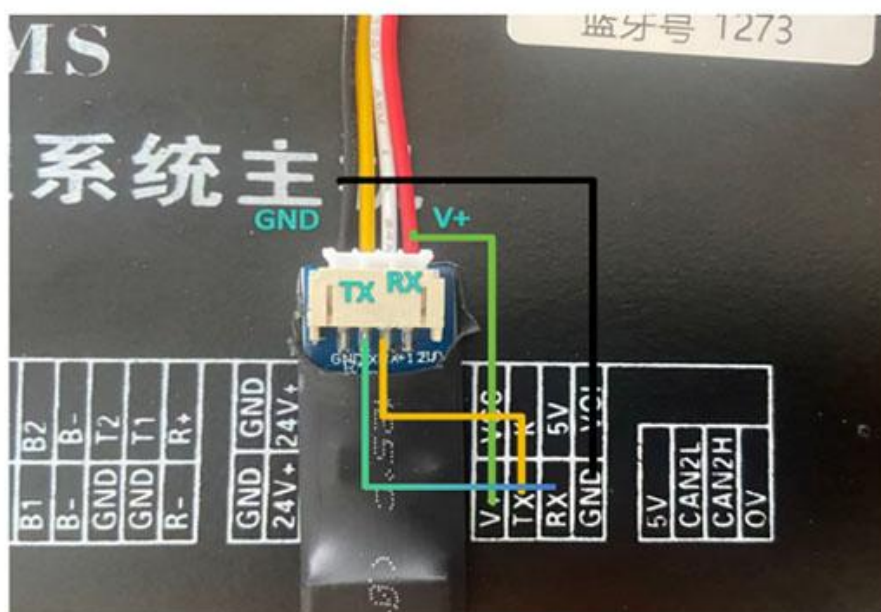
序号			Comment	
8	VOI	Minus of buzzer		
7	5V	Plus of buzzer		
6	K	Minus of ON/OFF Switch		
5	VCC	Plus of ON/OFF Switch		
4	GND	0V	TTL Port	
3	RX	RX TTL		
2	TX	TX TTL		
1	V+	12V		

How to connect Display to Master bms directly ?

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How to connect display to Master BMS ?

显示屏如何接到主控上？ 见如下：



TTL Port

TTL Port
(Go to Master BMS)



485 Port
(Go to Display or other device)

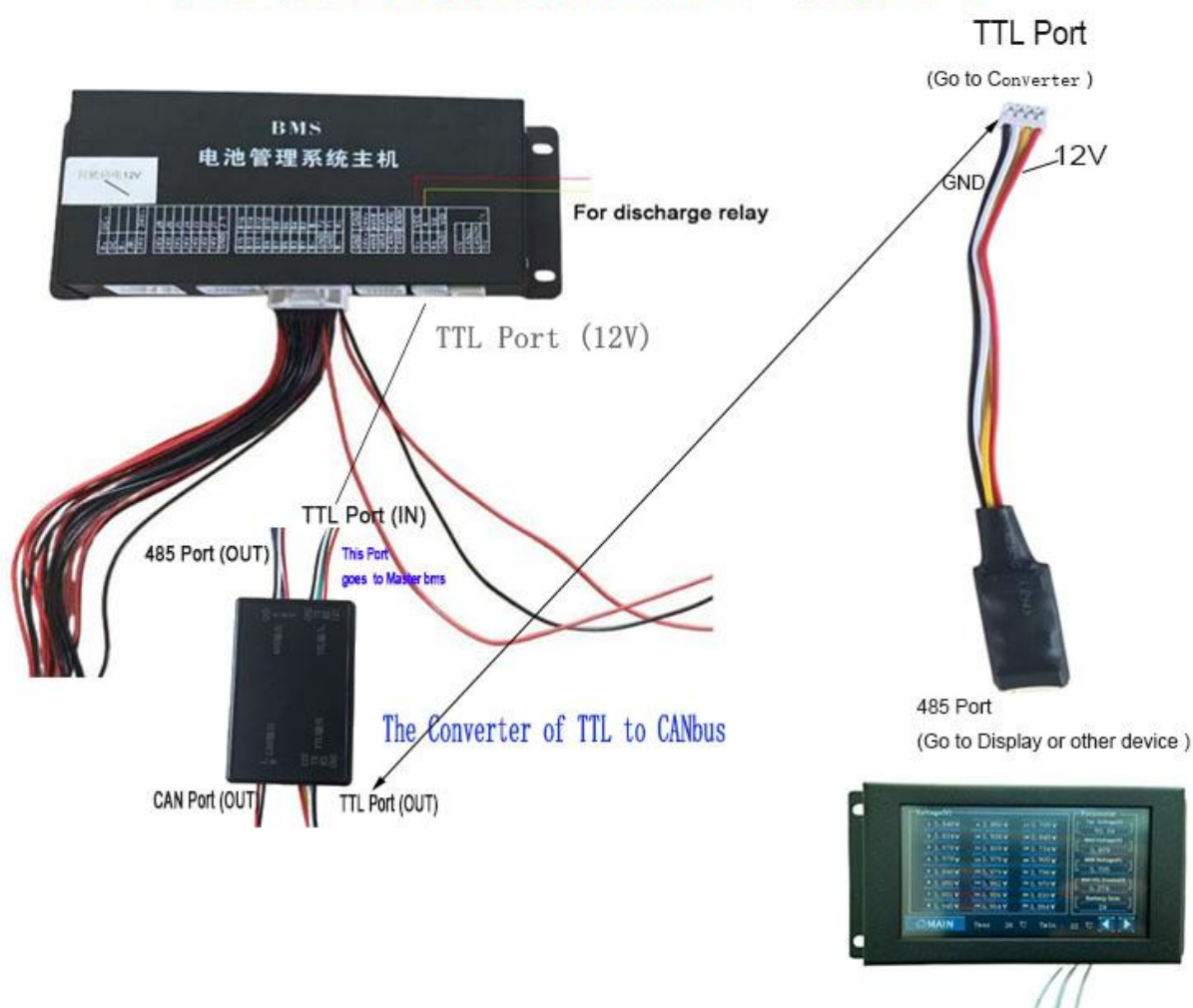


How to connect Display to Converter ?

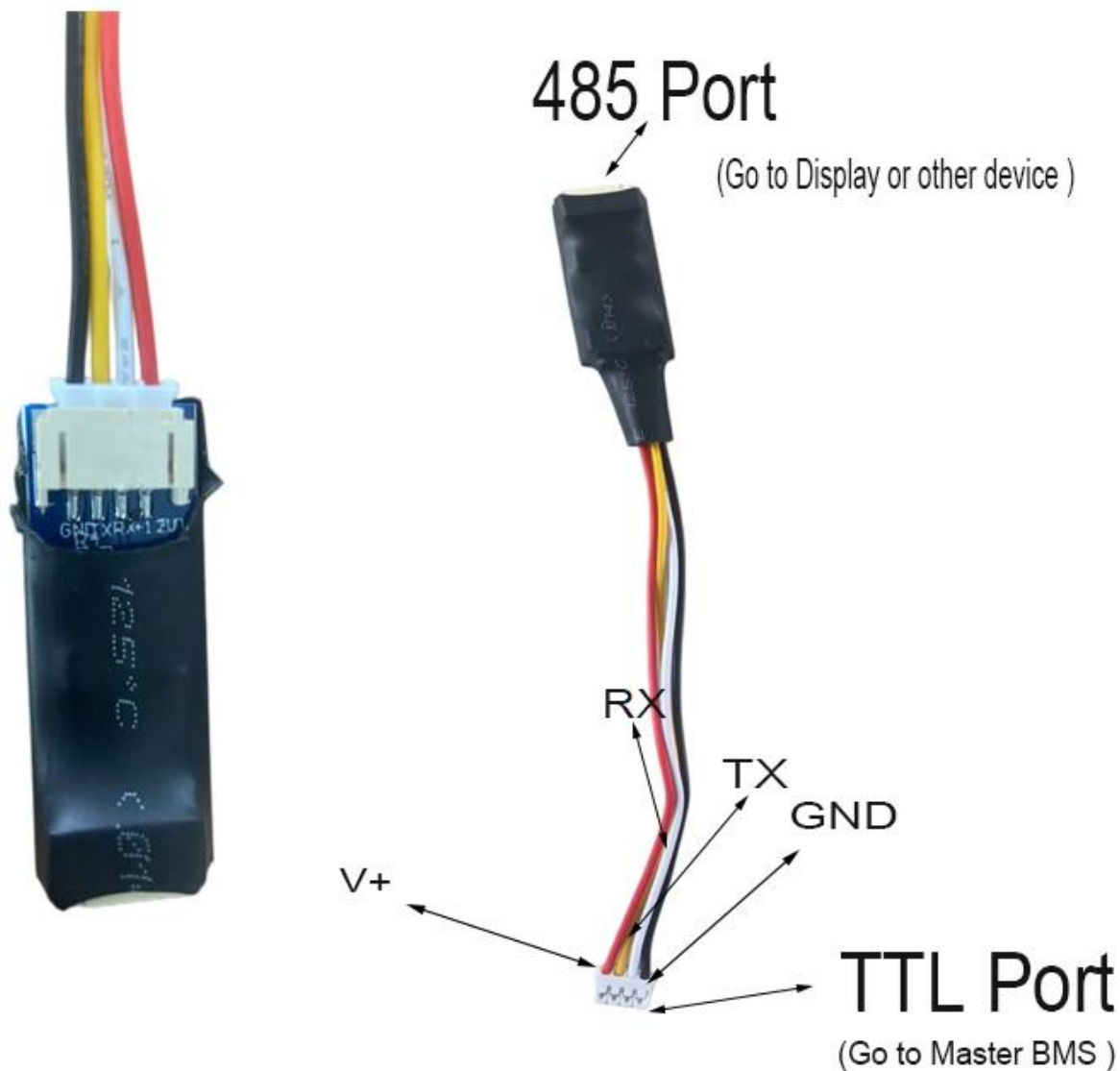
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How to connect display to the converter ?

显示屏如何接到CAN盒上？ 见如下：



The adaptor of TTL to RS 485 PORT

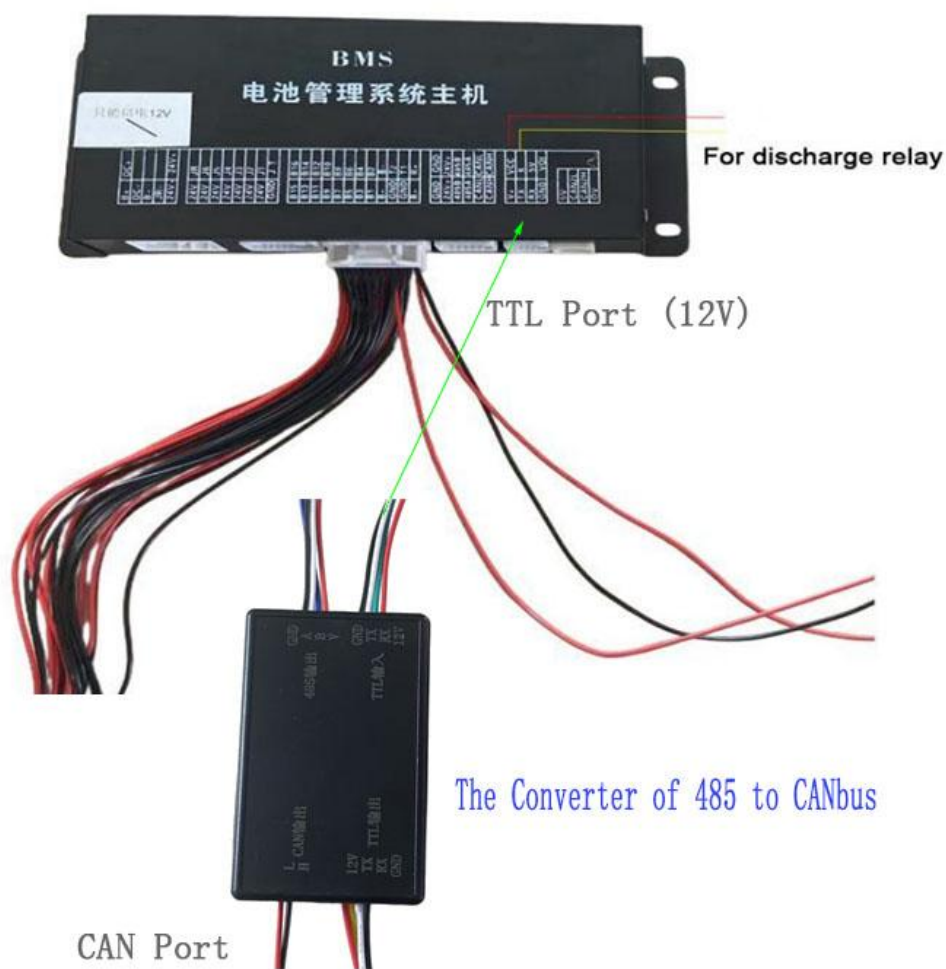


How to connect the converter of TTL to Canbus to Master bms ?

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Master BMS + CAN Box

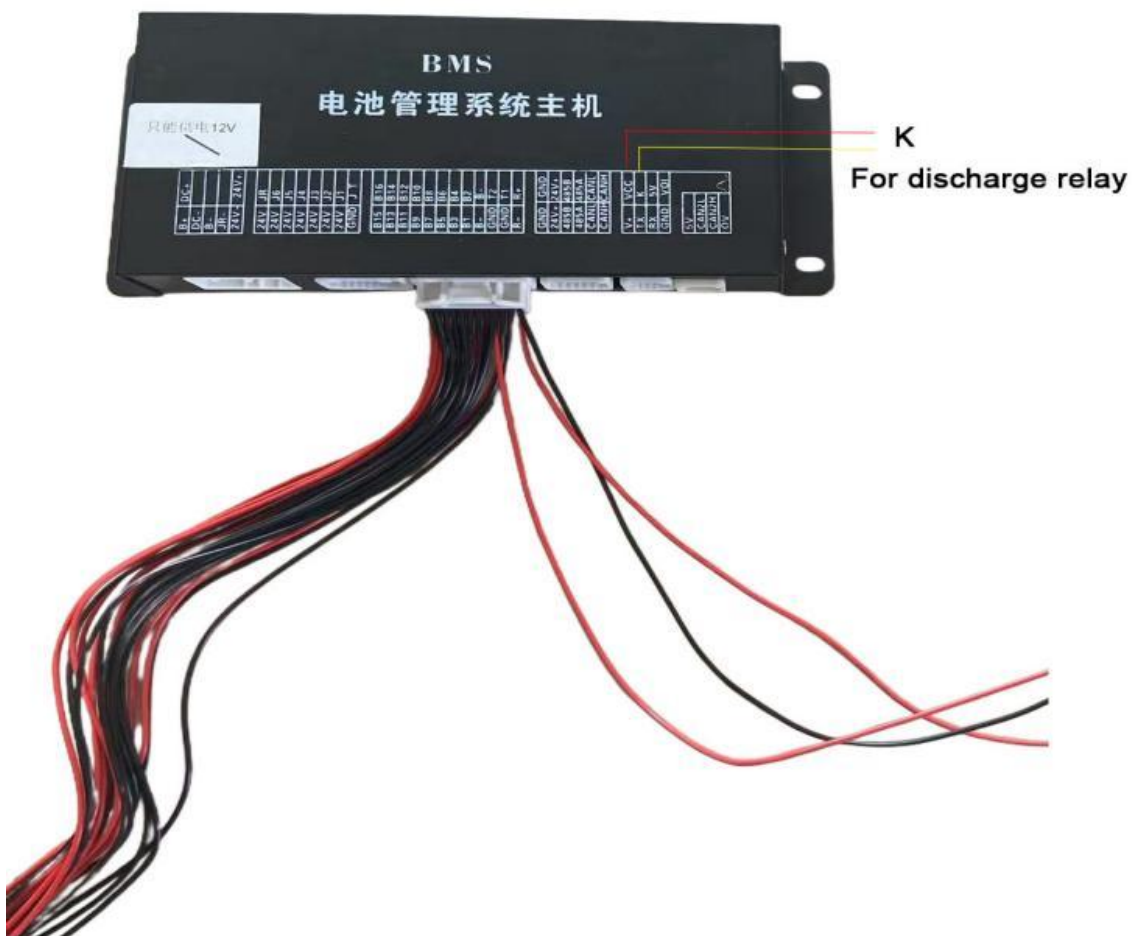


How to Active BMS to Discharge?

Note: Add ON-OFF switches between VCC and K; this switch can control the discharge relay.

When VCC and K are close , discharge relay is closed

When VCC and K are open , discharge relay is open



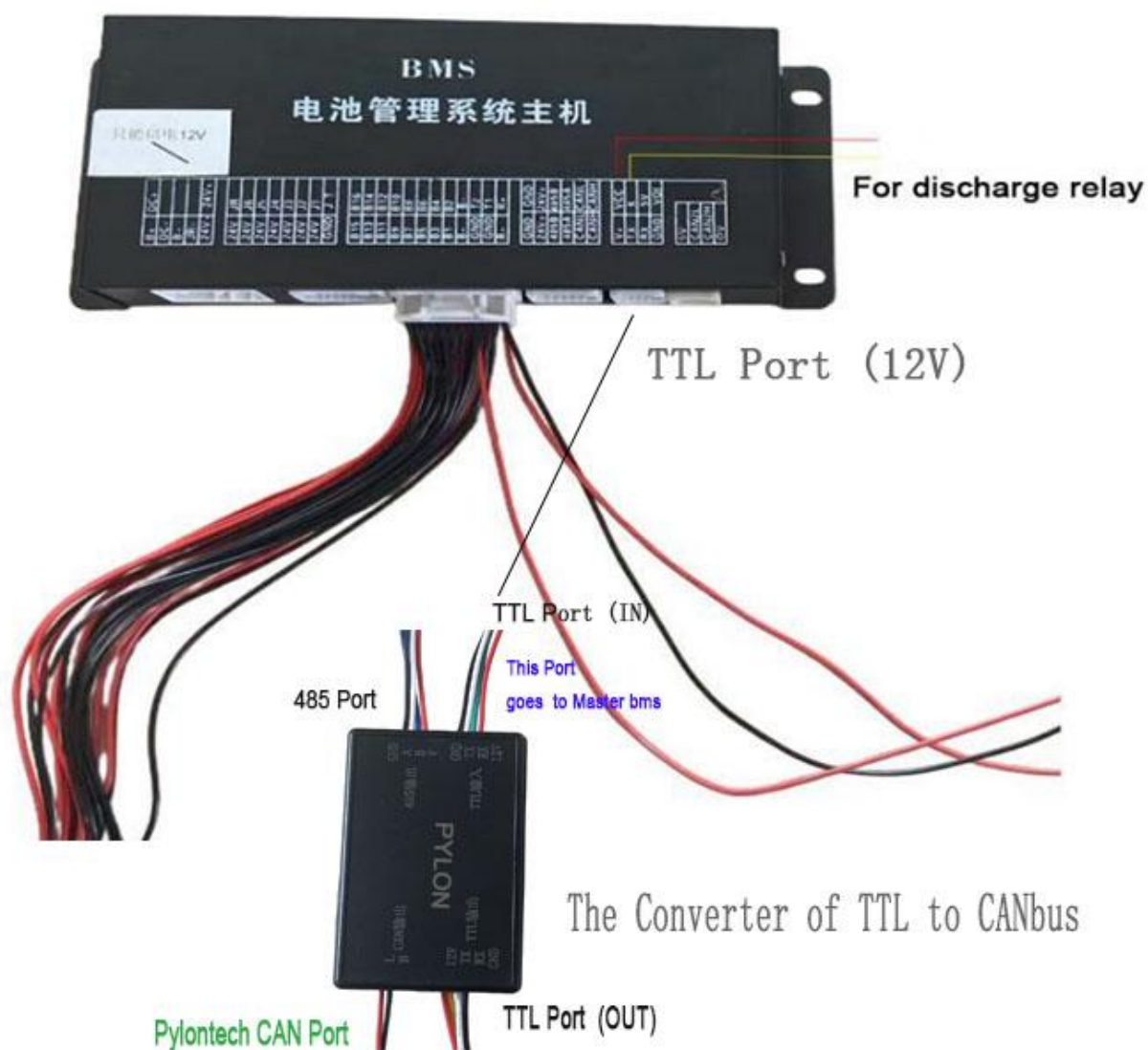
This HV BMS can communicate with Deye/ Growatt-WIT HV inverter via canbus

