

The logo for VOLTA features a green 'V' followed by the letters 'OLTA' in a dark grey, bold, sans-serif font. The 'O' is a square with a white center, and the 'A' is a simple triangle.

VOLTA LITHIUM BATTERY

With Multiple Brands Inverter Communication Setting

Content

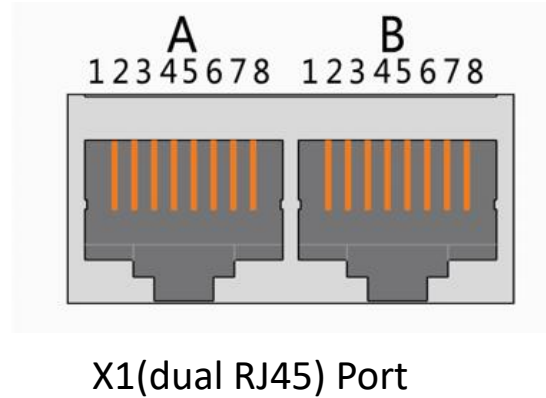
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1.VOLTA lithium battery CAN/RS485 Communication Cable Order (sequence) Instruction as below:

A

Pin number	RS485 Port
Pin 1	RS485-B
Pin 2	RS485-A
Pin 3	RS485-GND
Pin 4	RS485-B
Pin 5	RS485-A
Pin 6	RS485-GND
Pin 7	NC(empty)
Pin 8	NC(empty)

VOLTA Lithium Battery
RS485 port definition



B




Pin number	CAN Port
Pin 1	CANL
Pin 2	CGND
Pin 3	NC(empty)
Pin 4	CANH
Pin 5	CANL
Pin 6	NC(empty)
Pin 7	CGND
Pin 8	CANH

VOLTA Lithium Battery
CAN port definition

2. Dial-up switch settings when PACK is used in parallel, different PACK can be distinguished by setting the dialing switch on BMS to avoid setting the same address. The definition of BMS dial switch refers to the following table

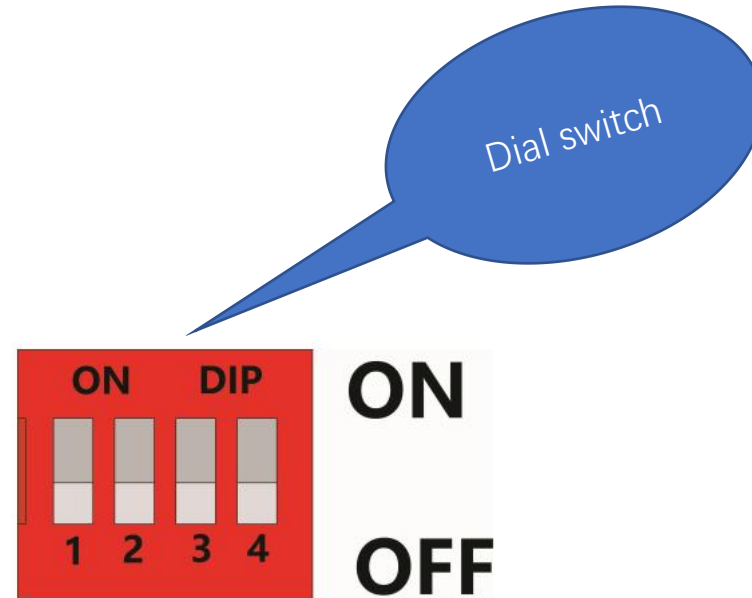
RS485 Parallel Wiring Diagram

When performing multi-machine parallel communication operation, it is necessary to configure the DIP address of each PACK first. The dialing code adopts BCD code format, the definition

of address1 is  (black dot is OFF state, blank is ON state, the same below), address 2 is defined as  , Address 3 is defined as  , and so on for other addresses.

Address setting rules

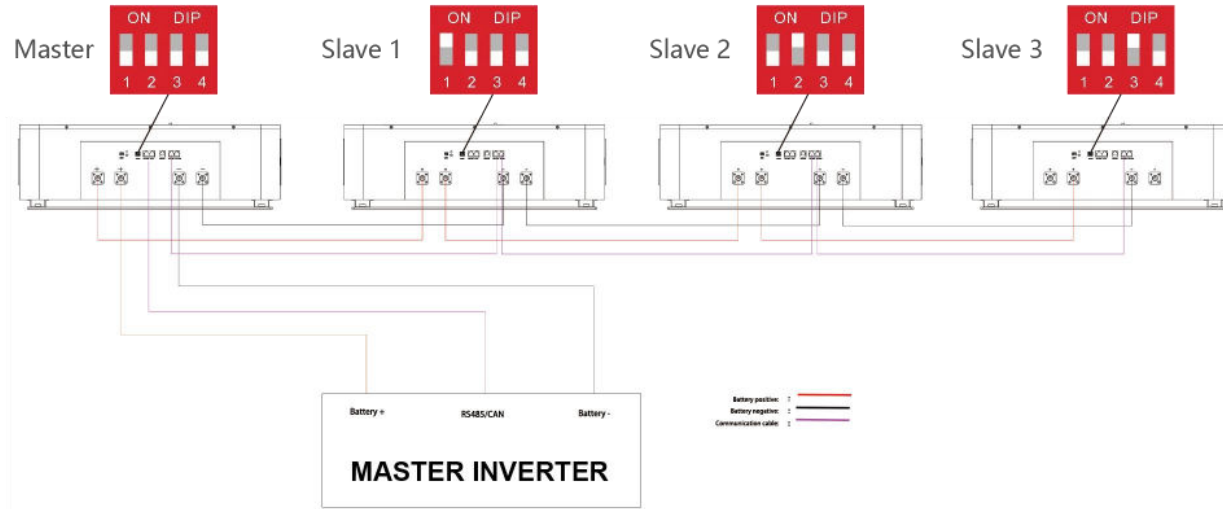
Address	Codes the switch position			
	#1	#2	#3	#4
1 (master)	OFF	OFF	OFF	OFF
2 (slave 1)	ON	OFF	OFF	OFF
3 (slave 2)	OFF	ON	OFF	OFF
4 (slave 3)	ON	ON	OFF	OFF
5 (slave 4)	OFF	OFF	ON	OFF
6 (slave 5)	ON	OFF	ON	OFF
7 (slave 6)	OFF	ON	ON	OFF
8 (slave 7)	ON	ON	ON	OFF
9 (slave 8)	OFF	OFF	OFF	ON
10 (slave 9)	ON	OFF	OFF	ON
11 (slave 10)	OFF	ON	OFF	ON
12(slave 11)	ON	ON	OFF	ON
13 (slave 12)	OFF	OFF	ON	ON
14 (slave 13)	ON	OFF	ON	ON
15 (slave 14)	OFF	ON	ON	ON
16 (slave 15)	ON	ON	ON	ON