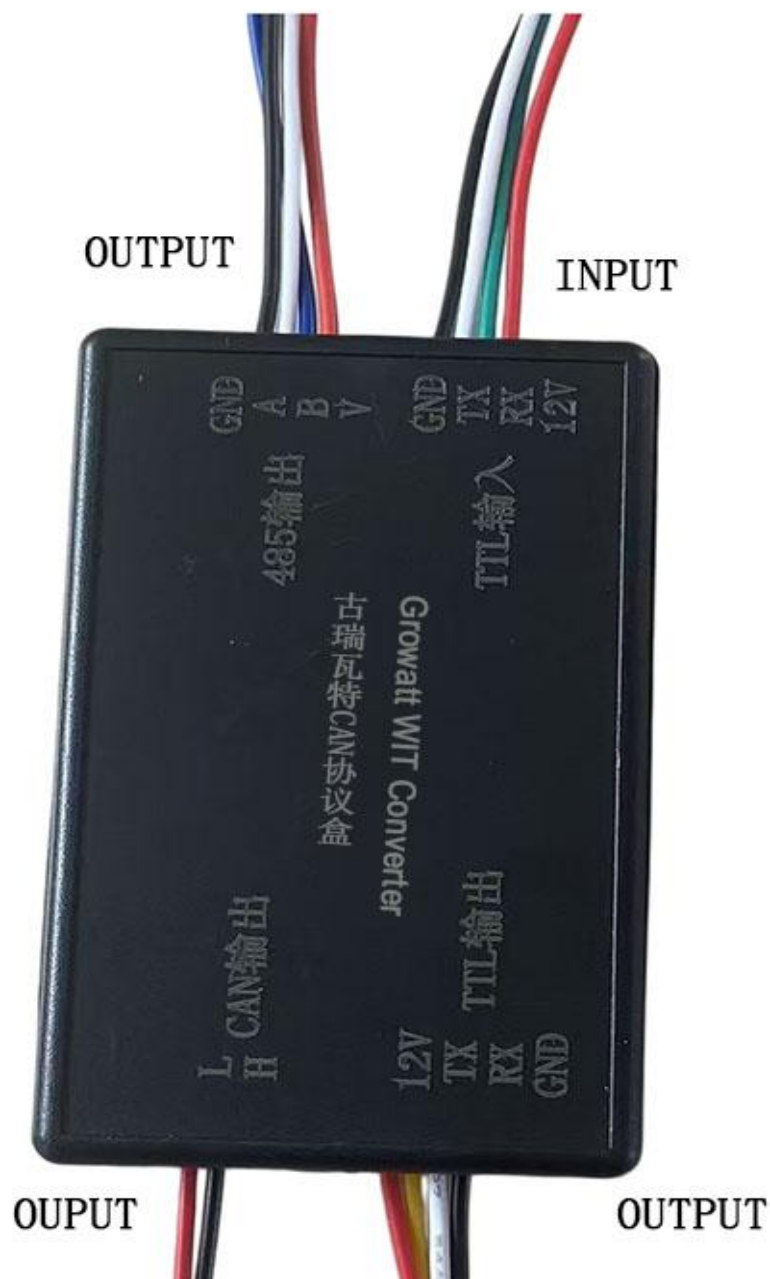
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The Converter of TTL to CANbus

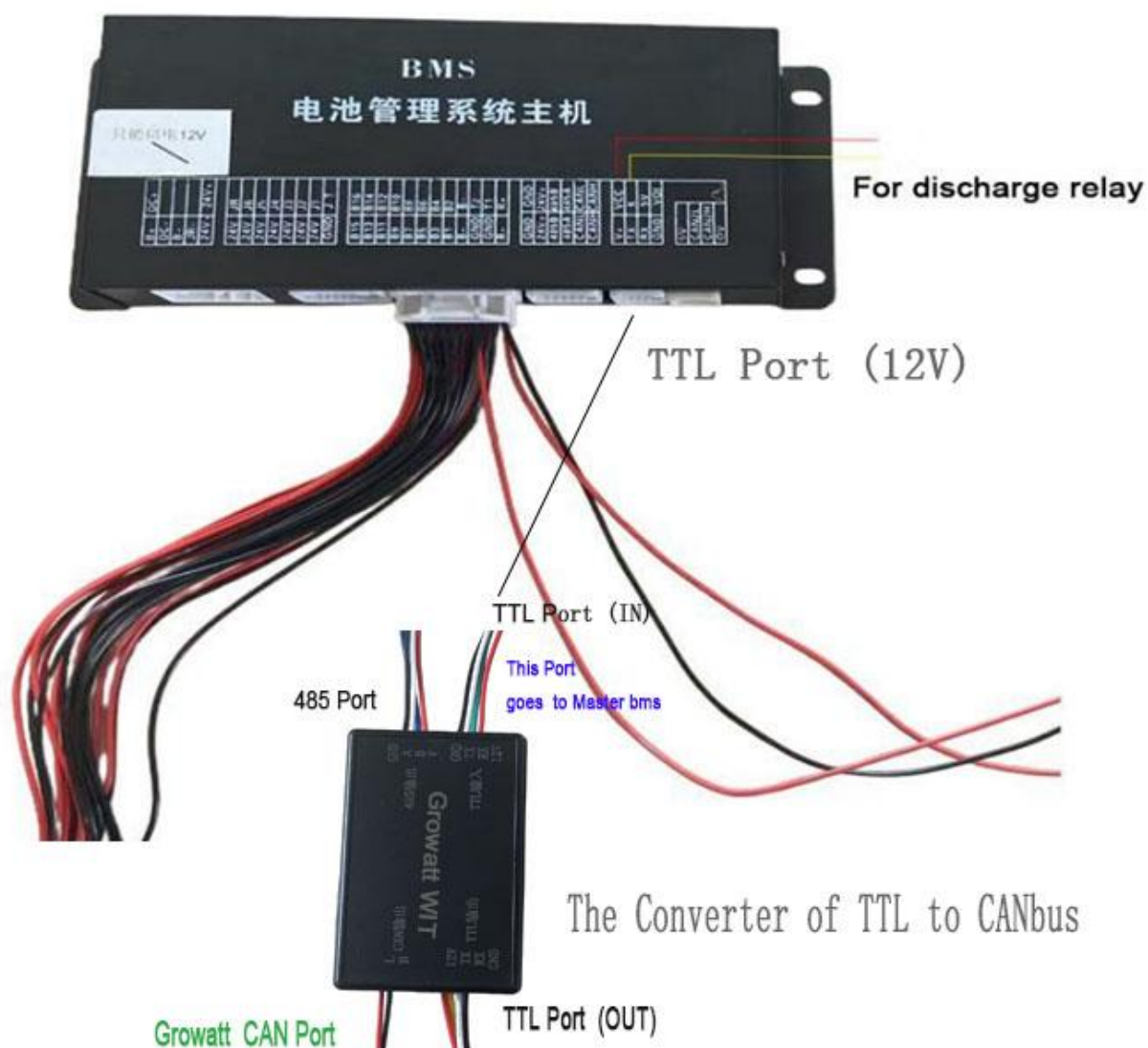


Master BMS + Pylon CANBox



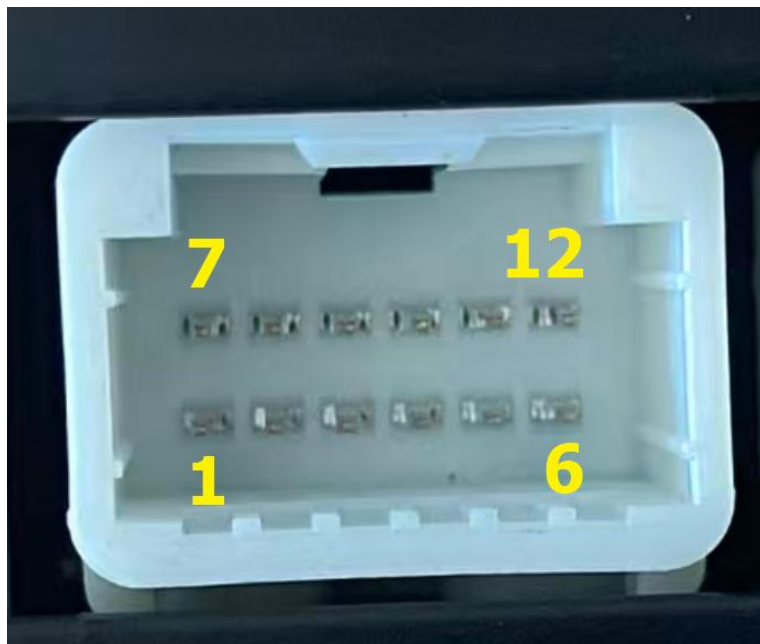


Master BMS + Growatt WIT CANBox



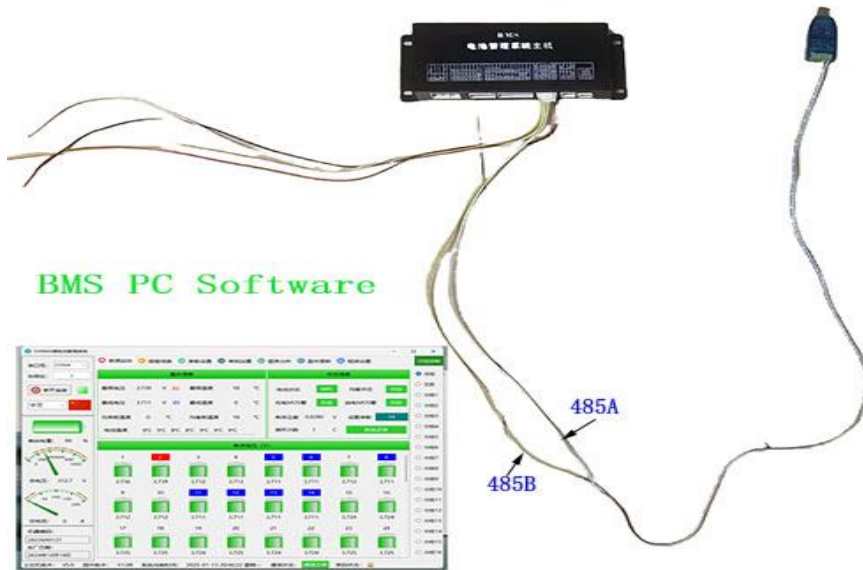
3、LC-3 Port Description

Item	Pin	Description
12	CANH	Go to slave01 CAN H
11	CANL	Go to slave01 CAN L
10	485A	RS485-A for PC software
9	485B	RS485-B for PC software
8	12V+	Go to 12V+(slave01)
7	12V-	Go to 12V-(slave01)
6	CANH	Go to slave01 CAN H
5	CANL	Go to slave01 CAN L
4	485A	RS485-A for PC software
3	485B	RS485-B for PC software
2	12V+	Go to 12V+(slave01)
1	12V-	Go to 12V-(slave01)

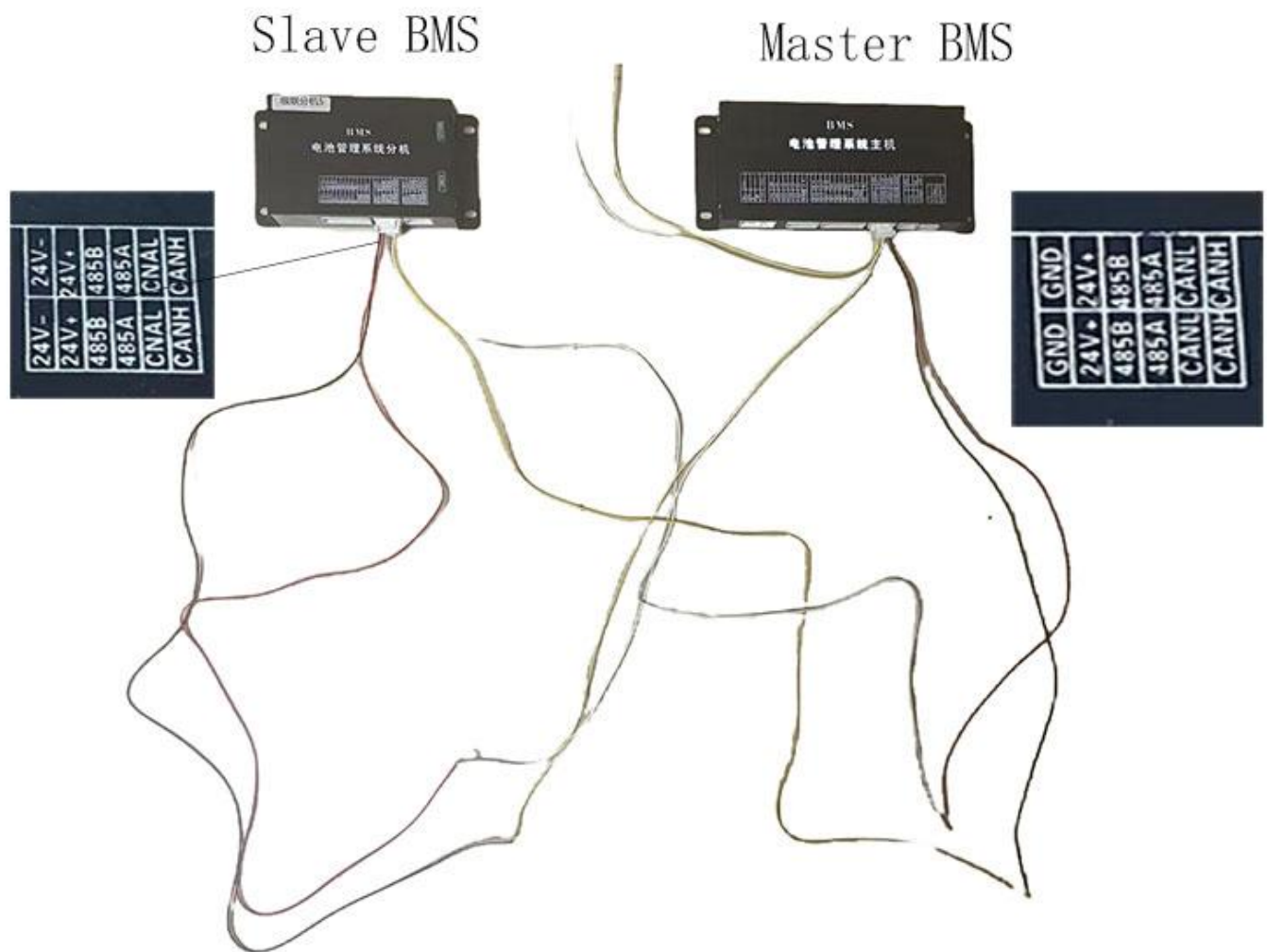


this connector with 6 cables

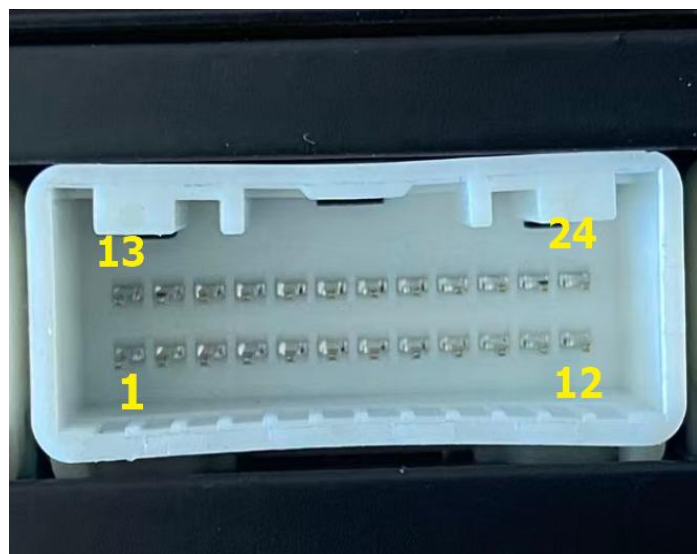
BMS is connect to PC via RS485 Adaptr



Master BMS communicate with Slave bms via CAN-H and CAN-L



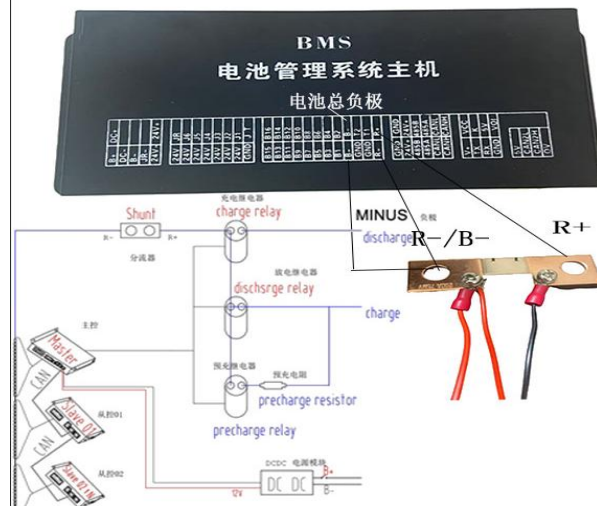
6.4、LC-4 Port Description



No	Interface	Pin Description
24	R+	Go to Shunt R+
23	T1	Plus of Temp Sensor 1
22	T2	Plus of Temp Sensor 2
21	B-	Minus of cell 01
20	B2	Plus of Cell 02
19	B4	Plus of Cell 04
18	B6	Plus of Cell 06
17	B8	Plus of Cell 08
16	B10	Plus of Cell 10
15	B12	Plus of Cell 12
14	B14	Plus of Cell 14
13	B16	Plus of Cell 16
12	R-	Go to Shunt R-
11	GND	Minus of Temp Sensor 1
10	GND	Minus of Temp Sensor 2
9	B-	Go to Shunt R-
8	B1	Plus of Cell 01
7	B3	Plus of Cell 03
6	B5	Plus of Cell 05
5	B7	Plus of Cell 07
4	B9	Plus of Cell 09
3	B11	Plus of Cell 11
2	B13	Plus of Cell 12
1	B15	Plus of Cell 15

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How to Wire Shunt?



Note :

Master bms also have sensing wires which go to cecells ;master bms start from cell 01 to cell 16 ;

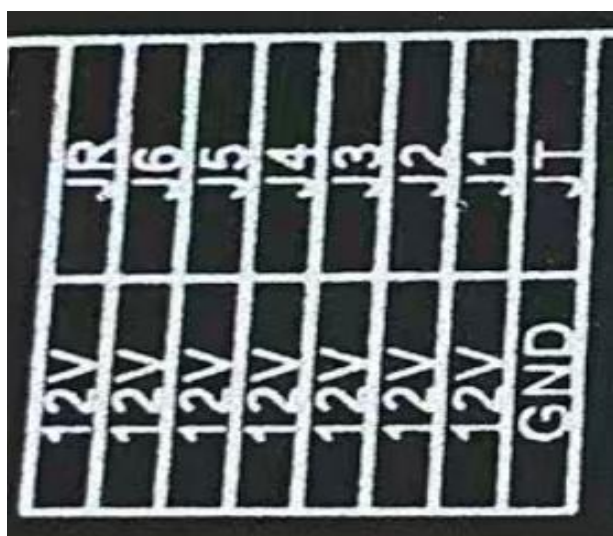
Slave bms 01 start from cell 17 -cell 32

Slave bms 02 start from cell 33 -cell 48

Slave bms 03 start from cell 49 -cell 64

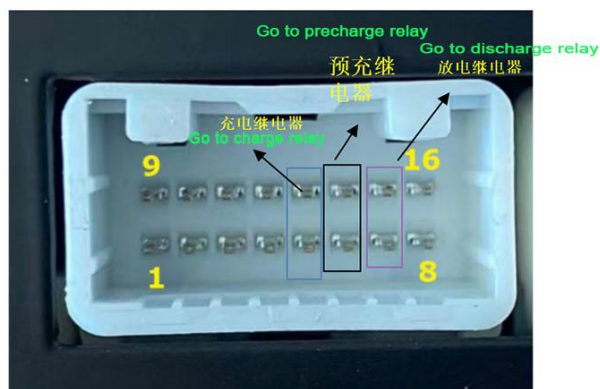
.....