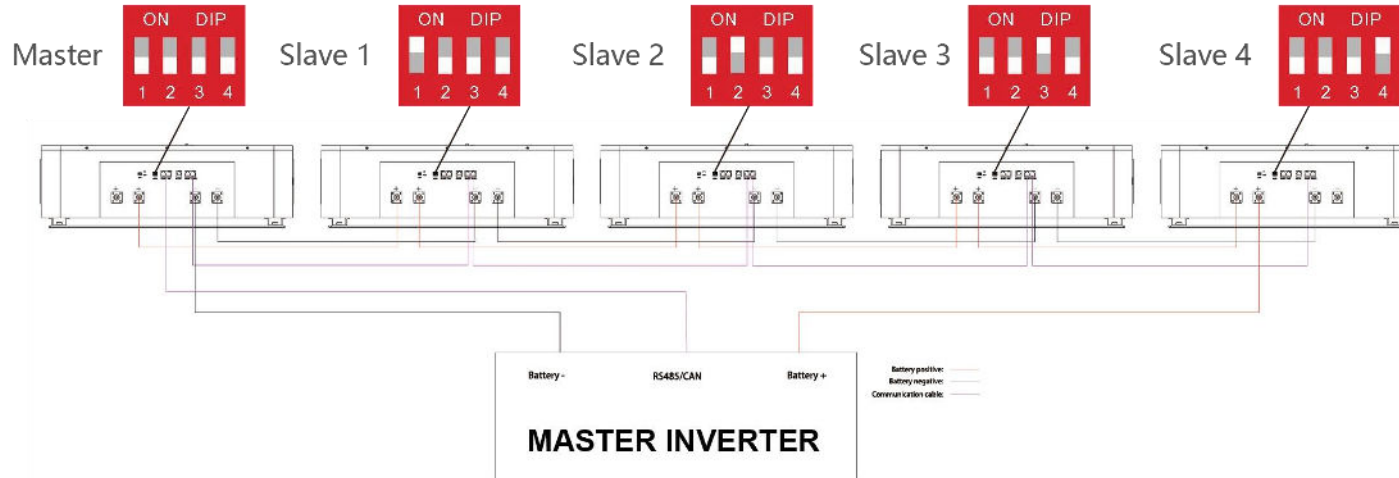
3.Schematic diagram of parallel connection

Connect the positive pole and positive pole in parallel, the negative pole and negative pole in parallel, and the communication cables in parallels as shown in the figure below

For 4pcs below



For 4pcs above



4. VOLTA lithium battery default and non-default inverter brands selection and operation by host computer

4.1 Method 1:Communicate with factory default inverters

Step 1:Select the cables used by the inverter by the label on the communication cables.Insert the RJ45 connector of the battery end(CAN/RS485) and the inverter end(CAN/RS485) into the interfaces on both sides.

Step 2:Turn on the battery and inverter and wait until they are working properly. The battery is configured by **factory default** to communicate with the **DEYE,Sunsynk, Luxpower,Sofar, TBB inverters (CAN Port)**,the battery will automatically select and communicate with one of these inverters.

Step 3:After successful communication between battery and inverter, battery status will be displayed on inverter: voltage,current,SOC, temperature, etc.

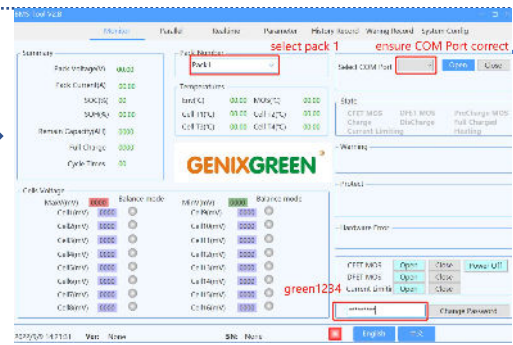
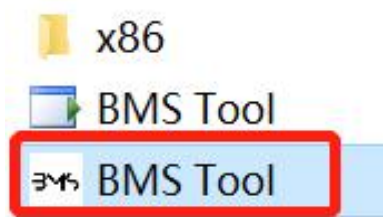
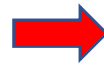
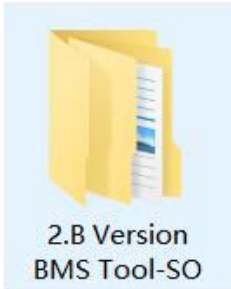
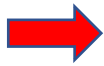
4.2 Method 2:Communicate optional inverters(protocol select)

When communicating with other brands of inverters,such as:Growatt,Solax,Goodwe,Sorotech,LTW,MUST,SMA,etc.

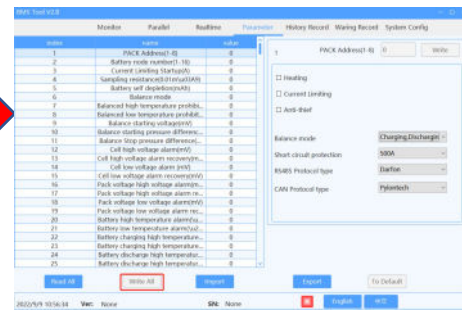
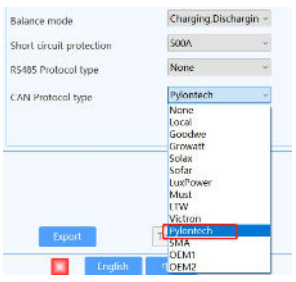
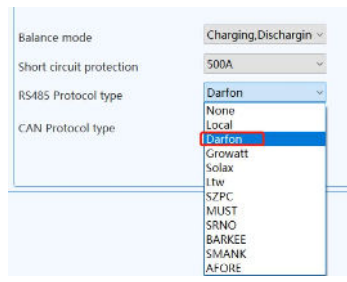
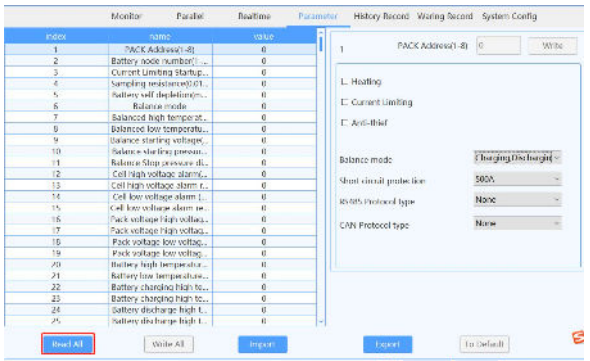
Step 1:Turn on the battery,ensure BMS is normally powered on and not in sleep state, the RS232 crystal head of the communication cable is inserted into the battery communication port, the USB end is inserted into the computer;

Step 2:Unzip the package of BMS monitoring software to the current computer(Windows Microsoft .NET Framework 2.0 or above). This software does not need to be installed independently, only the environment is satisfied, double-click the main program icon(BMS exe file) to run and use. Enter the **password:green1234** (space is green, the password is correct).