6.5、LC-5 Port Description



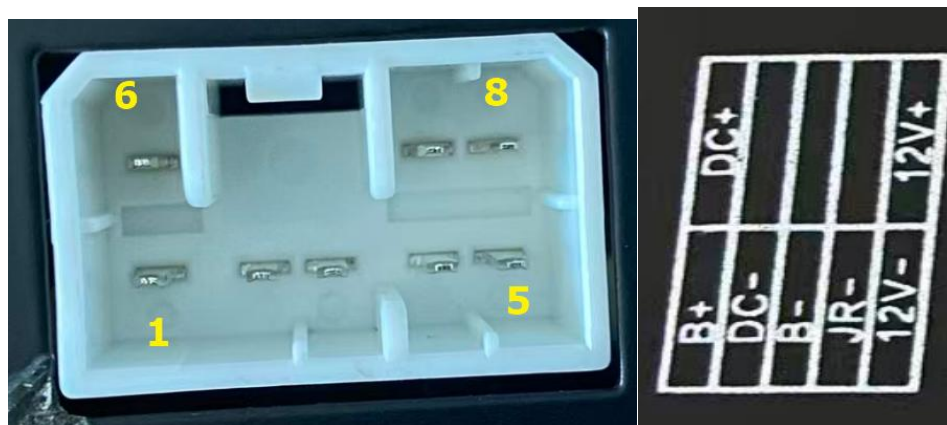
PIN Definition of Contactors Control

For discharge/charge/precharge



No	Interface	Pin Definiation	备注
16	JT	Plus of Temp Sensor for BMS	
15	J1	Minus of Discharge Relay	
14	J2	Minus of Precharge Relay	
13	J3	Minus of Charge Relay	
12	J4	Minus of Level-2 protect relay	
11	J5	N/A	
10	J6	N/A	
9	JR	Minus of Relay for heating	
8	GND	Minus of Temp Sensor for BMS	
7	24V/12V+	Plus of Discharge Relay	
6	24V/12V+	Plus of Precharge Relay	
5	24V/12V+	Plus of Charge Relay	
4	24V/12V+	Plus of Level-2 protect relay	
3	24V/12V+	N/A	
2	24V/12V+	N/A	
1	24V/12V+	Plus of Relay for heating	

6.6、LC-6 Port Description



No	Interface	Pin Definiation
8	12V+	Go to plus of 12V power source (Output of DCDC converter)
7	N/A	N/A
6	N/A	N/A
5	N/A	Go to Minus of 12V power source (Output of DCDC converter)
4	N/A	N/A
3	12V-	N/A
2	N/A	N/A
1	N/A	N/A

Note :the high-voltage BMS should be connected to a 12V power supply. Do not connect it to a 24V one; otherwise, the display screen and the TTL port will be damaged

Tips :

The sleep mode of BMS is not available ; you can switch off dc/dc converter when battery is not in use;

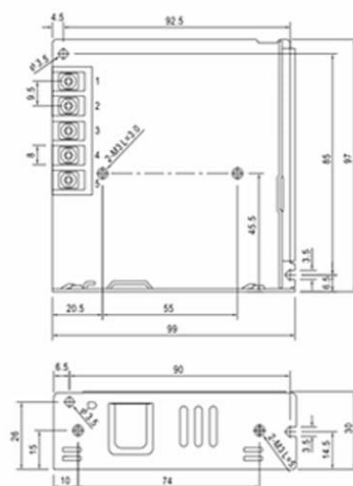
If the battery is stand by ,no need to switch off dc/dc converter ; if the battery is not used for long time , you can switch off dc/dc converter

The wiring method of 2 types of DCDC converter

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AC/DC-DC Converter 75W

(200VDC-1100VDC <==> 12V DC)



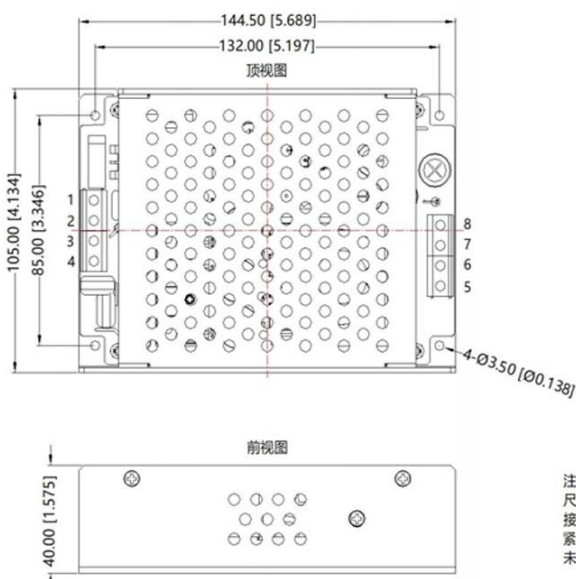
端子脚位定义

引脚编号	引脚位置	引脚编号	引脚位置
1	AC/L	4	DC OUTPUT -V
2	AC/N	5	DC OUTPUT +V
3	FG ⊕		

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DCDC Converter PV120-27B12

V-Output 12V(DC)



引脚方式

引脚	功能
1	+Vin
2	NC
3	-Vin
4	PE
5,6	-Vo
7,8	+Vo

注:
尺寸单位: mm[inch]
接线线径: 24~12AWG
紧固力矩: Max0.4 N·m
未标注之公差: ±1.00[±0.039]

Wire Scheme of BMS Seperate Port

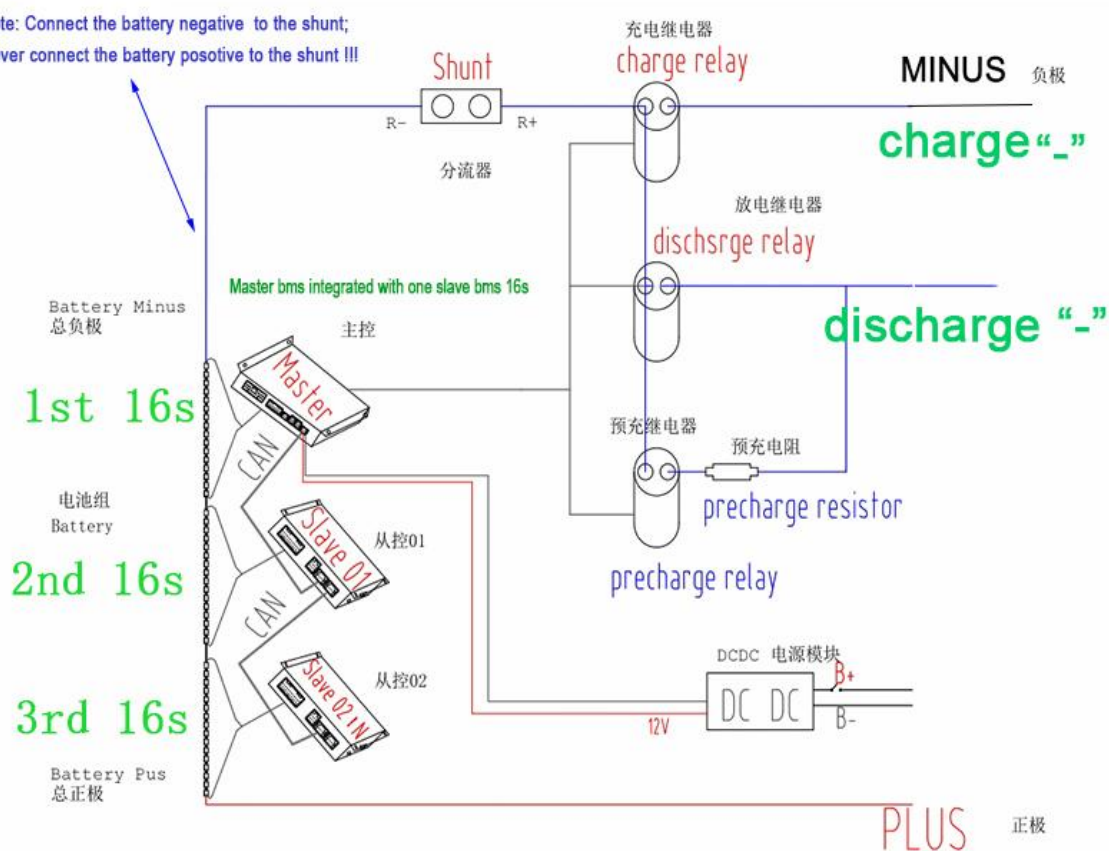
Wiring scheme of Seperate port for charging and discharging relays control a negative output, but the charging port cannot be used for discharge port, discharge port cannot be used for charge port

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Wiring Scheme of BMS (Seperate Port)

Note: Connect the battery negative to the shunt;
Never connect the battery positive to the shunt !!!



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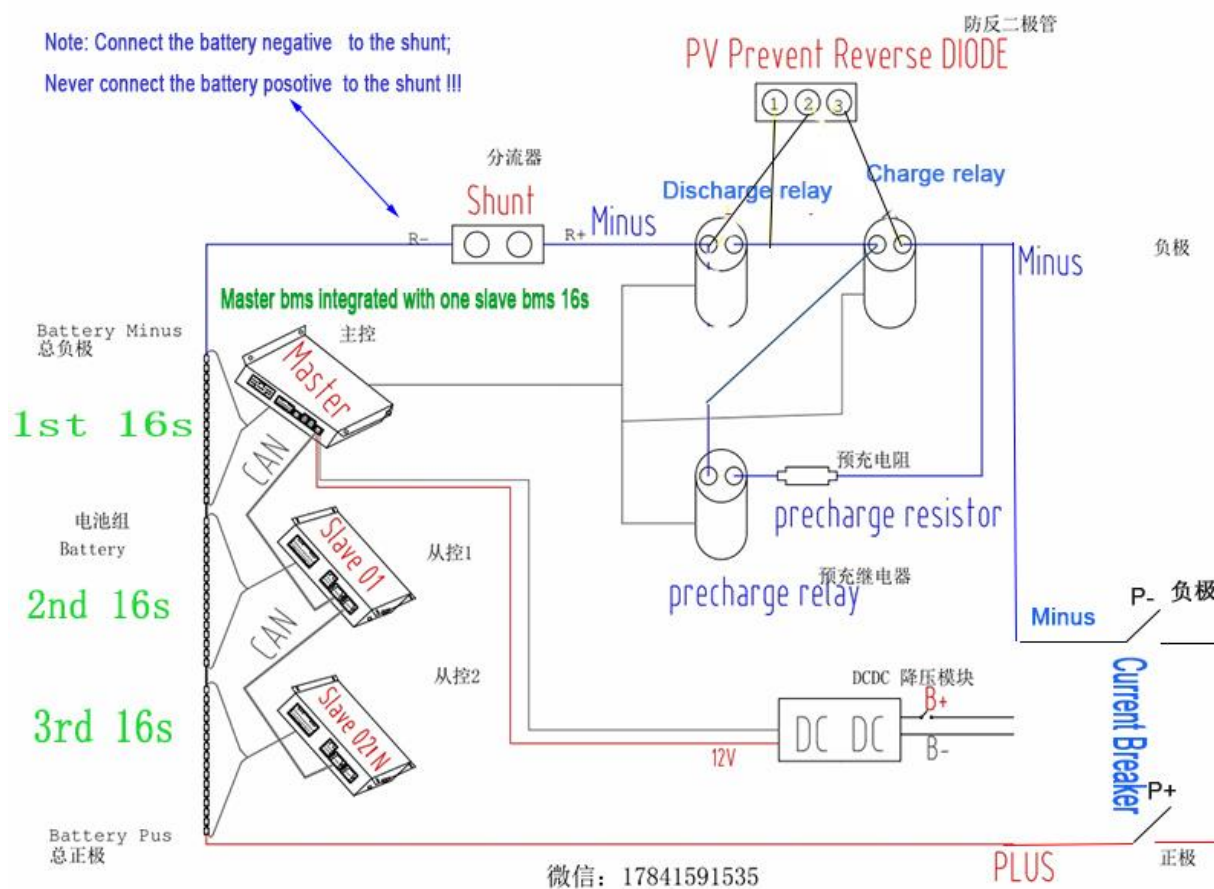
Wire Scheme of BMS Same Port

It is usually suitable for energy storage or special needs where the battery has only one positive and negative for input and output:

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Wiring Scheme of BMS (Same Port)



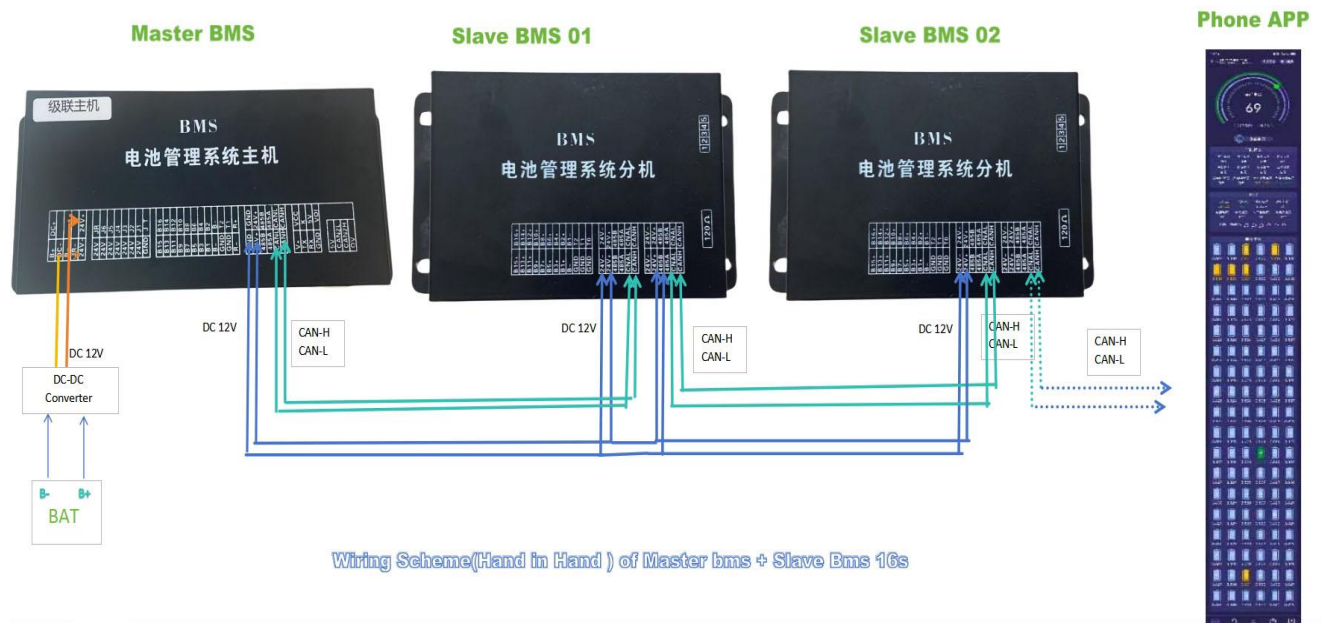
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Wire Scheme of Master BMS and Slave BMS

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Master BMS communicate with slave bms via canbus



7、Slave BMS

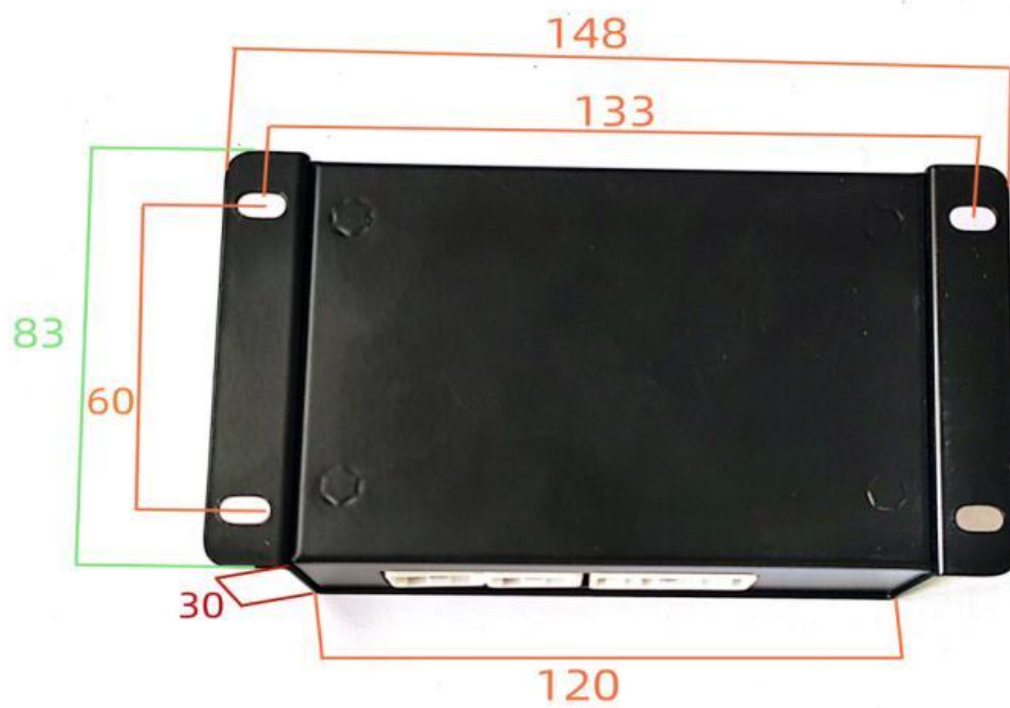
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Slave BMS (5S-16S)

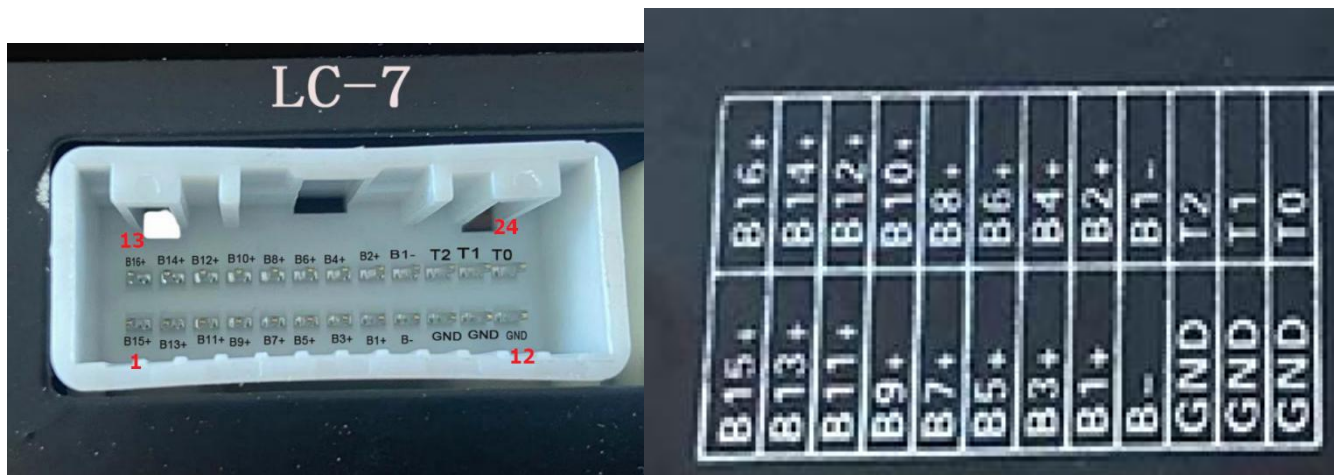


Slave BMS Dimension



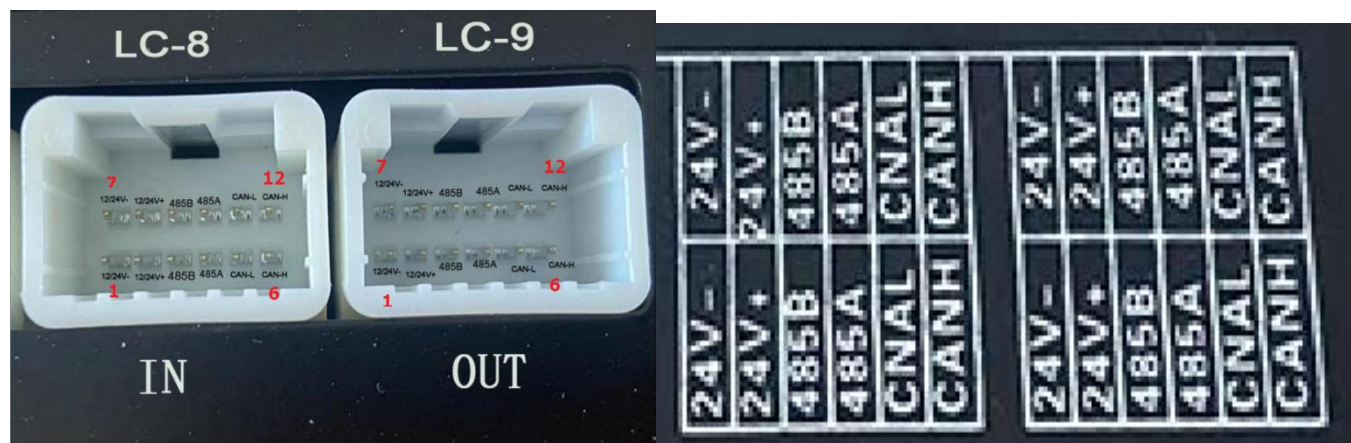
8.Reference Diagrams and Installation Instructions

8.1、LC-7 Port Definition



序号	Interface	Description
24	T0	No connect
23	T1	Plus of Sensor Temp T1
22	T2	Plus of Sensor Temp T2
21	B1-	Minus of Cell 1of each module
20	B2+	Plus of Cell 2 of each module
19	B4+	Plus of Cell 4 of each module
18	B6+	Plus of Cell 6 of each module
17	B8+	Plus of Cell 8 of each module
16	B10+	Plus of Cell 10 of each module
15	B12+	Plus of Cell 12 of each module
14	B14+	Plus of Cell 14 of each module
13	B16+	Plus of Cell 16 of each module
12	GND	No connect
11	GND	Minus of Sensor Temp T1
10	GND	Minus of Sensor Temp T2
9	B-	Minus of Cell 1of each module
8	B1+	Plus of Cell 1of each module
7	B3+	Plus of Cell 3of each module
6	B5+	Plus of Cell 5of each module
5	B7+	Plus of Cell 7of each module
4	B9+	Plus of Cell 9of each module
3	B11+	Plus of Cell 11of each module
2	B13+	Plus of Cell 13of each module
1	B15+	Plus of Cell 15 of each module

8.2、LC-8 /9 Port Definition



No	LC-8	PIN Description	LC-9	PIN Description
1	24V-/12V-	Go to 12V- of last slave bms	24V-/12V-	Go to 12V- of next slave bms
2	24V+/12V+	Go to 12V+ of last slave bms	24V+/12V+	Go to 12V+ of next slave bms
3	485B	N/A	485B	N/A
4	485A	N/A	485A	N/A
5	CAN L	Go to CAN L of last slave bms	CAN L	Go to CAN L of next slave bms
6	CAN H	Go to CAN H of last slave bms	CAN H	Go to CAN H of next slave bms
7	24V-/12V-	Go to 12V- of last slave bms	24V-/12V-	Go to 12V- of next slave bms
8	24V+/12V+	Go to 12V+ of last slave bms	24V+/12V+	Go to 12V+ of next slave bms
9	485B	N/A	485B	N/A
10	485A	N/A	485A	N/A
11	CAN L	Go to CAN L of last slave bms	CAN L	Go to CAN L of next slave bms
12	CAN H	Go to CAN H of last slave bms	CAN H	Go to CAN H of next slave bms

What is the significance of these slave buttons?

How to configure slave bms ? See below

TOPBMS

How to configure slave bms?

The left 2 button is for terminal resistance ;
when we come to the last slave BMS ,
we need to get the 2 buttons down

The right 5 buttons

are used for numbering the slave BMS

If slave 01, get button with "1" down

if slave 02 ,get button with "2" down

if slave 03 ,get button with "1" and "2" down

if slave 04, get button with "4" down

if slave 05, get button with "1" and "4" down

.....



9. Points For Attention:

● Key Points Explanation for BMS wiring

1、The wiring cables should be connected to the battery cell properly while none of the plugs are attached to the BMS

2. After confirming that the wiring is correct, when the switch KEY is turned off

Slave BMS:

Insert the cables to LC-7, LC-8, LC-9 interfaces one by one. Master BMS :

Insert the cables to LC-1, LC-2, LC-3... interfaces one by one;

注意:

1、禁止开关闭合情况下插拔接插件，否则带电插拔会引起板子故障 或者失效

Do not plug or unplug connectors when the switch is closed. Otherwise, plugging or unplugging while powered on may cause board failure or malfunction.

2、务必确认线束定义和实际必须符合预期，否则会造成板子失效。

It is essential to ensure that the wiring harness definition and the actual situation must conform to expectations; otherwise, it will cause the board to fail.

10、Installation Procedure

Warning: When connecting the protective plate to the battery cell or removing the protective plate from the battery pack, please follow the following connection sequence and regulations; if the operation is not carried out in the required order, the components of the protective plate will be damaged, thereby causing the protective plate to fail to protect the battery cell, resulting in serious consequences.

A. The steps for Installing the bms

- 1) Connect the negative B- of the battery pack
- 2) Connect Negative terminal P- of the load;
- 3) Connect voltage measurement cables to each cells
- 4) After connecting all cables , turn on 12V power supply and please check if the output voltage is in line with battery voltage

B. The steps of turning off bms

- 1) Disconnect load or charger
- 2) Disconnect Positive B+ of battery
- 3) Disconnect measurement cables of each slave bms
- 4) Disconnect the negative P- of load

The download link of Phone APP and BMS PC Software : <https://www.topbms.com/news/93.html>

Phone APP :

Please select “High Voltage ” and then enter the APP

Please be aware that don;t change the number of “Board Add”; otherwise , you will not enter the APP

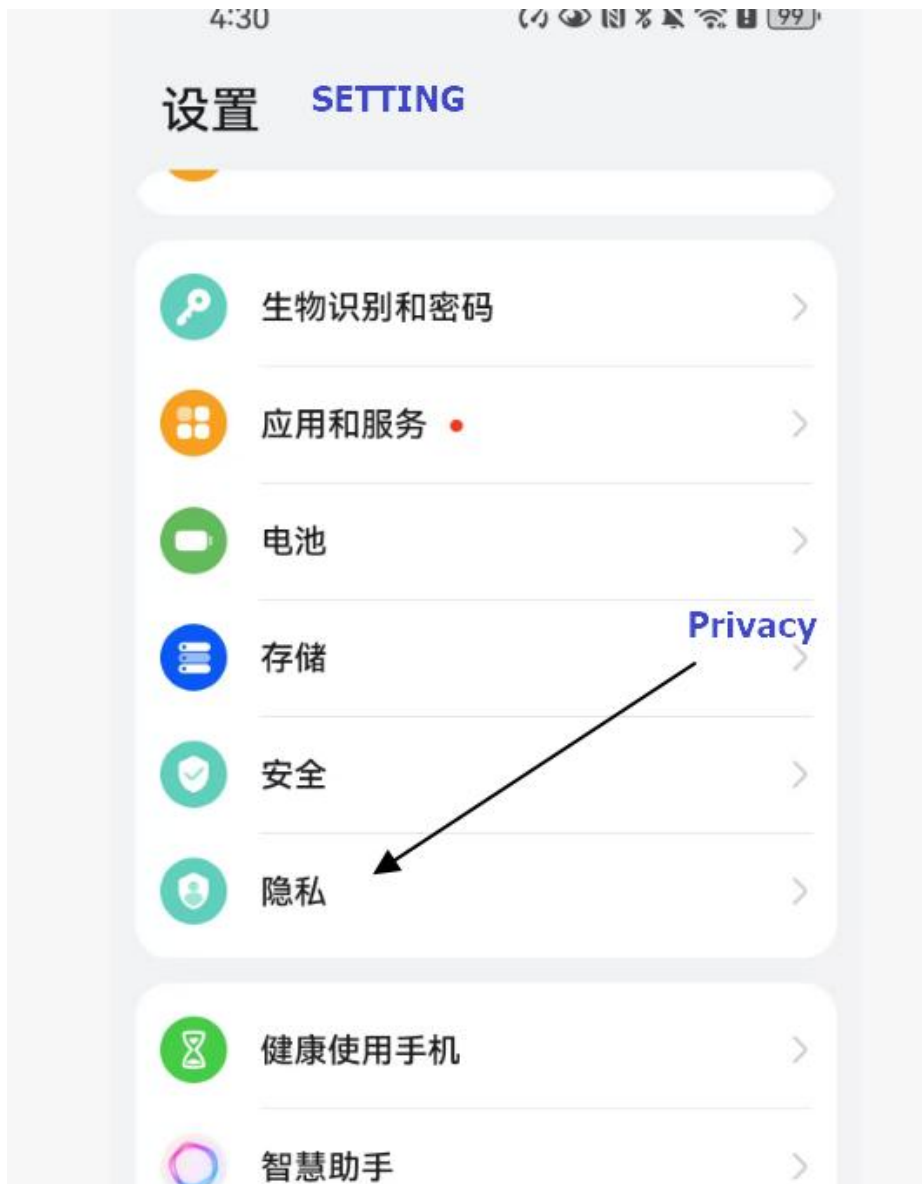


BoardAdd 1 Change LowVoltage	Bluetooth device: Bluetooth Number Find HighVoltage
---	--

Connectable Devices Nearby :

ID:09:E6:33:50:7F:94 MAC:09:E6:33:50:7F:94	ID:4C:23:A7:DB:E0:39 MAC:4C:23:A7:DB:E0:39
Unknown Signal:-88 Connectable ID:25:3C:98:AB:35:43 MAC:25:3C:98:AB:35:43	Name:midea Signal:-95 Connectable ID:24:27:30:E7:7E:F1 MAC:24:27:30:E7:7E:F1
Name:D7500_9128 340 Signal:-91 Connectable ID:C8:22:B9:E3:61:8D MAC:C8:22:B9:E3:61:8D	Name:TOP BMS Signal:-66 Connectable ID:11:41:07:62:75:95 MAC:11:41:07:62:75:95
Unknown	Unknown

How to install a mobile phone APP: First of all , enable " privacy" and "GPS location "on your phone.
Then, in WeChat, use QQ Browser to open the APK file. Please follows:



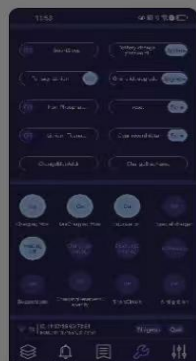


6:59



< 3

Andy-17841591535



选择其他应用打开



QQ 浏览器（默认）

体积小，速度快。



保存至云空间



UC浏览器



设为默认

仅一次



使用腾讯文档，多人协作，随时随地

腾讯文档

更多

其他应用中打开

检测到此文件为安装包



BMS

版本1.23

Install

安装

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.



Step 2:How to Set Discharging /Charging

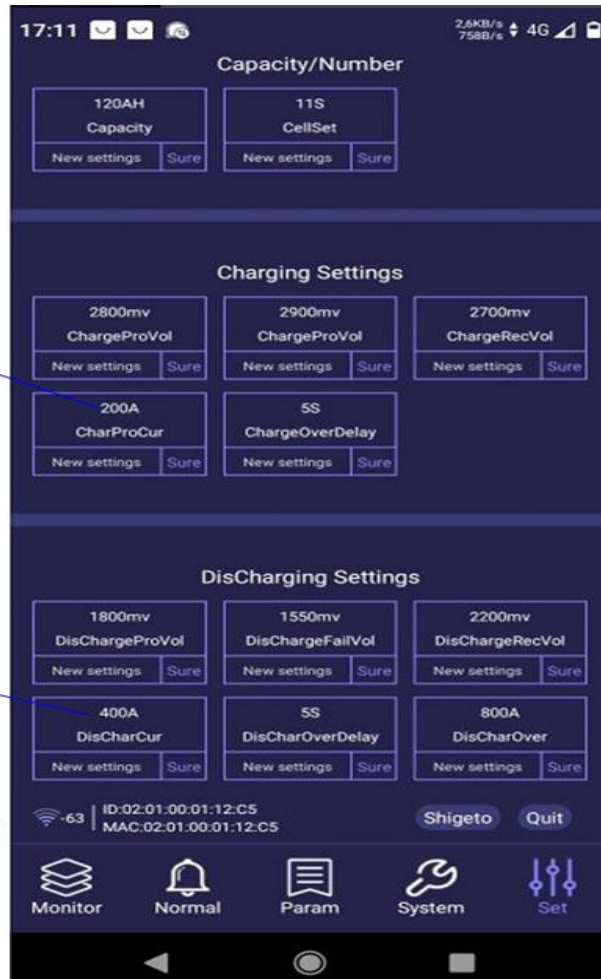
Charging Setting:

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

Dischagring 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 !!



Step 3 SOC Calibration

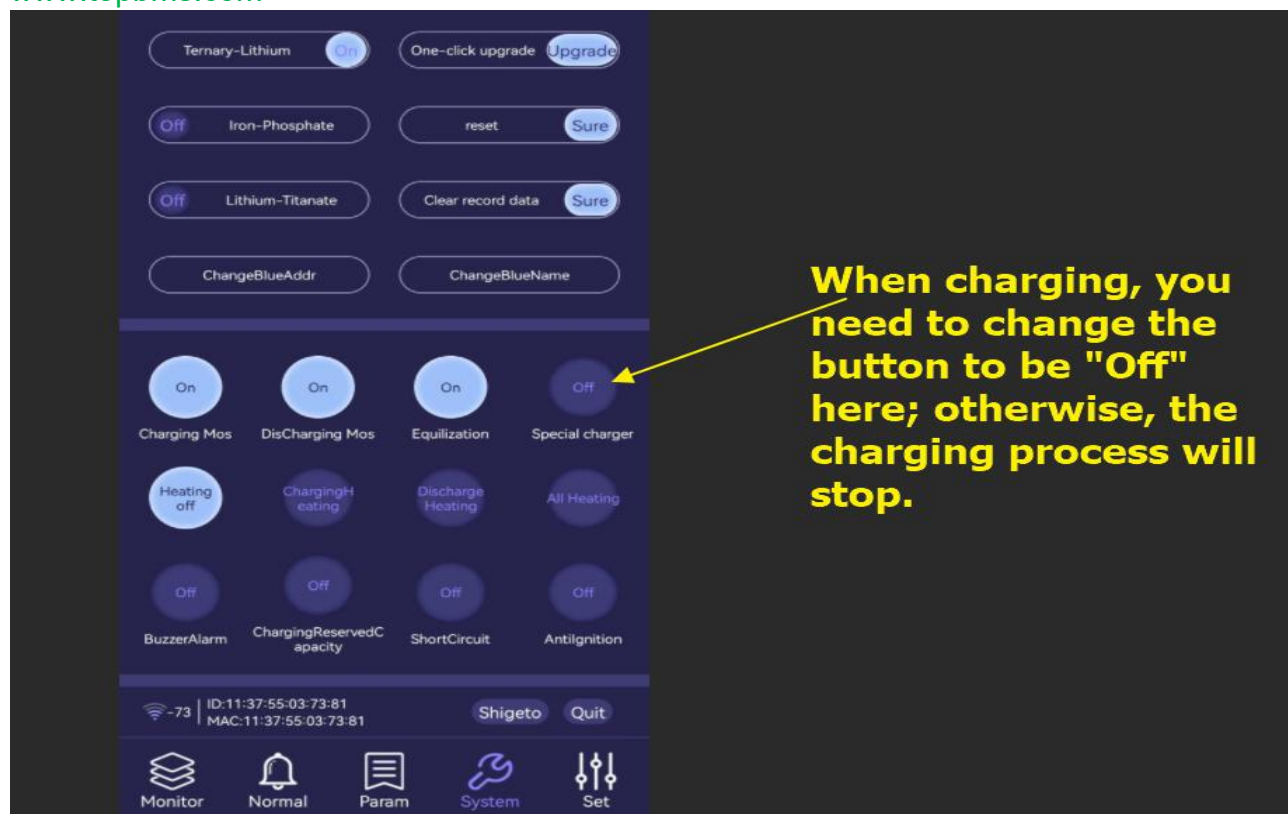
Set the actual capacity of the batteries pack in the phone APP ,and Discharge the batteries to under-voltage protection and then Charge batteries to the over voltage protection and then SOC can be corrected and calibrated



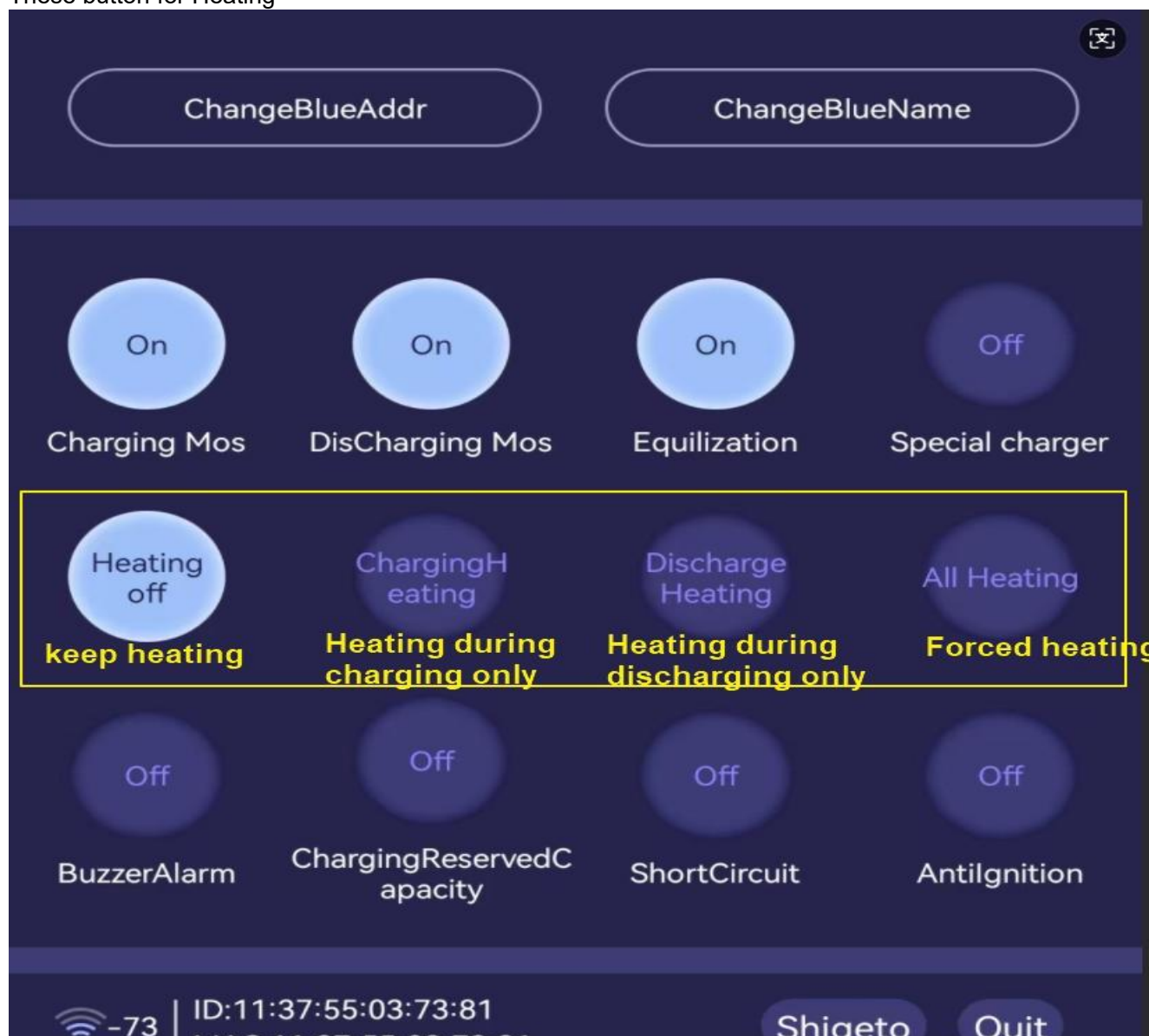
Step 4

Please make sure that smart lock is off
before discharge/charge





These button for Heating



How to forcibly active relay ? Click the button to be "ON"