Step 3: Click “Parameter information”at the top of system page, click“Read”button to read battery parameter.Select the inverter protocol at “Protocol type”.Click the “Write”button to set the protocol,after the system displays the operation succeeds, protocol selection is complete(Please refer to the following pictures in page 5).



COM Port number is checkable through Resource Manager Interface



Please reset the battery, then the inverter to make the protocol selection take effect

Step 4: Select the cables used by the inverter by the label on the communication cables. Insert the RJ45 connector of the battery end(CAN/RS485) and the inverter end(CAN/RS485) into the interfaces on both sides. Restart the battery and inverter. The battery will automatically communicate with the inverter corresponding to the selected protocol.

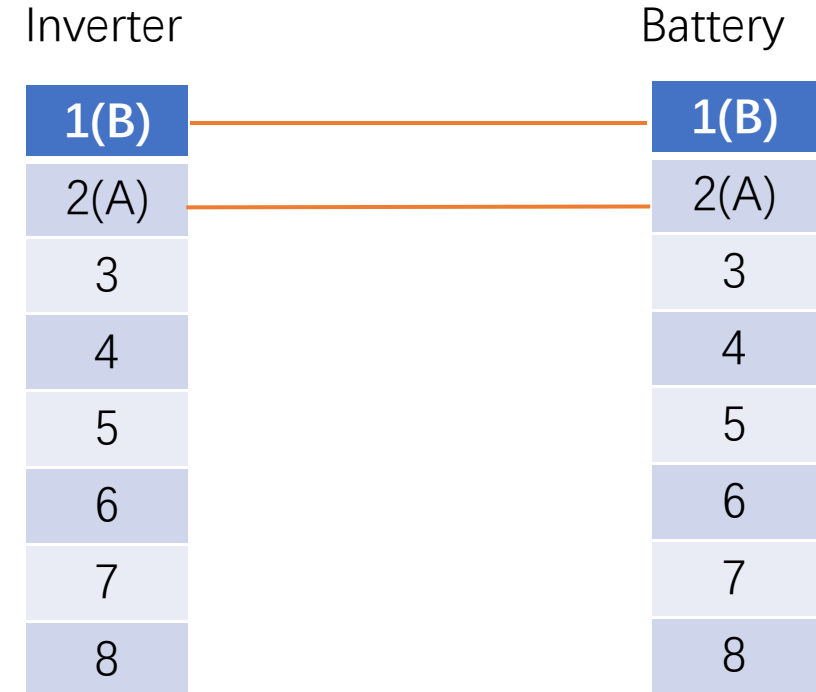
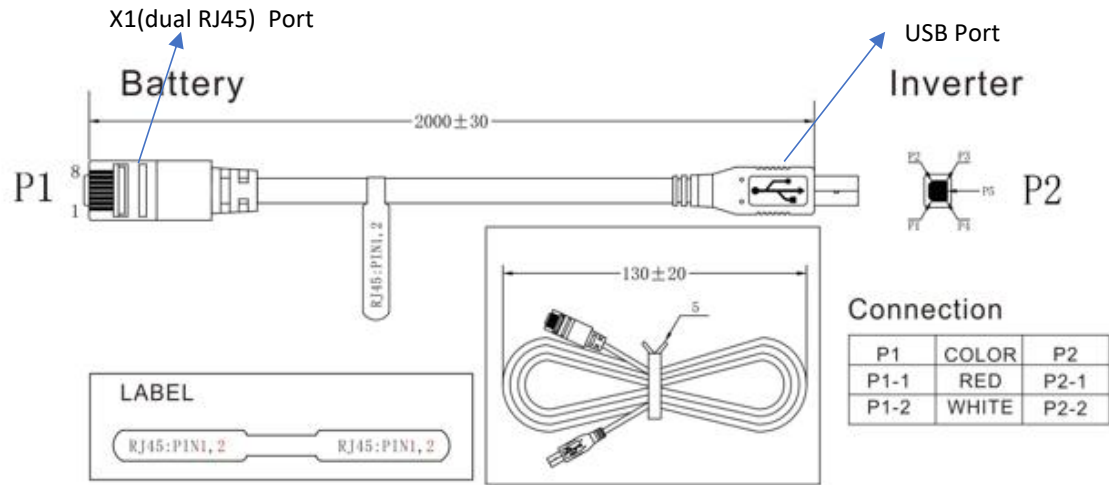
4.3 Remark of inverter protocol code

16S100A BMS Protocol

RS485 Protocol		
Protocol shorthand	Protocol name	Compatible protocol
Local	BMS potocol	
Darfon	Voltronic	MOTOMA/Opti_Solar/Victron
Growatt	Growatt	
SOLAX	Solax	
LTW	LT-POWER	
SMK	SMK	
PV3500	MUST	
SRNE	SRNE	PACE/EPEVER
Baykee	Baykee	

CAN Protocol		
Protocol shorthand	Protocol name	Compatible protocol
Local	BMS protocol	
GOODWE	Goodwe	SOLARFAM
Growatt	Growatt	
SOLAX	SOLAX	
PV1800F	MUST	
LTW	LT-POWER	
PYLONTECH	PYLONTECH	DEYE/TBB/LUXPower/SOFAR/Megarevo
SOROTEC	SOROTEC	Victron/SMA

5.SMK Inverter RS485 Communication Setting



Process of install:

Step 1. Use the RS485 Port communication cable to connect inverter and lithium battery .

Pls choose the corresponding RS485 inverter cable.

Step 2. Press the button to start lithium battery , power output ready .

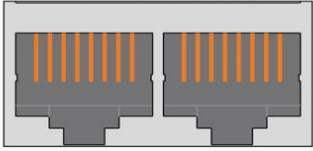
Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).

Step 4. Be sure to select inverter AC output mode:Single phase or parallel(Depends on user's actual connection).

And select work model type as "Lithium Model: LI4".If communication between the inverter and battery is successful, the inverter screen will show the battery system real-time status.

6.DEYE(SUNSYNK) Inverter CAN Communication Setting

A B
12345678 12345678



X1(dual RJ45) Port

Pin 4 Pin 5



Inverter (A)

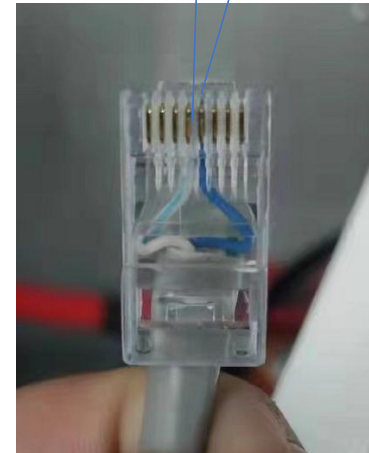
1
2
3
4(H)
5(L)
6
7
8

Battery (B)

1
2
3
4(H)
5(L)
6
7
8



Pin 4 Pin 5



Process of install:

Step 1. Use the CAN port communication cable to connect inverter and lithium battery .