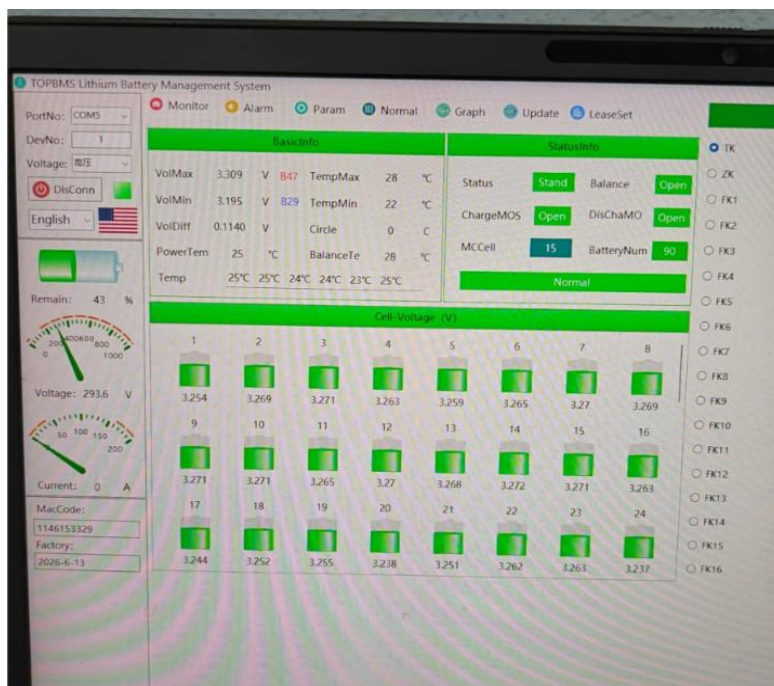
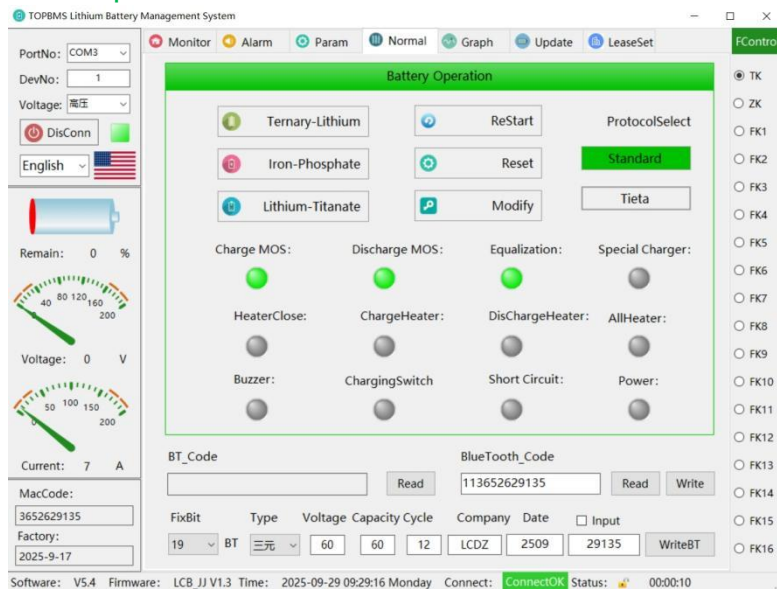
BMS PC Software :

Password : 123456

You need to configurate bms after entering password 123456;
And select correct port

Find out the correct Port

- >  Keyboards
- >  Mice and other pointing devices
- >  Monitors
- >  Network adapters
- ✓  Ports (COM & LPT)
 -  USB-SERIAL CH340 (COM3)
- >  Print queues
- >  Printers

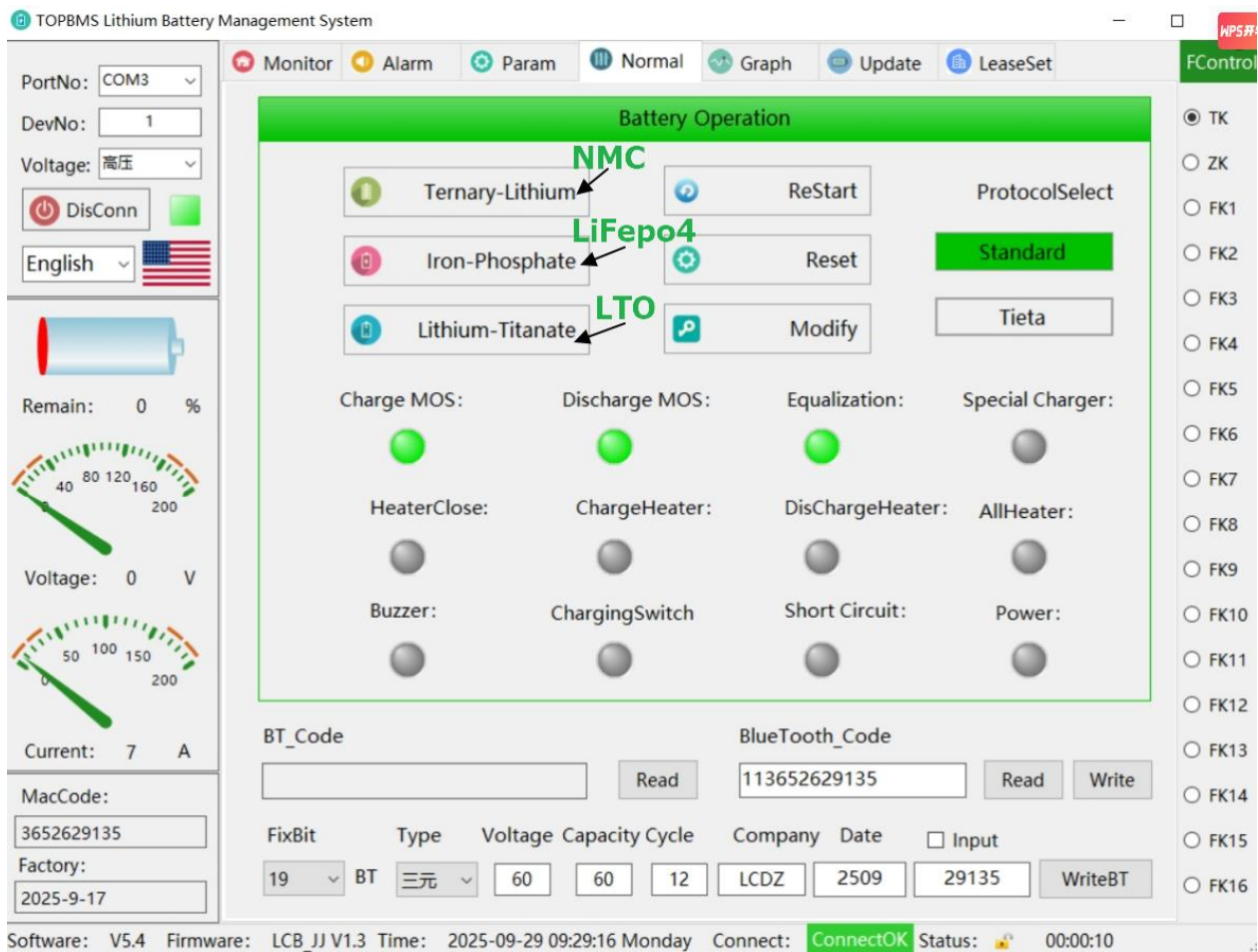


Tips :

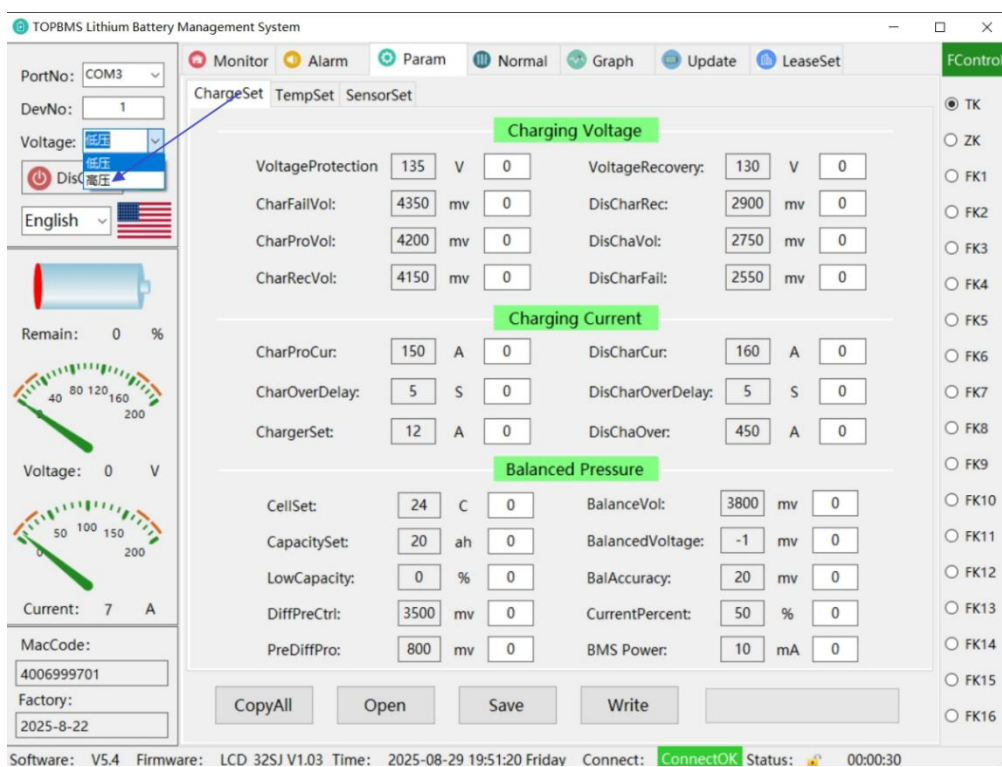
After connecting the pc software ,you need to finish the settings as soon as possible ; if you log onto the pc software for more than 3 minutes , you need to re-log onto the software ,otherwise , the value you set in the software is not valid ; they will be back to default

If you open the software long time ago , parameters change/settings is not allowed; you need to close the bms pc software and reopen it and access to the data setting with password ; this prevents other people to access to this software

How to select battery types in the BMS PC software ?



For high voltage battery , Please select “ 高压 ” in the BMS pc software :



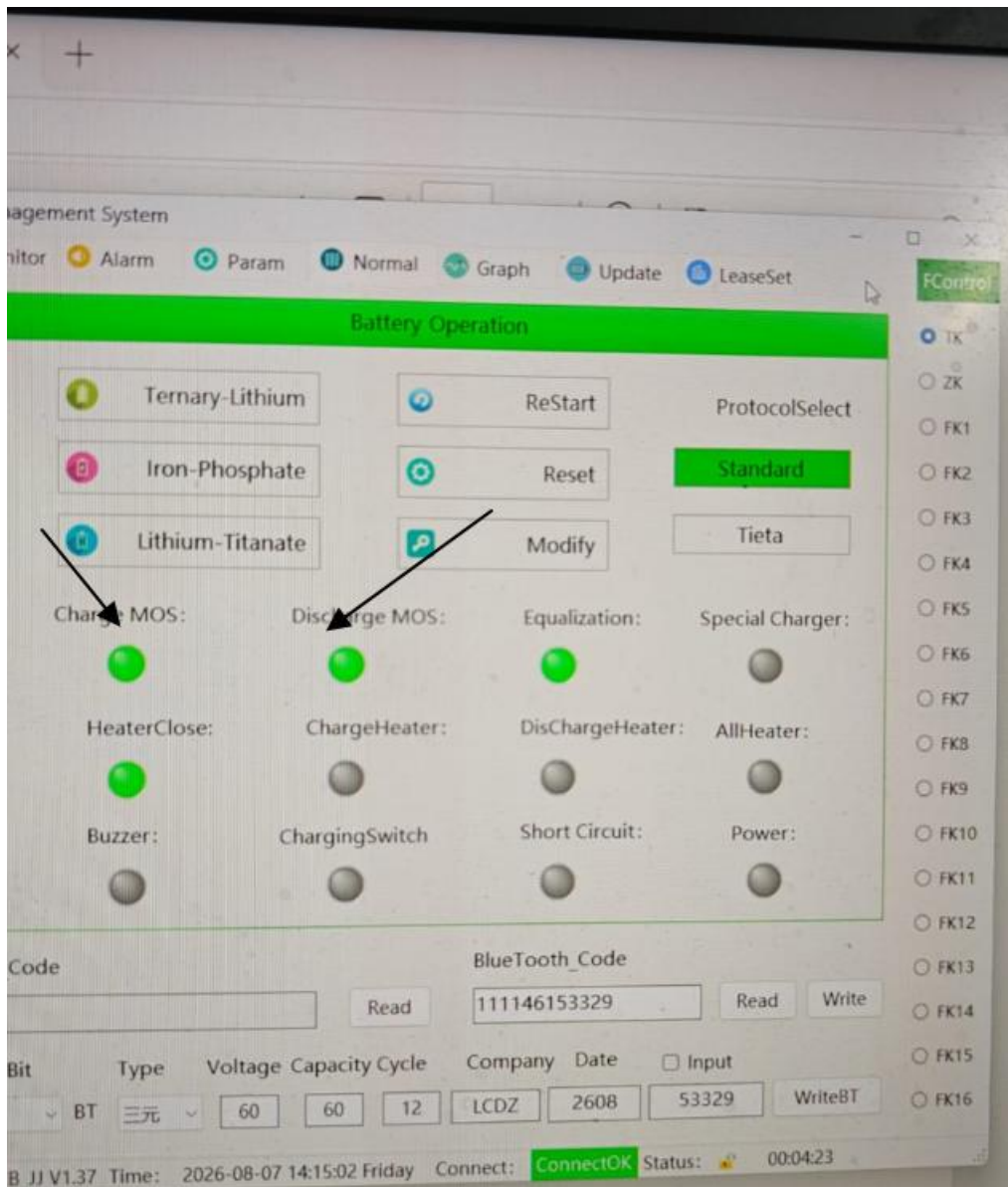
“TK “ means master bms + slave bms

“ZK” means master bms

“FK” mean slave bms ;FK1 mean slave 01 ; FK 2 mean slave 02;FK 3 mean slave 03

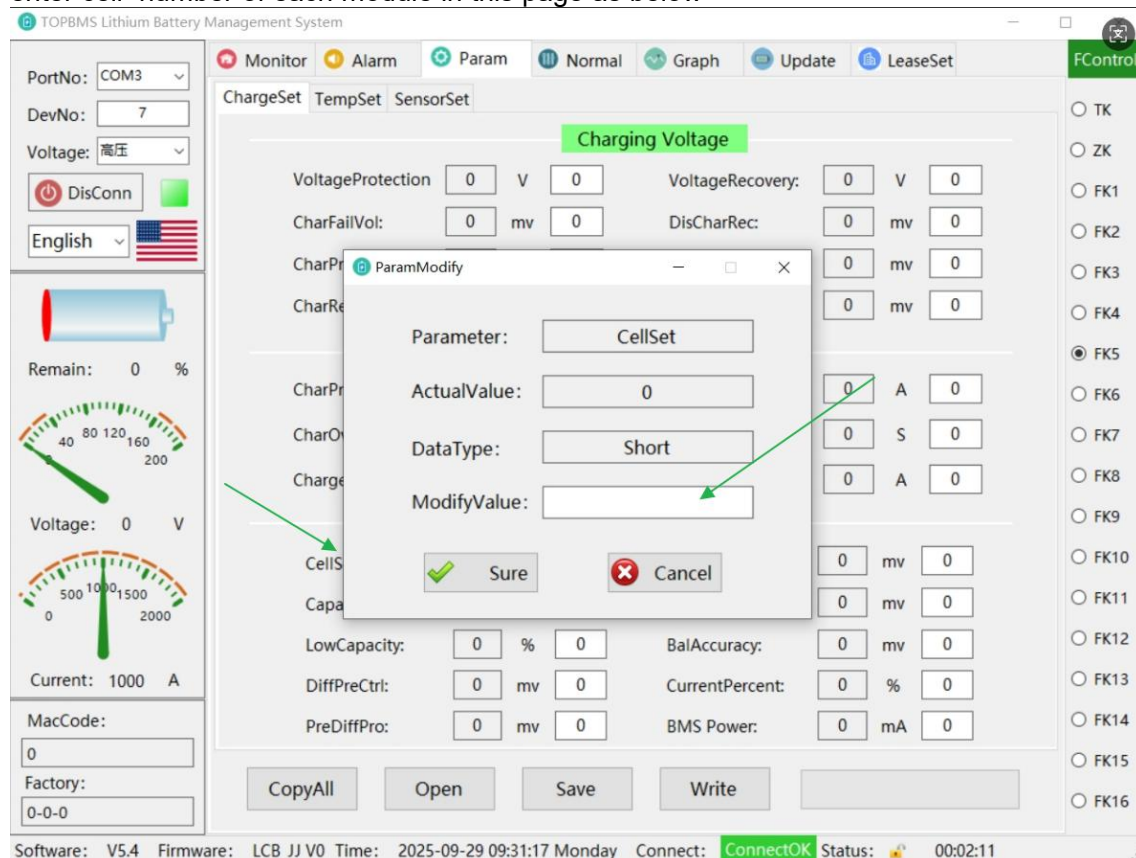
The screenshot shows the 'LeaseSet' software interface. On the left, there is a 'ProtocolSelect' section with two buttons: 'Standard' and 'Tieta'. Below these are three toggle switches labeled 'Special Charger:', 'AllHeater:', and 'Power:'. At the bottom left, there are 'Read' and 'Write' buttons, and a section with an 'Input' checkbox, a text field containing '53329', and a 'WriteBT' button. On the right, a list of radio buttons is displayed, starting with 'TK' (which is selected) and followed by 'ZK', and then a series of 'FK' labels from 'FK1' to 'FK16'.

Charging contactor and discharge contactor are getting on and off after clicking on this window.