Pls choose the corresponding CAN inverter cable.

Step 2. Press the button to start lithium battery , power output ready .

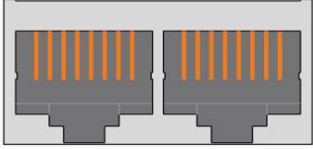
Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).

Step 4. Be sure to select inverter work model type as “Lithium Model: 00” on the inverter screen.

If communication between the inverter and battery is successful, the inverter screen will show the battery system real-time status.

7.Growatt Inverter CAN Communication Setting

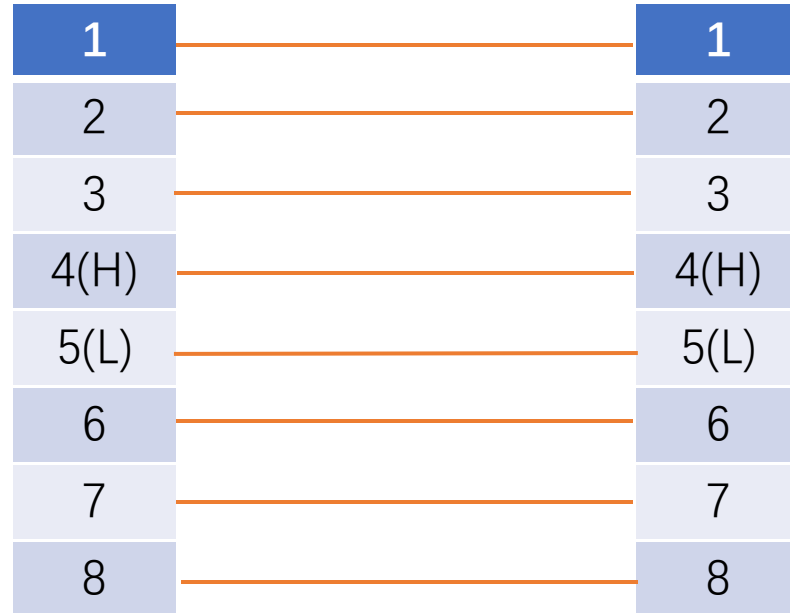
A B
12345678 12345678



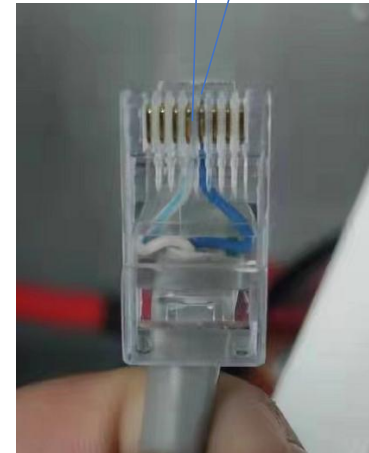
X1(dual RJ45) Port

Inverter (A)

Battery (B)



Pin 4 Pin 5



Process of install:

Step 1. Use the CAN communication cable to connect inverter and lithium battery .

Pls choose the corresponding CAN inverter cable.

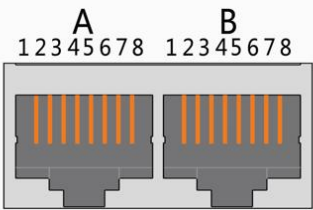
Step 2. Press the button to start lithium battery , power output ready .

Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).

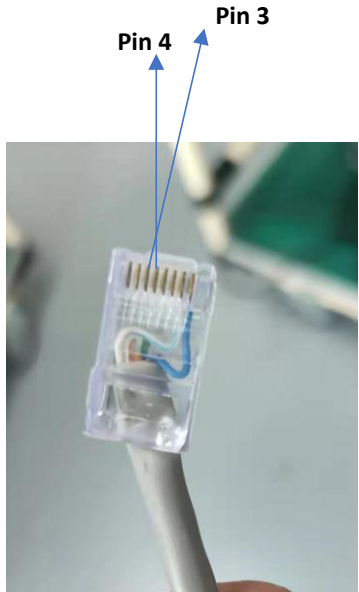
Step 4. To connect battery BMS, need to set the battery type as "LI" in Program 05.

After set "LI" in Program 05, it will switch to Program 36 to choose communication protocol, choose CAN communication protocol L51~L99.

8. Luxpower Inverter CAN Communication Setting



X1(dual RJ45) Port

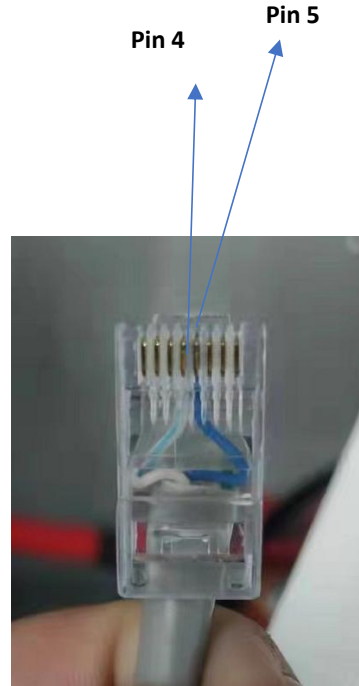
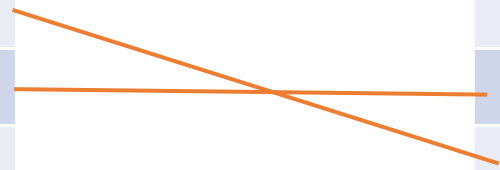


Inverter (A)

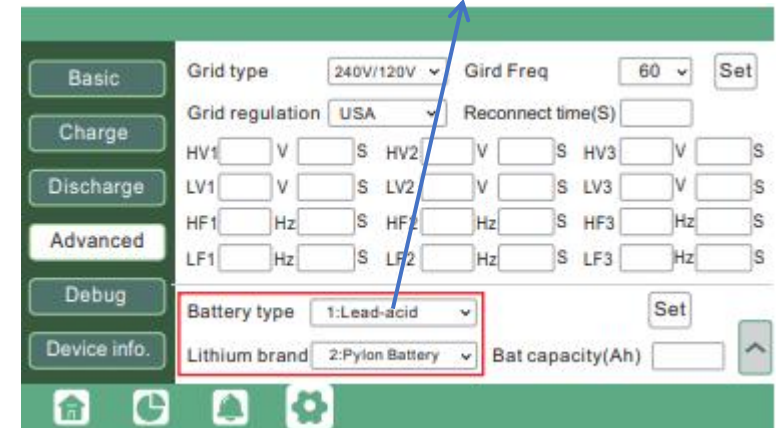
1
2
3(L)
4(H)
5
6
7
8

Battery (B)

1
2
3
4(H)
5(L)
6
7
8



Lithium Battery



Process of install:

Step 1. Use the CAN communication cable to connect inverter and lithium battery .

Pls choose the corresponding RS485 inverter cable.