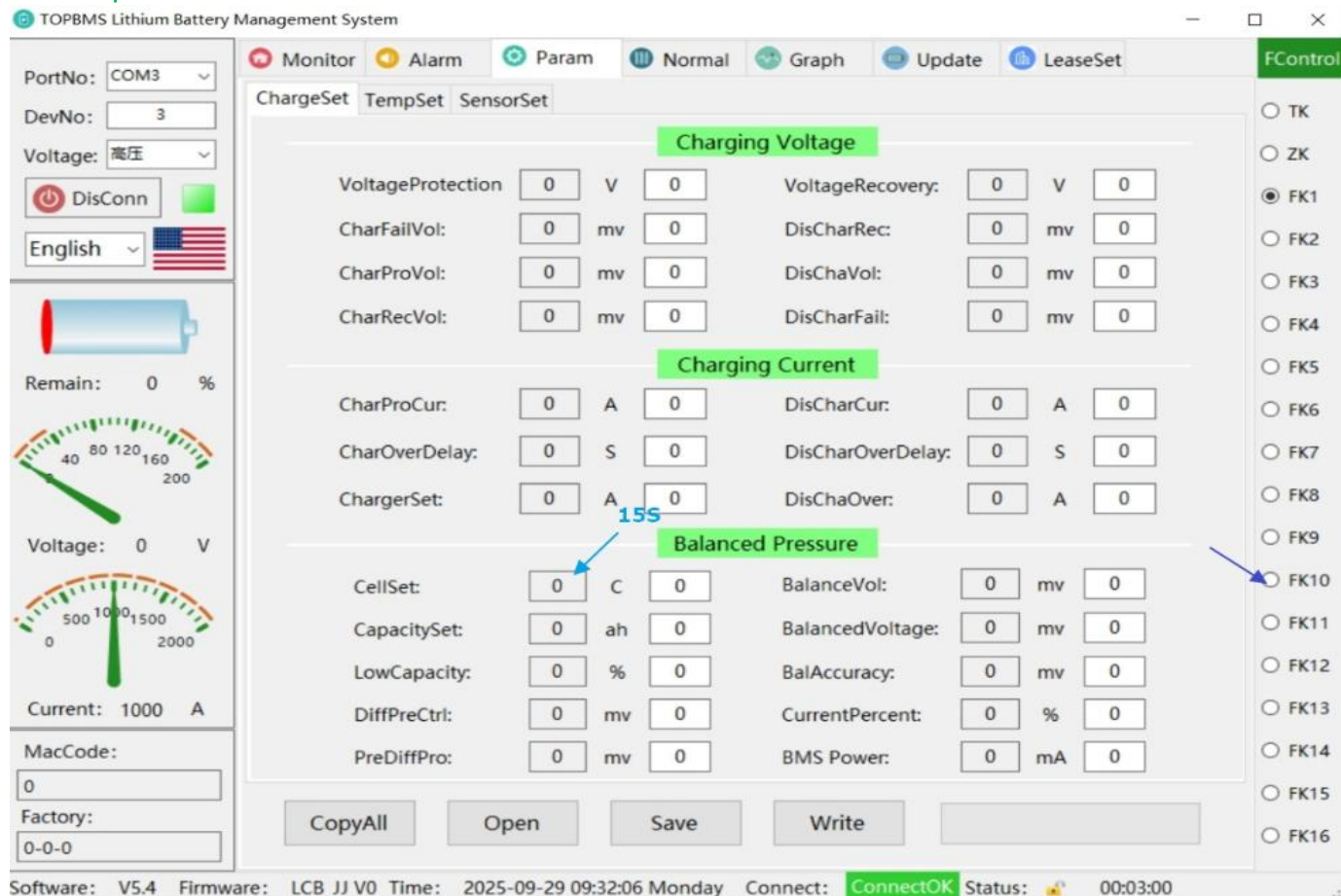


How to set the cell strings in the BMS PC software ?

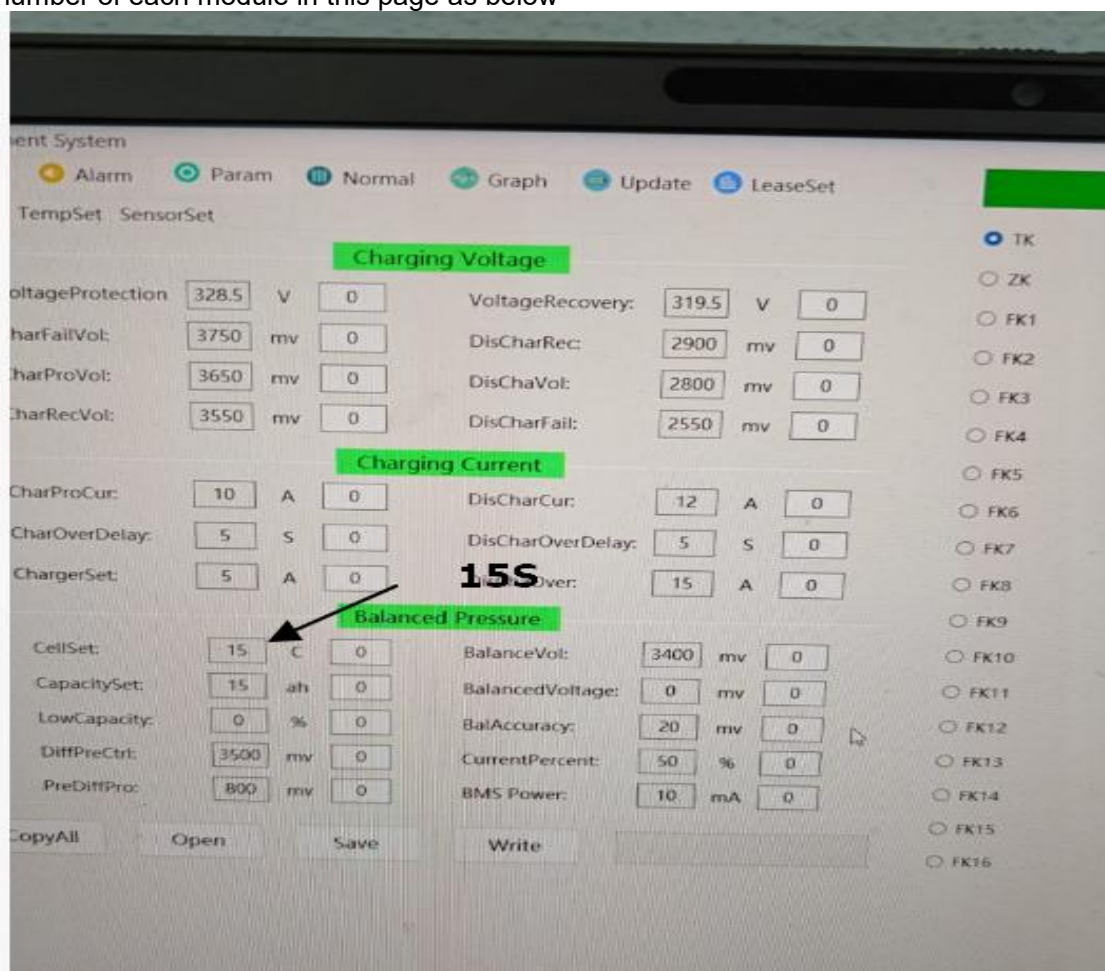
For slave bms , click FK 1,FK2 FKN first ;and then Click the “Parameter” and then double click “ cell string” and enter cell number of each module in this page as below



Let me take slave 10 for example : you need to click FK 10 if you need to let slave bms 10 to be 15string and go to this page "parameter " and enter 15, See below :



For Master BMS , click TK first ;and then Click the “Parameter” and then double click “ cell string” and enter cell number of each module in this page as below



Tips :

Before set up data in "cellset " , please see and follow the below instruction ,see below :

TOPBMS

www.topbms.com

How to change cell strings of each module ?

Step1: Pull button 1 down first

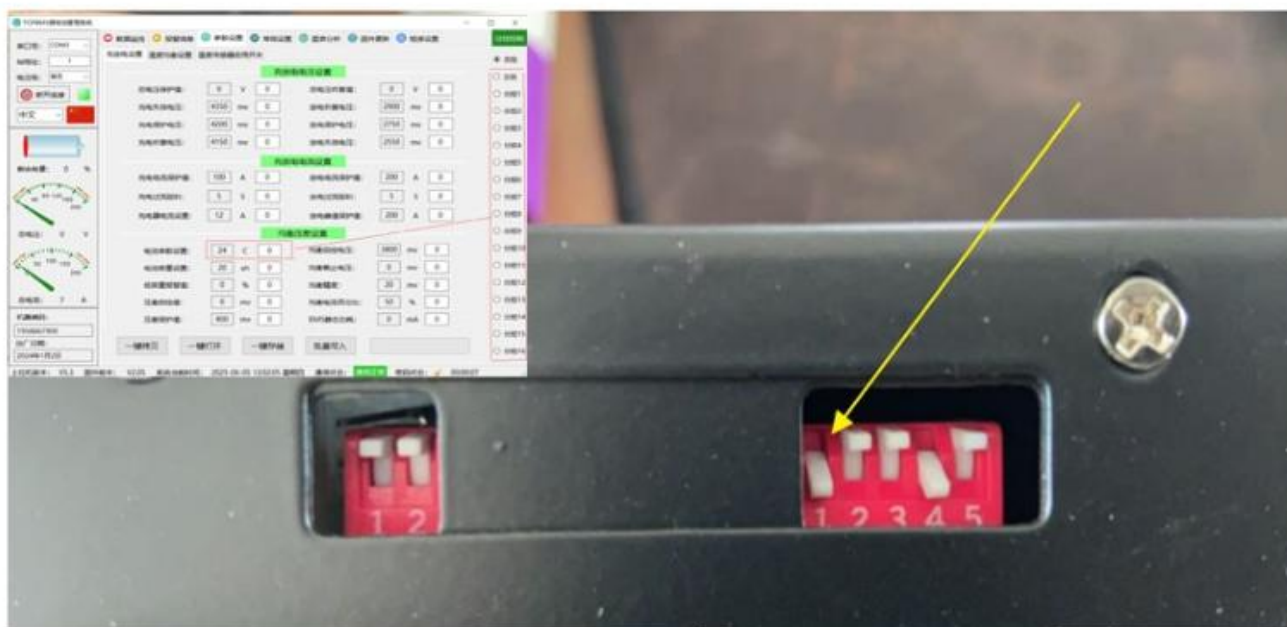
Step2: On the page "Parameter", enter the expected cell string
after the corresponding slave bms is selected

Step3: Enter the expected cell string and then pull button 1 up and then the cell string is locked ;

Step4: Please go to the page "Update" and then click "battery set"
and enter the entire battery strings ;

Step5: Finally, Please go to the page "Normal " to restart the battery system.

The settings of the total battery strings will take effect only after this operation.



How to set the entire battery strings in the BMS PC software ? Click TK and then Please go to the page “Update”
And then click “battey set” and enter the entire battery strings ;

TOPBMS Lithium Battery Management System

PortNo: COM3
DevNo: 1
Voltage: 高压
DisConn
English

Remain: 0 %
Voltage: 0 V
Current: 7 A
MacCode: 3652629135
Factory: 2025-9-17

Monitor Alarm Param Normal Graph Update LeaseSet FControl

Fireware Process

STEP 1: Select File
STEP 2: Send Restart
STEP 3
STEP 4
STEP 5
STEP 6
STEP 7

Parameter: BatteryCountSet
ActualValue: 96
DataType: Short
ModifyValue:

Enter the entire battery string

00: 00: 00

Other

Calibration: 0 A BoardAdd: 1
BatterySet: 96 C CycleSet: 0 C
DisCharCapaci 0 ah CalibrationCap 0 ah

Sleep

TK
ZK
FK1
FK2
FK3
FK4
FK5
FK6
FK7
FK8
FK9
FK10
FK11
FK12
FK13
FK14
FK15
FK16

Software: V5.4 Firmware: LCB_JJ V1.3 Time: 2025-09-29 09:30:02 Monday Connect: ConnectOK Status: 00:00:56

TOPBMS Lithium Battery Management System

PortNo: COM3
DevNo: 1
Voltage: 低压
DisC: 高压
English

Remain: 0 %
Voltage: 0 V
Current: 7 A
MacCode: 4006999701
Factory: 2025-8-22

Monitor Alarm Param Normal Graph Update LeaseSet FControl

ChargeSet TempSet SensorSet

Charging Voltage

VoltageProtection	135	V	0	VoltageRecovery:	130	V	0
CharFailVol:	4350	mv	0	DisCharRec:	2900	mv	0
CharProVol:	4200	mv	0	DisChaVol:	2750	mv	0
CharRecVol:	4150	mv	0	DisCharFail:	2550	mv	0

Charging Current

CharProCur:	150	A	0	DisCharCur:	160	A	0
CharOverDelay:	5	S	0	DisCharOverDelay:	5	S	0
ChargerSet:	12	A	0	DisChaOver:	450	A	0

Balanced Pressure

CellSet:	24	C	0	BalanceVol:	3800	mv	0
CapacitySet:	20	ah	0	BalancedVoltage:	-1	mv	0
LowCapacity:	0	%	0	BalAccuracy:	20	mv	0
DiffPreCtrl:	3500	mv	0	CurrentPercent:	50	%	0
PreDiffPro:	800	mv	0	BMS Power:	10	mA	0

CopyAll Open Save Write

Software: V5.4 Firmware: LCD_32SJ V1.03 Time: 2025-08-29 19:51:20 Friday Connect: ConnectOK Status: 00:00:30

TOPBMS Lithium Battery Management System

PortNo: COM5
DevNo: 2
Voltage: 高压
DisConn
English

Remain: 0 %
Voltage: 295.5 V
Current: 0 A
MacCode: 1146153329

Monitor Alarm Param Normal Graph Update LeaseSet FControl

ChargeSet TempSet SensorSet

Charging Voltage

VoltageProtection: 500 V 0 VoltageRecovery: 450 V 0
CharFailVol: 3750 mv 0 DisCharRec: 2600 mv 0
CharProVol: 3650 mv 0 DisChaVol: 2500 mv 0
CharRecVol: 3550 mv 0 DisCharFail: 2250 mv 0

Charging Current

CharProCur: 50 A 0 DisCharCur: 500 A 0
CharOverDelay: 5 S 0 DisCharOverDelay: 5 S 0
ChargerSet: 12 A 0 DisChaOver: 1000 A 0

Balanced Pressure

CellSet: 15 C 0 BalanceVol: 3400 mv 0
CapacitySet: 15 ah 0 BalancedVoltage: 0 mv 0
LowCapacity: 0 % 0 BalAccuracy: 20 mv 0
DiffPreCtrl: 3500 mv 0 CurrentPercent: 50 % 0
PreDiffPro: 800 mv 0 BMS Power: 10 mA 0

CopyAll Open Save Write

How to calibrate the current ? Please click “TK” and go the page of “UPDATE “

Note :This is used for current calibration during discharge only ; you can not calibrate current duuring charging

TOPBMS Lithium Battery Management System

PortNo: COM3
DevNo: 1
Voltage: 低压
DisC 高压
English

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

MacCode: 4006999701
Factory: 2025-8-22

Monitor Alarm Param Normal Graph Update LeaseSet FControl

Fireware Process

STEP 1: Select File
STEP 2: Send Restart
STEP 3: Baud 9.6K
STEP 4: Send 0x20
STEP 5: Send 0x31
STEP 6: Return 0x43
STEP 7: Send Firmware

File Update

Segment: 0
Total: 0

Firmware Upda 00: 00: 00

Other

Calibration: 0 A
BatterySet: 0 C
DisCharCapaci 0 ah
BoardAdd: 1
CycleSet: 0 C
CalibrationCap 0 ah

Sleep

TK
ZK
FK1
FK2
FK3
FK4
FK5
FK6
FK7
FK8
FK9
FK10
FK11
FK12
FK13
FK14
FK15
FK16

Software: V5.4 Firmware: LCD_32SJ V1.03 Time: 2025-08-29 19:54:49 Friday Connect: ConnectOK Status: 00:03:59

How to set the charge temp and discharge temp ? Please Click "TK "and go to this page" Param" and do settings ;See below

TOPBMS Lithium Battery Management System

PortNo: COM3
DevNo: 3
Voltage: 高压
DisConn
English

Remain: 0 %
Voltage: 0 V
Current: 1000 A

MacCode: 0
Factory: 0-0-0

Monitor Alarm Param Normal Graph Update LeaseSet FControl

ChargeSet TempSet SensorSet

Charging Temp

ChargeHTPro:	-40	°C	0	DisCharHTPro:	-40	°C	0
ChargeHTRec:	-40	°C	0	DisCharHTRec:	-40	°C	0
ChargeLTPro:	-40	°C	0	DisCharLTPro:	-40	°C	0
ChargeLTRec:	-40	°C	0	DisCharLTRec:	-40	°C	0

Temp Settings

DisCharOverDelay:	-40	°C	0	BoilerStart:	-40	°C	0
PowerRecTemp:	-40	°C	0	BoilerStop:	-40	°C	0
BalTempPro:	-40	°C	0	BalTempRec:	-40	°C	0

☐ SOC Enable ☐ TieTa ☒ Standard

0%Voltage:	0	mv	0	60%Voltage:	0	mv	0
20%Voltage:	0	mv	0	80%Voltage:	0	mv	0
40%Voltage:	0	mv	0				

OldPwd: 123456 NewPwd: BlueName: Write

CopyAll Open Save Write

Software: V5.4 Firmware: LCB_JJ V0 Time: 2025-09-29 09:32:27 Monday Connect: ConnectOK Status: OK 00:03:21

How to change the password ? Please Click "TK "and go to this page" Param" and do settings ;See below

Enter new password here and then Click "copy all" fist and click "write " ; Please try

20%Voltage: 0 mv 0 80%Voltage: 0 mv

40%Voltage: 0 mv 0

OldPwd: 123456 NewPwd: BlueName: Write

CopyAll Open Save Write

are: LCB_JJ V0 Time: 2025-09-29 09:32:27 Monday Connect: ConnectOK Status: OK

- How to wire each module to different cells in series ? Please see below

Wire scheme For Master bms

This master also have sensing wires which go to the cells ,it can work with 5S-16S ;Master bms start from cell 01 to cell 16;

If you want to master bms with 5S-16S, Please see below different wiring scheme



Wiring Diagram of Master BMS VS 16 CELLS
16串接线图



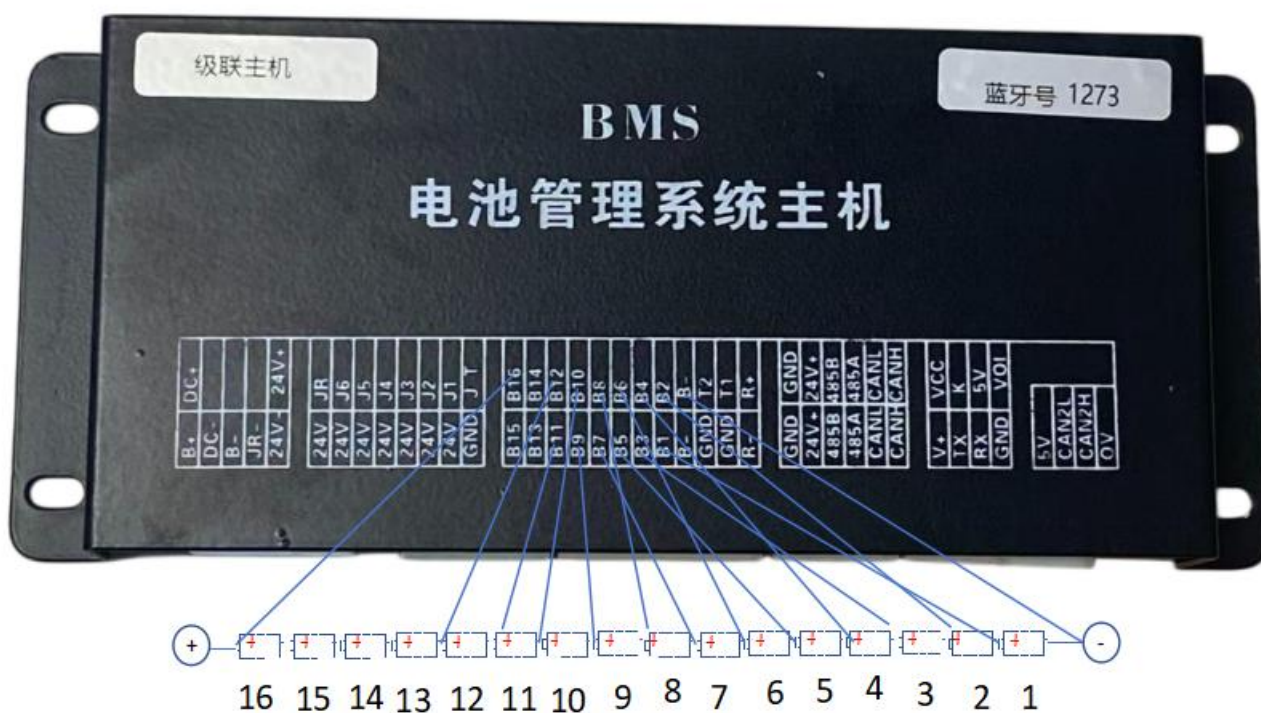
Wiring Diagram of Master BMS VS 15 CELLS
15串接线图