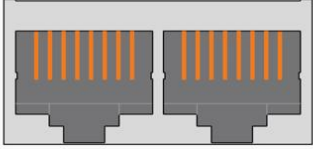
Step 2. Press the button to start lithium battery , power output ready .

Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).

Step 4. Enter Advanced setting and choose Battery type:**Lithium Battery** and choose Lithium brand: Pylon Battery.

9.Voltronic Inverter RS485 Communication Setting

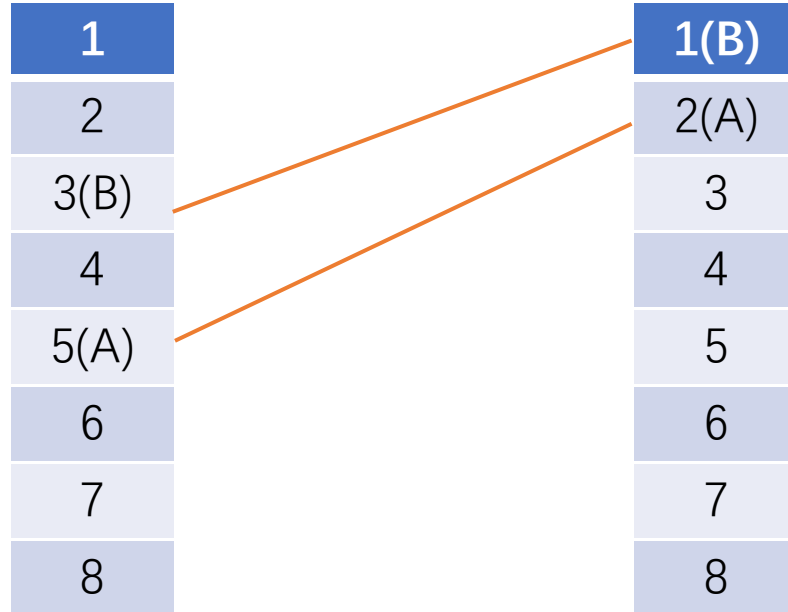
A B
12345678 12345678



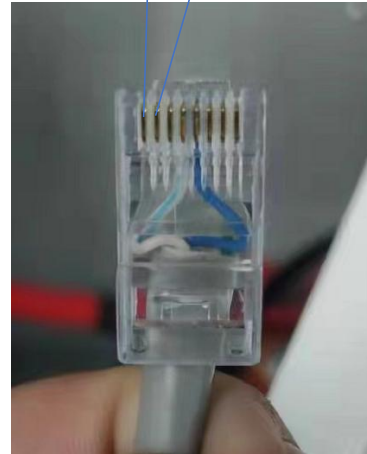
X1(dual RJ45) Port

Inverter (A)

Battery (B)



Pin 1
Pin 2



Pin 3
Pin 5



Process of install:

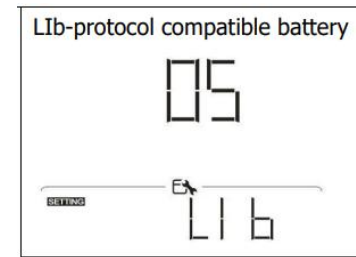
Step 1. Use the RS485 Port Communication cable to connect inverter and lithium battery .

Pls choose the corresponding RS485 inverter cable.

Step 2. Press the button to start lithium battery , power output ready .

Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).

Step 4. To connect battery BMS, **set the Master Inverter Battery Type:Lib(other inverters to be "use"if inverter paralleled)** ,After selected,Maximum charging current, Bulk charging voltage (C.V voltage), Floating charging voltage and Low DC cut off battery voltage setting will be automatically set up, no need for further setting.

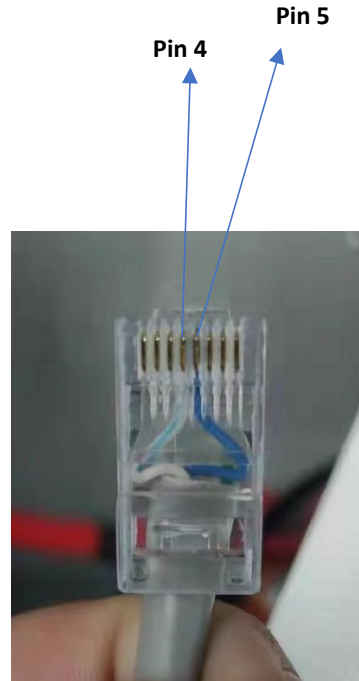
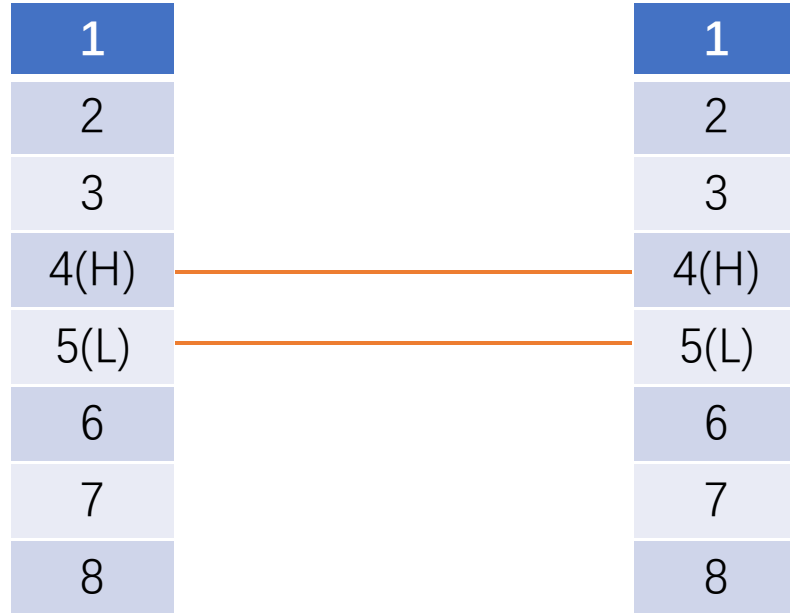


10.SMA Inverter CAN Communication Setting

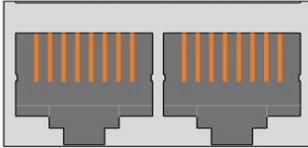
As below or use standard cables

Inverter (A)

Battery (B)



A 12345678 B 12345678



X1(dual RJ45) Port

Pin 4 Pin 5



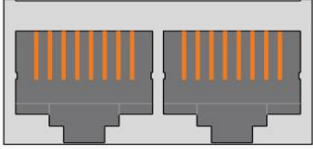
Process of install:

- Step 1. Use the CAN cable to connect inverter and lithium battery .
Pls choose the corresponding CAN inverter cable .
- Step 2. Press the button to start lithium battery , power output ready .
- Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).
- Step 4. Set the Battery configuration type as "Lithium-Ion" and set the battery capacity.
- Step 5. After all the steps are complete, users can scan the QR code on the inverter lid with the SMA Energy APP downloaded from mobile phone, and the real-time status of the whole system will be displayed in the APP.