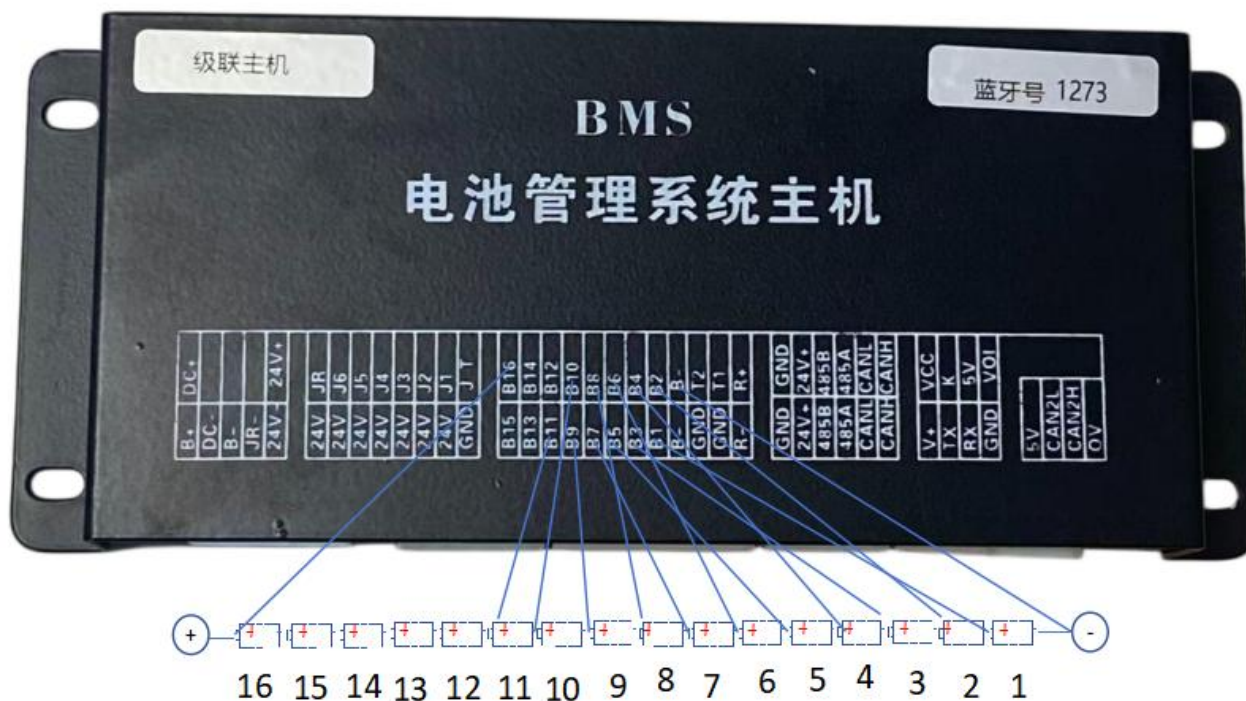
Wiring Diagram of Master BMS VS 14 CELLS
14串接线图



Wiring Diagram of Master BMS VS 13 CELLS
13串接线图



Wiring Diagram of Master BMS VS 12 CELLS
12串接线图



Wiring Diagram of Master BMS VS 11 CELLS
11串接线图



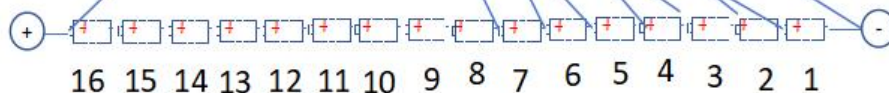
Wiring Diagram of Master BMS VS 10 CELLS
10串接线图



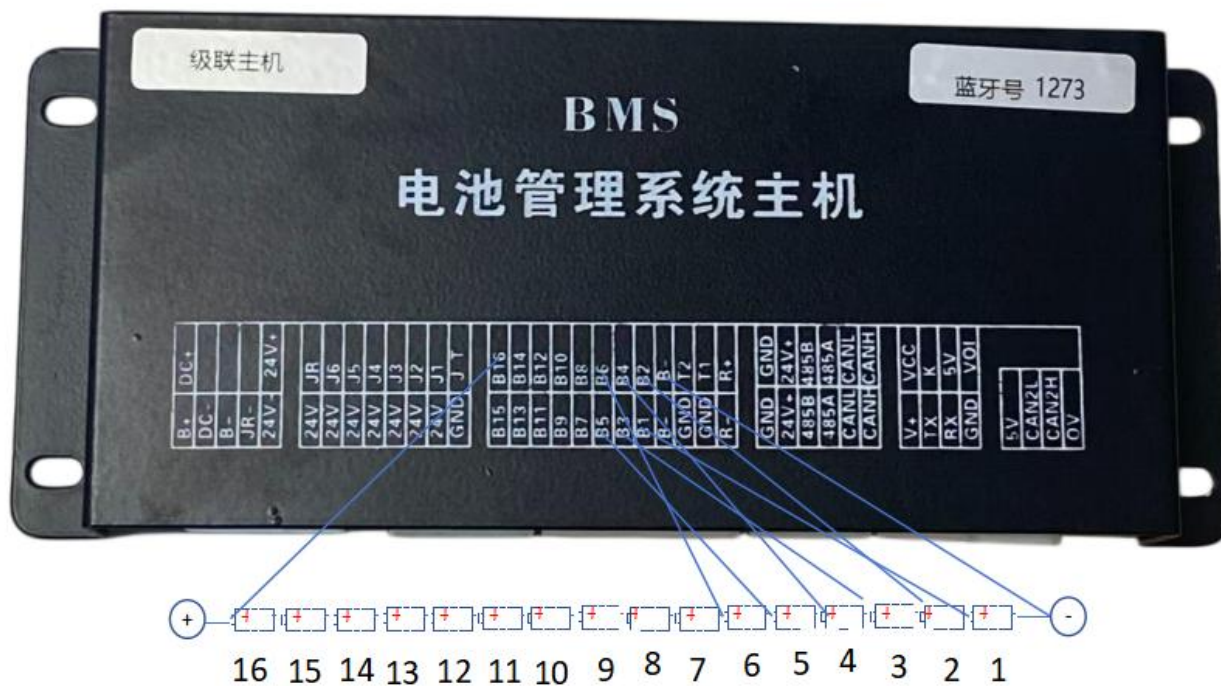
Wiring Diagram of Master BMS VS 9 CELLS
9串接线图



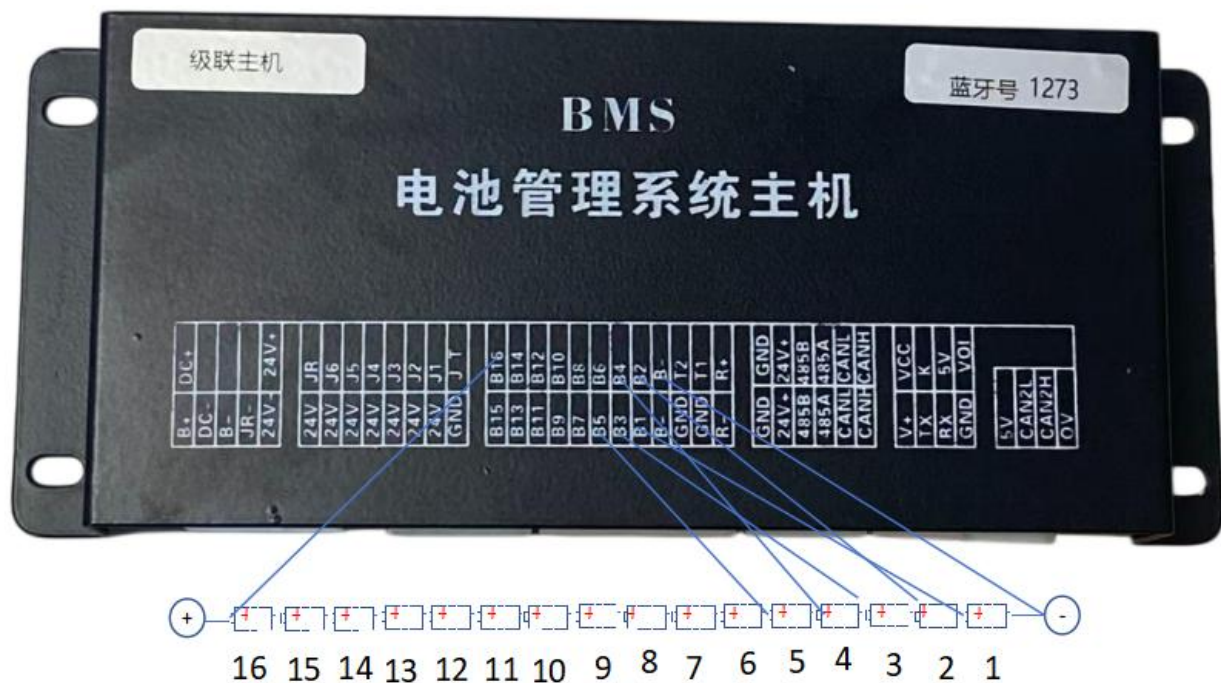
Wiring Diagram of Master BMS VS 8 CELLS
8串接线图



Wiring Diagram of Master BMS VS 7 CELLS
7串接线图

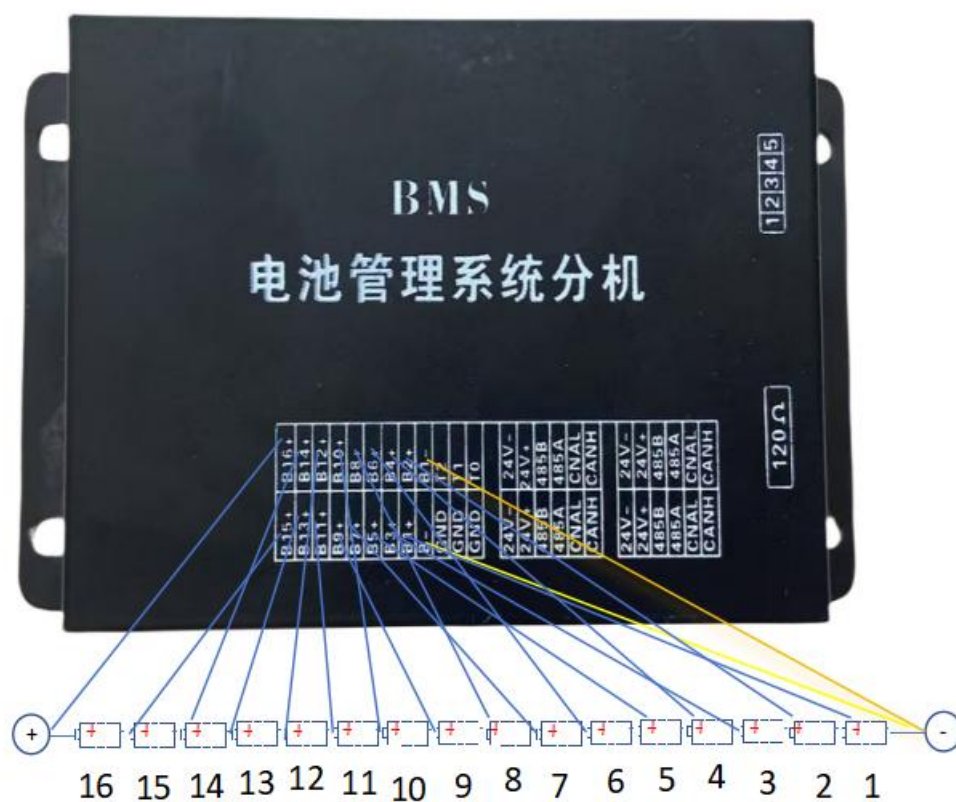


Wiring Diagram of Master BMS VS 6 CELLS
6串接线图

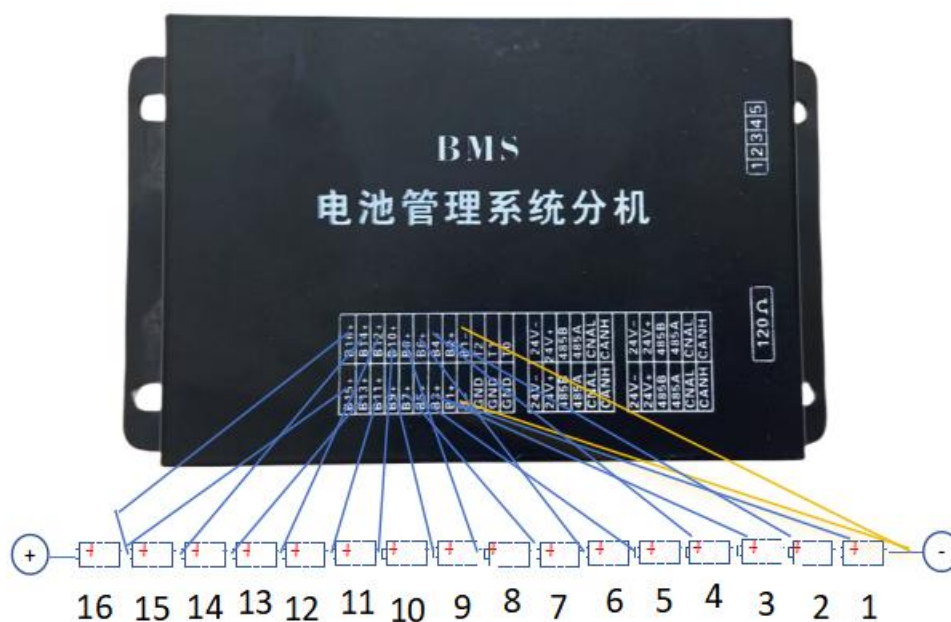


Wiring Diagram of Master BMS VS 5 CELLS
5串接线图

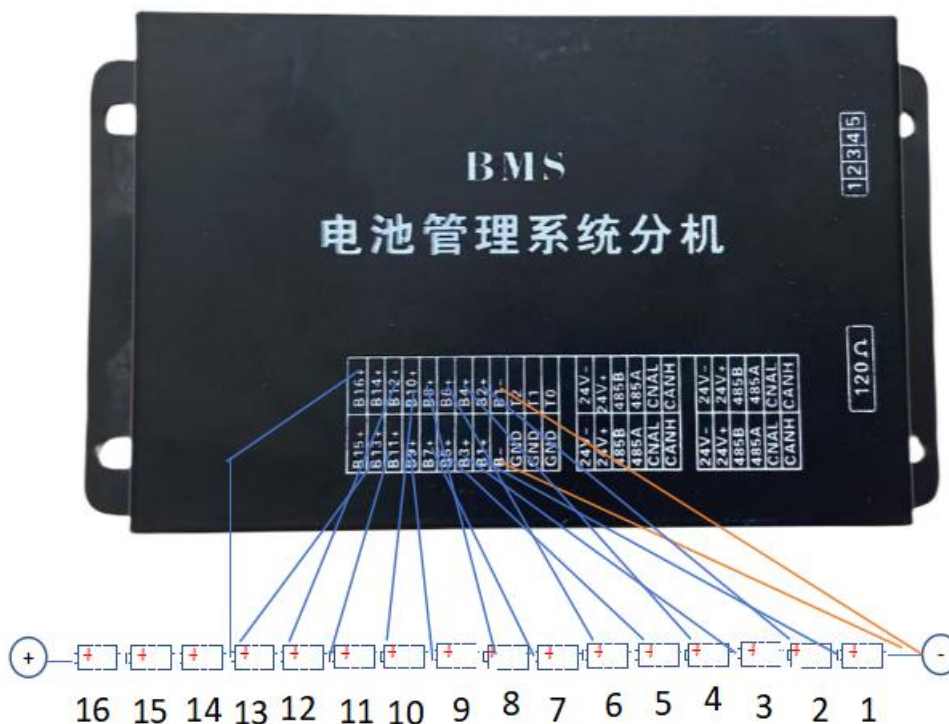
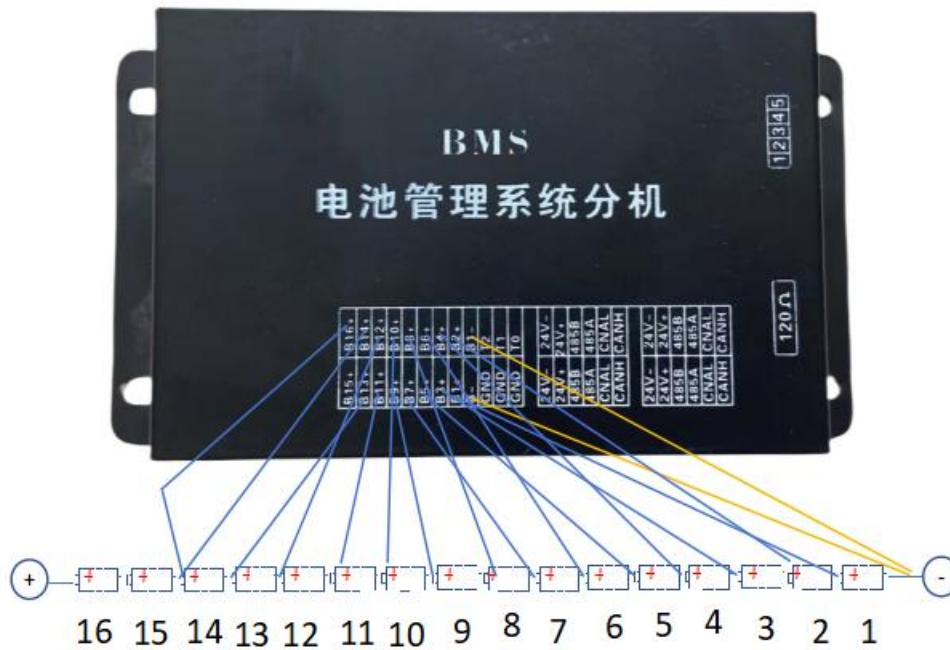
Wire scheme For Slave bms