11.SAKO Sunpolo Inverter RS485 Communication Setting

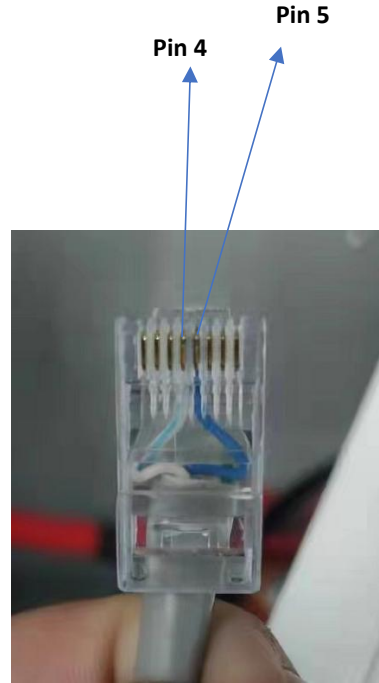
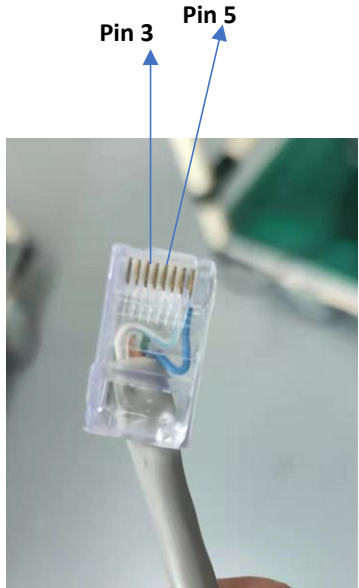
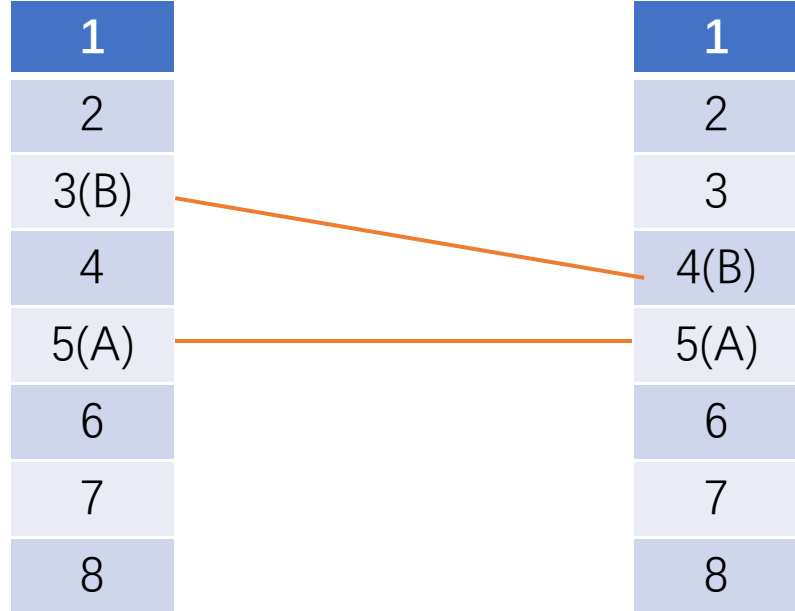
A 12345678 B 12345678



X1(dual RJ45) Port

Inverter (A)

Battery (B)



Process of install:

Step 1. Use the RS485 cable to connect inverter and lithium battery .

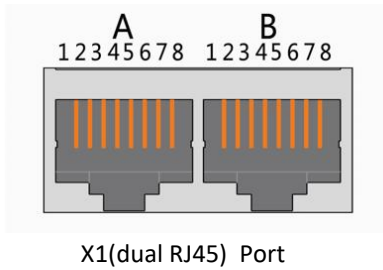
Pls choose the RS485 inverter cable with label, the corresponding inverter brand has been marked on the label.

Step 2. Press the button to start lithium battery , power output ready .

Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).

Step 4.To connect battery BMS, need to set the battery type:**Lib battery**.After selected,Maximum charging current, Bulk charging voltage (C.V voltage), Floating charging voltage and Low DC cut off battery voltage setting will be automatically set up, no need for further setting.

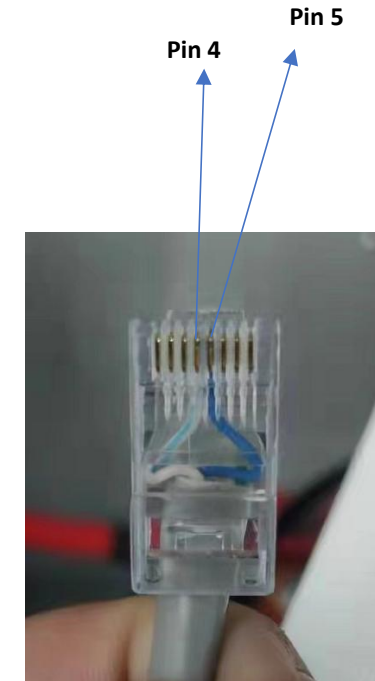
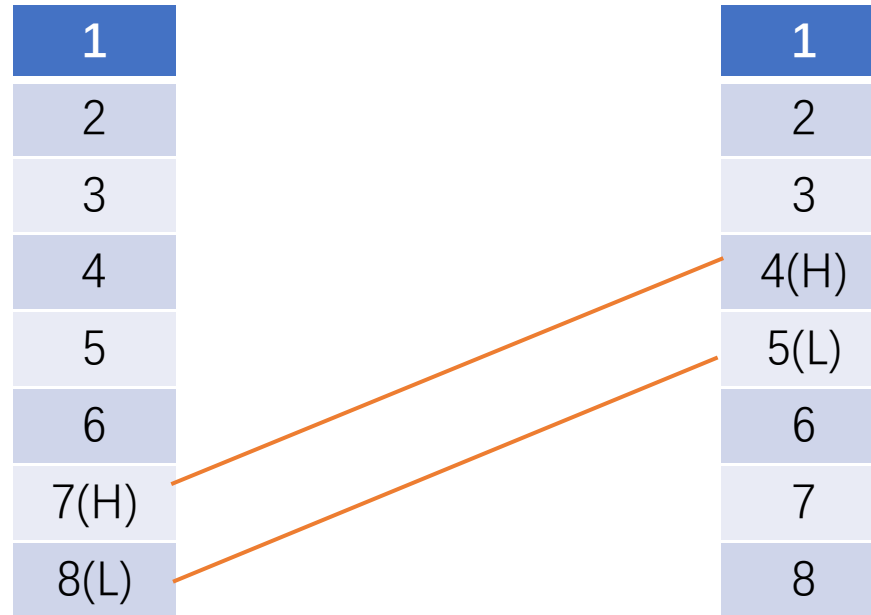
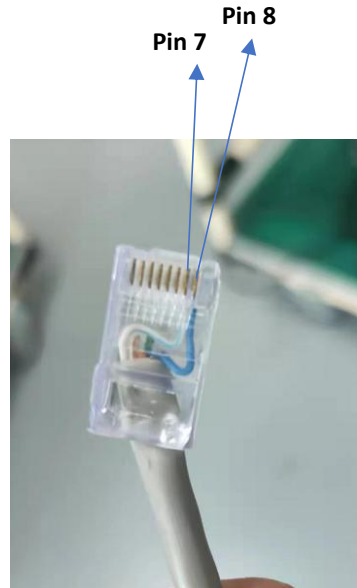
<p>Lib-protocol compatible battery</p>	<p>Select "LIB" if using Lithium battery compatible to Lib protocol. If selected, programs of 11, 17, 18 and 19 will be automatically set up. No need for further setting.</p>
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12.Victron Inverter CAN Communication Setting

Inverter Side A

Battery Side B



Process of install:

Step 1. Use the CAN communication cable to connect inverter and lithium battery .

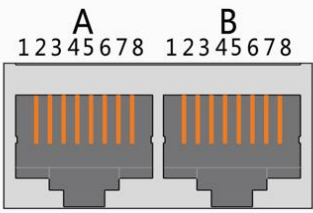
Pls choose the corresponding CAN inverter cable.

Step 2. Press the button to start lithium battery , power output ready .

Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).

Step 4. To connect battery BMS

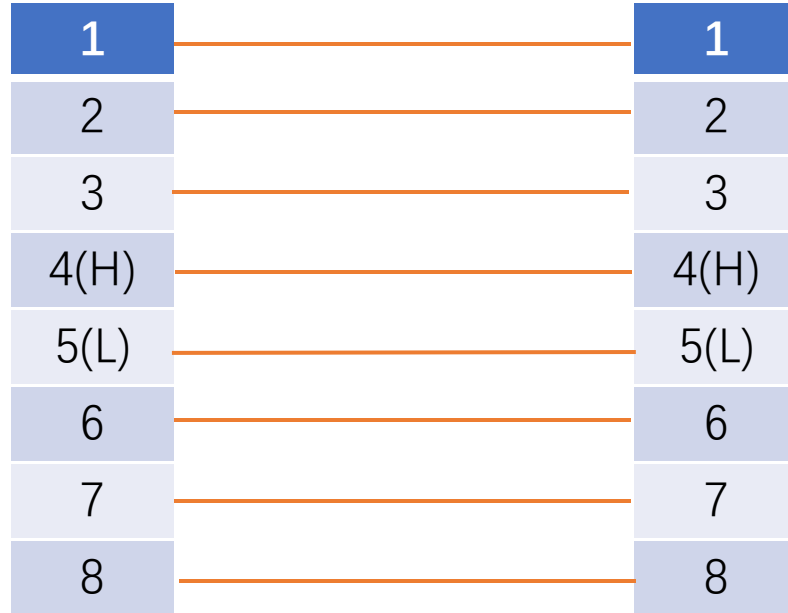
13.TBB Inverter CAN Communication Setting



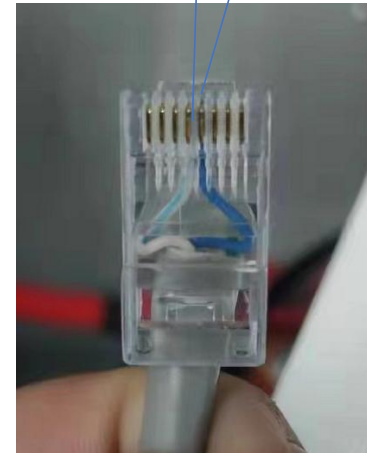
X1(dual RJ45) Port

Inverter (A)

Battery (B)



Pin 4 Pin 5



Process of install:

Step 1. Use the CAN communication cable to connect inverter and lithium battery .

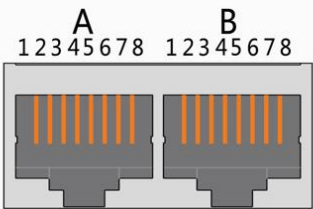
Pls choose the corresponding CAN inverter cable.

Step 2. Press the button to start lithium battery , power output ready .

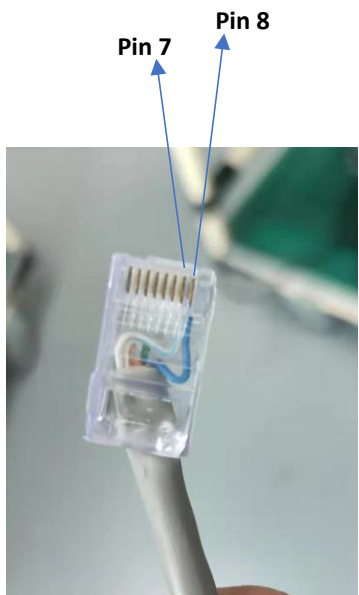
Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).

Step 4. To connect battery BMS

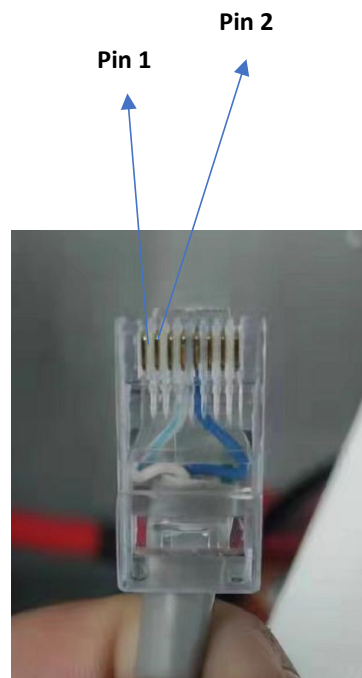
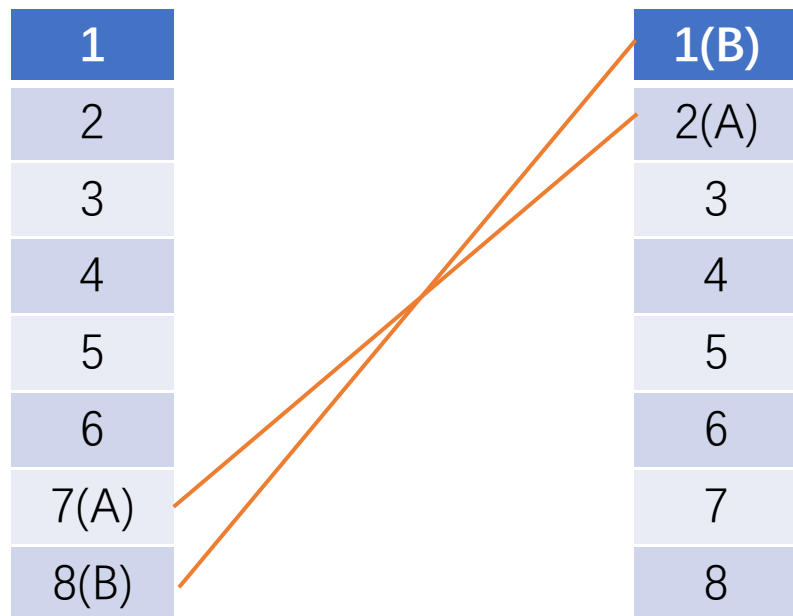
14.SRNE Inverter RS485 Communication Setting



X1(dual RJ45) Port



Inverter (A) Battery (B)



Process of install:

Step 1. Use the CAN communication cable to connect inverter and lithium battery .