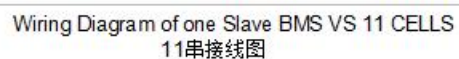


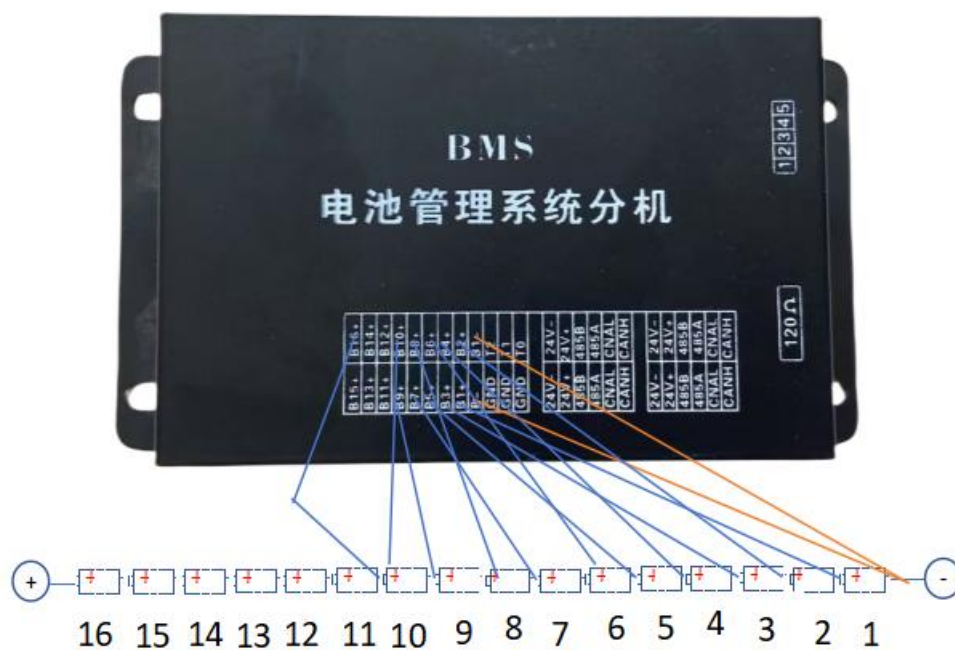
Wiring Diagram of one Slave BMS VS 16 CELLS
16串接线图



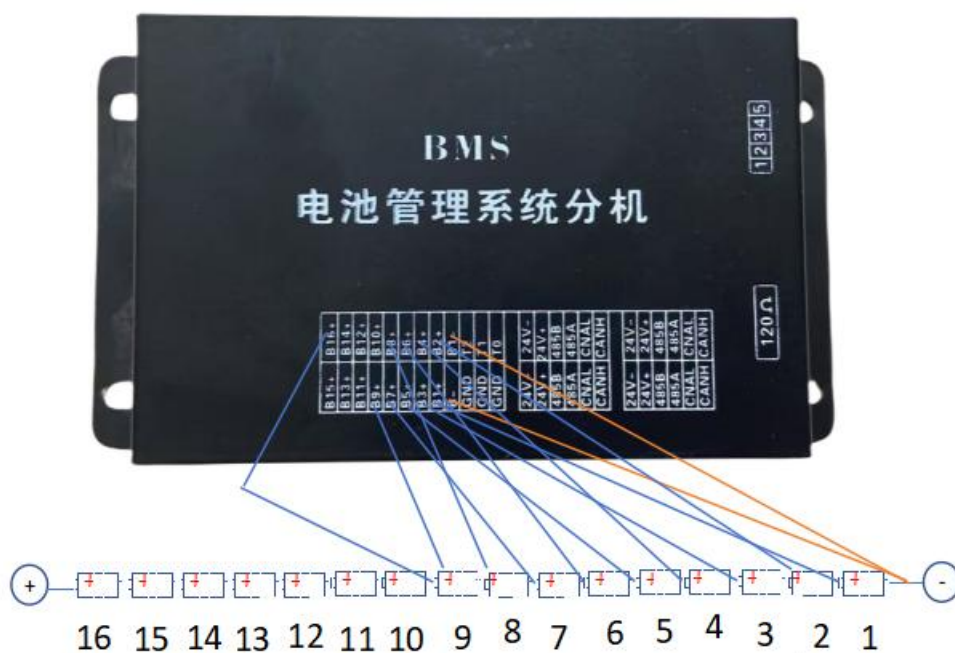
Wiring Diagram of one Slave BMS VS 15 CELLS
15串接线图



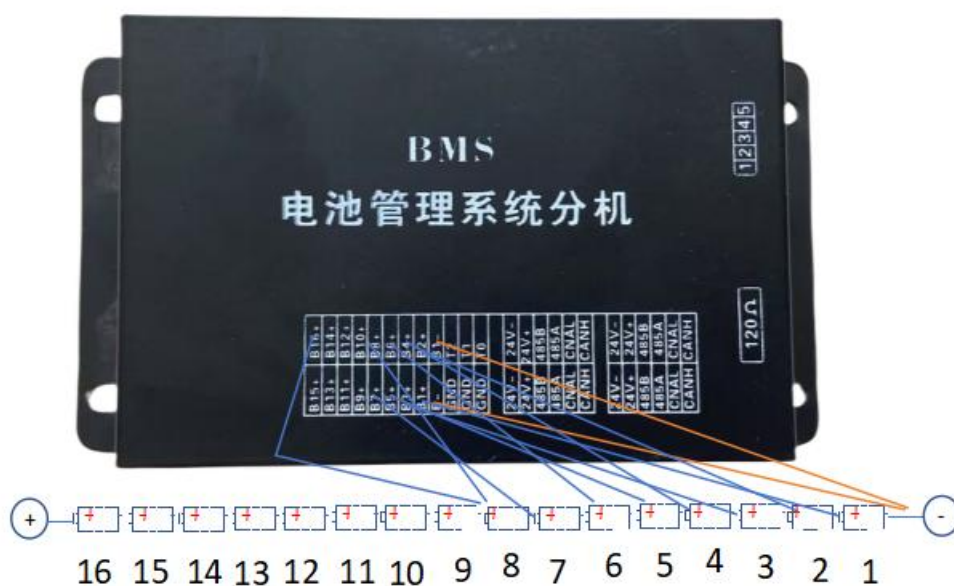




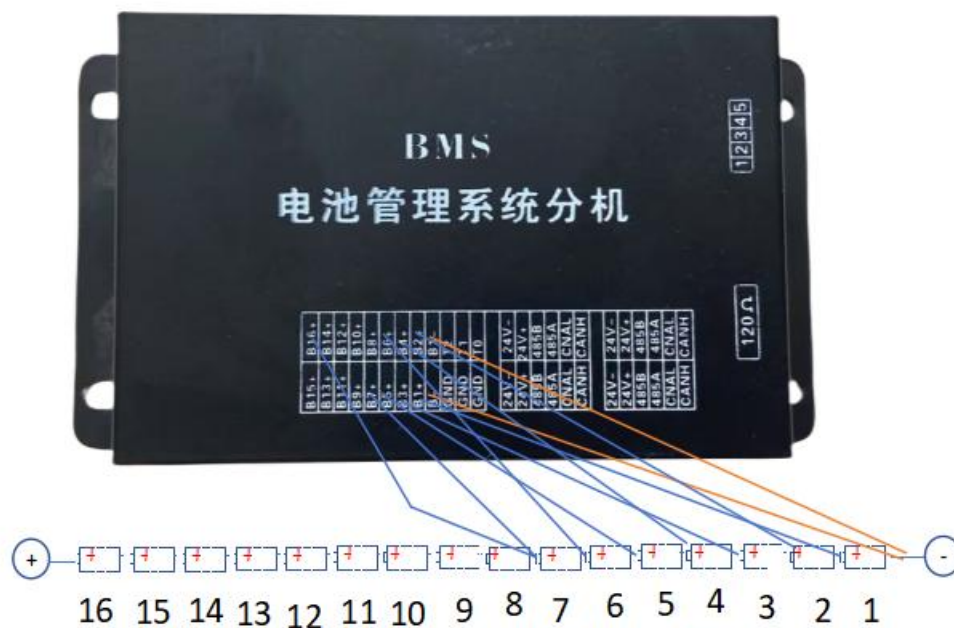
Wiring Diagram of one Slave BMS VS 10 CELLS
10串接线图



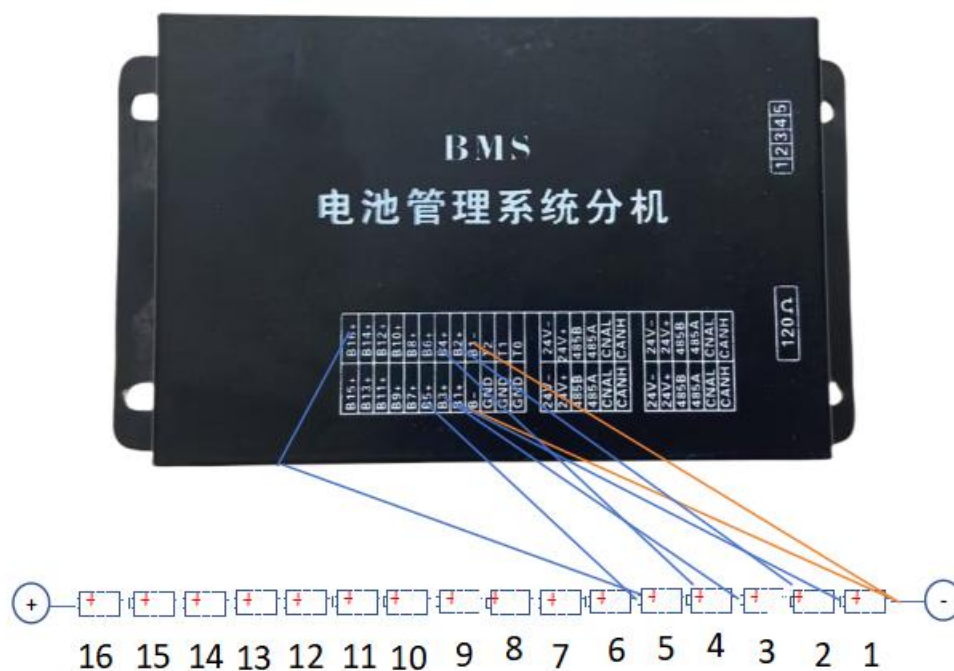
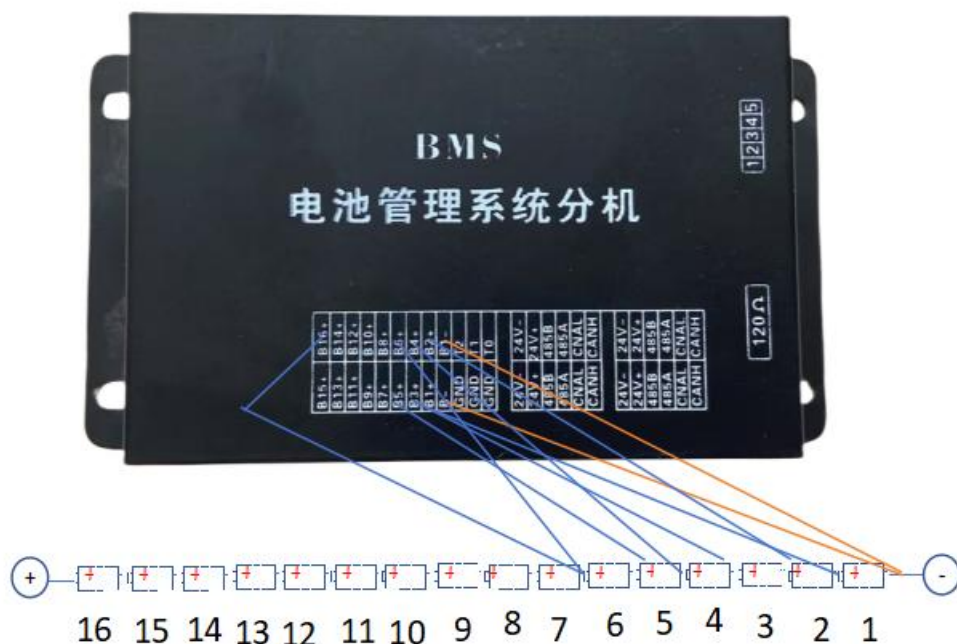
Wiring Diagram of one Slave BMS VS 9 CELLS
9串接线图



Wiring Diagram of one Slave BMS VS 8 CELLS
8串接线图



Wiring Diagram of one Slave BMS VS 8 CELLS
7串接线图



- How to set cell strings of each module in pc software ? Please see below

How to change cell strings of each module ?

Step1: Pull button 1 down first

Step2: On the page "Parameter", enter the expected cell string

after the corresponding slave bms is selected

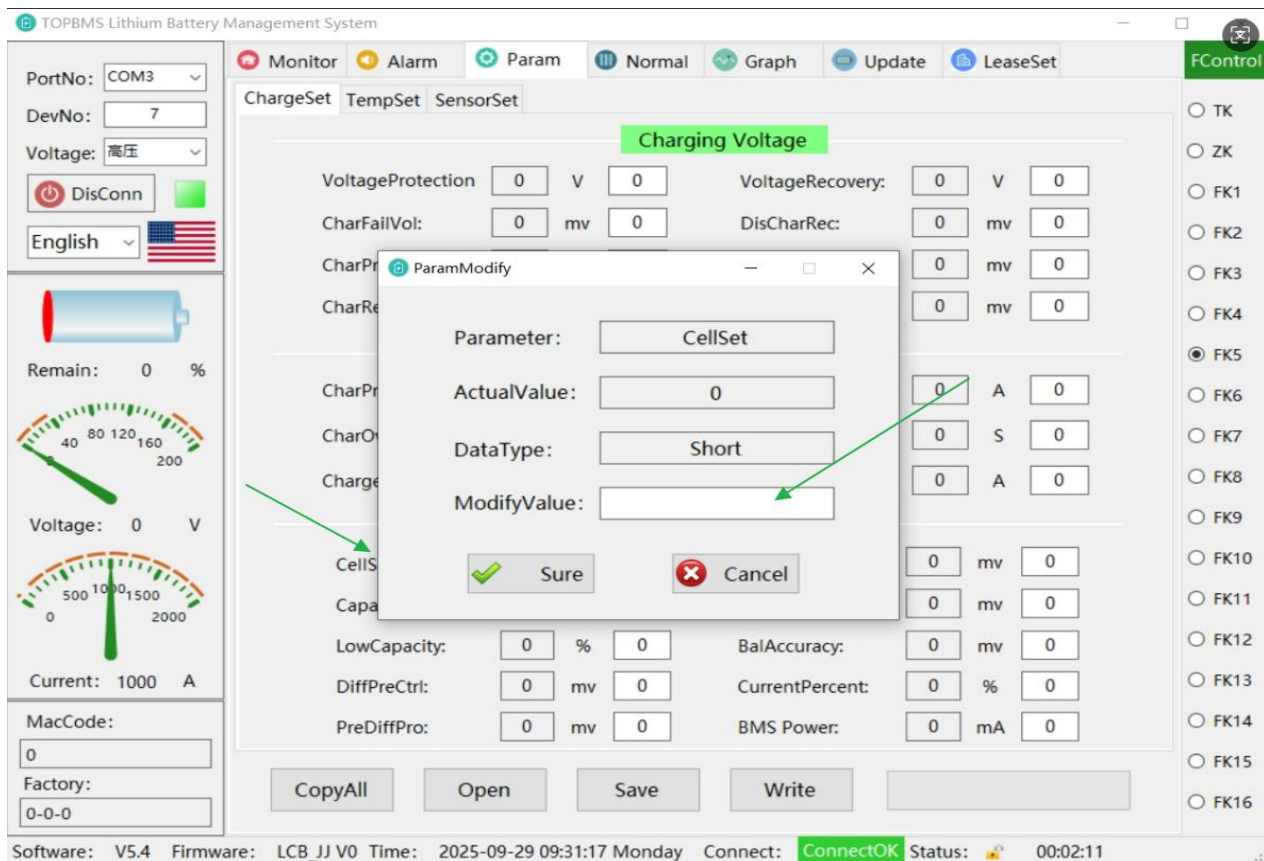
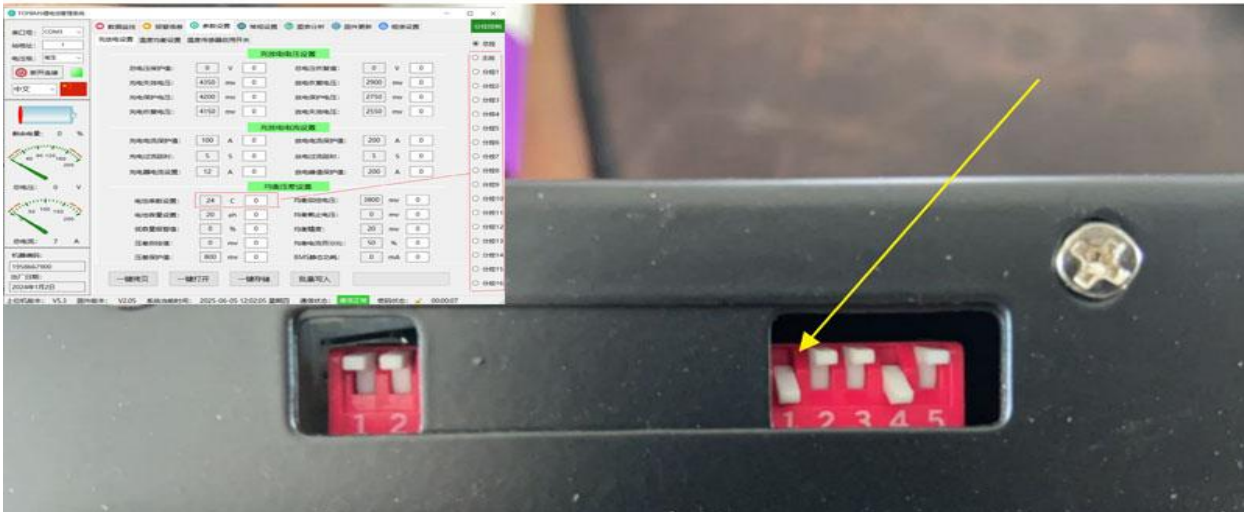
Step3: Enter the expected cell string and then pull button 1 up and then the cell string is locked ;

Step4: Please go to the page "Update" and then click "battery set"

and enter the entire battery strings ;

Step5: Finally, Please go to the page "Normal" to restart the battery system.

The settings of the total battery strings will take effect only after this operation.



TOPBMS Lithium Battery Management System

PortNo: COM3 DevNo: 1 Voltage: 高压 DisConn English

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

MacCode: 3652629135 Factory: 2025-9-17

Monitor Alarm Param Normal Graph Update LeaseSet FControl

Fireware Process

STEP 1: Select File STEP 2: Send Restart

ParamModify

Parameter: BatteryCountSet ActualValue: 96 DataType: Short ModifyValue: Enter the entire battery string

Sure Cancel

Other

Calibration: 0 A BoardAdd: 1 BatterySet: 96 C CycleSet: 0 C Sleep

DisCharCapaci 0 ah CalibrationCap 0 ah

Software: V5.4 Firmware: LCB_JJ V1.3 Time: 2025-09-29 09:30:02 Monday Connect: ConnectOK Status: 00:00:56

TOPBMS Lithium Battery Management System

PortNo: COM3 DevNo: 1 Voltage: 高压 DisConn English

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

MacCode: 3652629135 Factory: 2025-9-17

Monitor Alarm Param Normal Graph Update LeaseSet FControl

Battery Operation

Ternary-Lithium Iron-Phosphate Lithium-Titanate ReStart Reset Modify ProtocolSelect Standard Tieta

Charge Heater Buzzer ChargingSwitch Short Circuit Special Charger: geHeater: AllHeater: Power:

Tips

Restart Success

Sure

BT_Code BlueTooth_Code

Read 113652629135 Read Write

FixBit Type Voltage Capacity Cycle Company Date Input

19 BT 三元 60 60 12 LCDZ 2509 29135 WriteBT

Software: V5.4 Firmware: LCB_JJ V1.3 Time: 2025-09-29 09:30:34 Monday Connect: ConnectOK Status: 00:01:28