Pls choose the corresponding CAN inverter cable.

Step 2. Press the button to start lithium battery , power output ready .

Step 3. Turn on the inverter (**Warning: Turn on the battery first and then the inverter**).

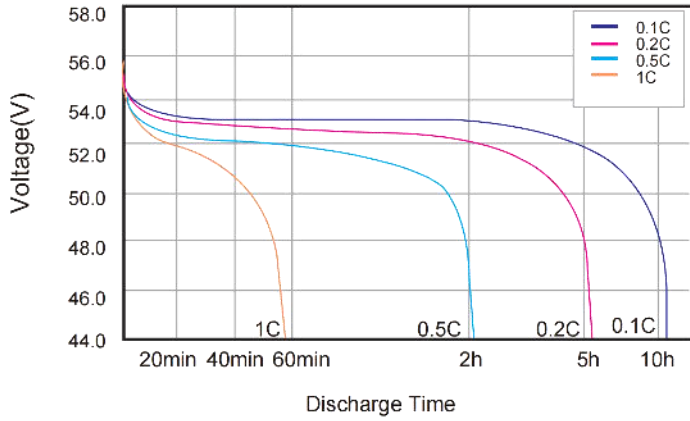
Step 4. To connect battery BMS

Inverter Voltage Setting Reference

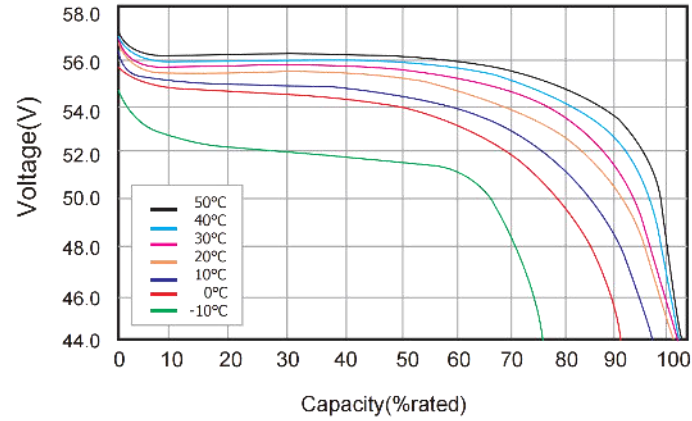
Inverter Voltage Setting	16S 51.2V setting	15S 48V setting	Remark
Bulk Charging Voltage	55.2V-56.8V	52.5V--54.0V	It's just for reference,you can modify it according to the different situations
Float Voltage	52.8V-54.4V	49.5V-51.0V	
Cut-off Voltage	44.0V--45.6V	41.3-42.8V	

● Different current/Temperature Discharge curves

Different Rate Discharge Curve @25°C

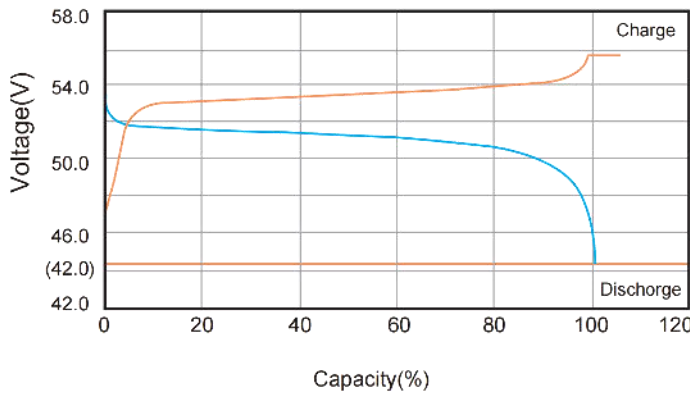


Different Temperature Discharge Curve @0.5C

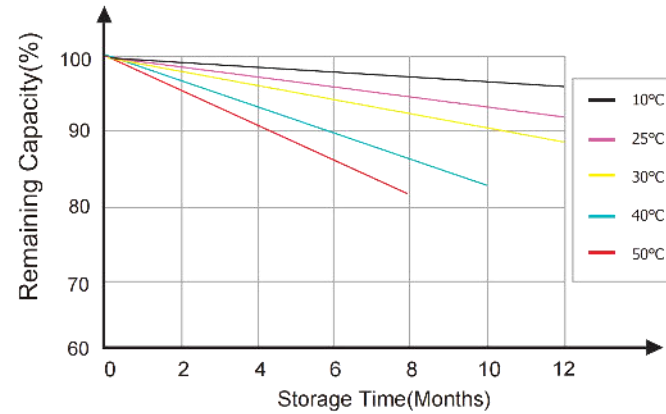


● Charging and Discharge curve

Charge and Discharge at 25°C, 0.5C

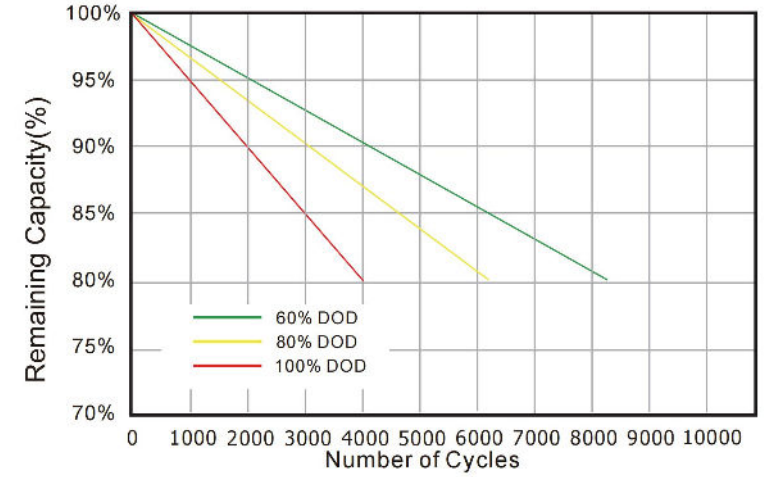


Different Temperature Self Discharge Curve



● Cycle Life Curve

Different Discharge Depth Life Curves & 25°C, 0.5C



Different Discharge Depth Life Curves & 40°C, 0.5C

