

QIG of Energy Storage System

I. Product Introduction

From the perspective of structure, the product consists of 4 parts, including **inverter, battery cabinet, Ethernet module (DTU) and wiring harness**. The product can be used for allocating energy reasonably and intelligently to photovoltaic, battery, household load and power grid based on users' needs to not only guarantee energies for users conveniently and efficiently but also reduce their economic costs. Inverters have 5 versions in total to meet the requirements of different application scenarios: 5KW, 6KW, 8KW, 10KW, and 12KW.

II. Attentions

- After unpacking, check whether there is any obvious surface damage and the “ON/OFF” switch of the battery box is at “off” position.
- Carry or take the device out of the packing box by avoiding knocking or dropping to avoid any internal damage, which will influence its functioning.
- Check the anode and cathode inside battery box after installation in order to ensure correct connection.
- User is suggested to recheck the whole system after installation. In particular, check the anode and cathode of power lines between the battery boxes, the inverter and battery cabinet, and the battery cabinets. Do not turn on the power supply to battery box prior to recheck.
- The following graphic tools are for reference only. The same effect shall prevail.
- It is prohibited for the non-professional personnel to install, maintain or use the battery system out of prescribed scope.
- All the connectors shall be safe and reliable; it shall be ensured that there are no loosening, virtual contact problems. The connectors shall have corrosion and wear-resistant and anti-seismic functions.
- The battery shall be charged to 50% ~ 60% every six months during the long-term storage.
- The scrapped products shall be immediately recycled by the designated qualified manufacturers. It is strictly forbidden to discard them carelessly; otherwise, it may lead to safety accidents or seriously pollute the environment.
- If the product cannot be used normally due to faults, please eliminate the faults according to the instructions for use of the product, or consult the after-sales personnel for troubleshooting. It is strictly forbidden to disassemble the product if you do not have relevant skills, to avoid personal safety accidents.

III. Accessories

- 4 battery cabinets configured, which are used for protecting and fixing battery box.
- 16 battery boxes are configured, which are used for storing and releasing electricity.
- A plurality of wiring harnesses, which are used for connecting the battery boxes in parallel in the battery cabinets and connecting to the communication network and have been stored in the battery cabinets. The system harnesses shall be installed according to

the requirements of the table below.

Type No. of harness	Name	Specification	Remark
1	Power line	16mm ² , length: 250mm, orange. One end is OT terminal, and the other end is energy storage plug-in	Connect battery box to copper bar
2	Power line	16mm ² , length: 250mm, black. One end is OT terminal, and the other end is energy storage plug-in	
3	Network cable	24AWG, length: 250mm; two ends are crystal heads	Connect battery box to communication interface of battery box
4	Network cable	24AWG, length: 1,200mm; two ends are crystal heads	Battery box to battery cabinet; DTU to battery cabinet; battery cabinet to PCS
5	Grounding line	6mm ² , length: 100mm; two ends are OT terminals	Connect battery box to battery cabinet
6	Network cable	24AWG, length: 400mm; two ends are crystal heads	Battery box and communication interface of battery cabinet
7	Power line	50mm ² , length: 2,200mm, orange; two ends are OT terminals	Parallel connection between battery cabinets; battery cabinet to PCS
8	Power line	50mm ² , length: 2,200mm, black; two ends are OT terminals	
9	Network cable	24AWG, length: 2,200mm; two ends are crystal heads	Parallel connection between battery cabinets
10	Power line	70mm ² , length: 2,200mm, orange; two ends are OT terminals	Battery cabinet to PCS
11	Power line	70mm ² , length: 2,200mm, black; two ends are OT terminals	
12	Power line	1,200mm, one end is OT terminal, and the other is plug-in	DTU to copper bar
13	Network cable	24AWG, length: 1,200mm; one end is crystal head, and the other end is terminal block	One divided into two adapter plug used to DTU and battery cabinet

- A certain number of connecting wiring harnesses are configured, which are used for parallel connection of battery boxes in the battery cabinet and communication network

connection. They have been fitted inside battery cabinet.

- Hangers are L-shaped part which is used for connecting battery box and battery cabinet

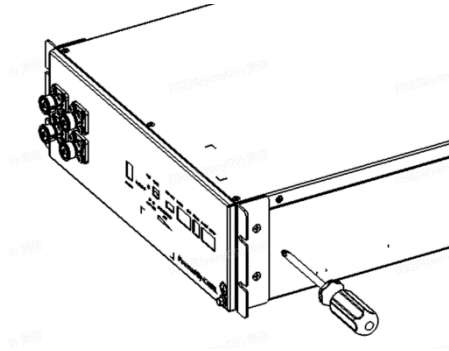
IV. installation Steps

Step 1: Unpack both battery box and battery cabinet, confirm the “ON/OFF” switch of the battery box is at “off” position, and the “RUN” indicator is off. User is suggested to arrange battery cabinets in sequence in order to facilitate installation.

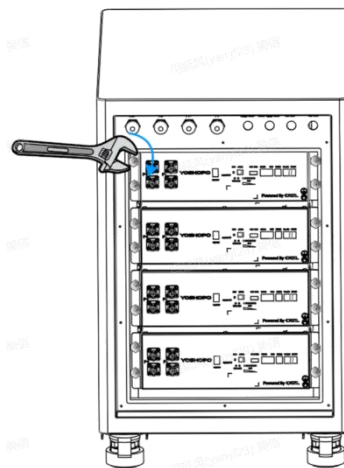
Step 2: Install battery box and connect wiring harness. Install the battery box, DTU, and ground cables in the four battery cabinets as per the following sequence.

Battery box installation:

1. Each battery box is equipped with two hangers, and fix the hangers via four cross recessed countersunk head screws (M5x10) on the battery box and used according to the figure below.



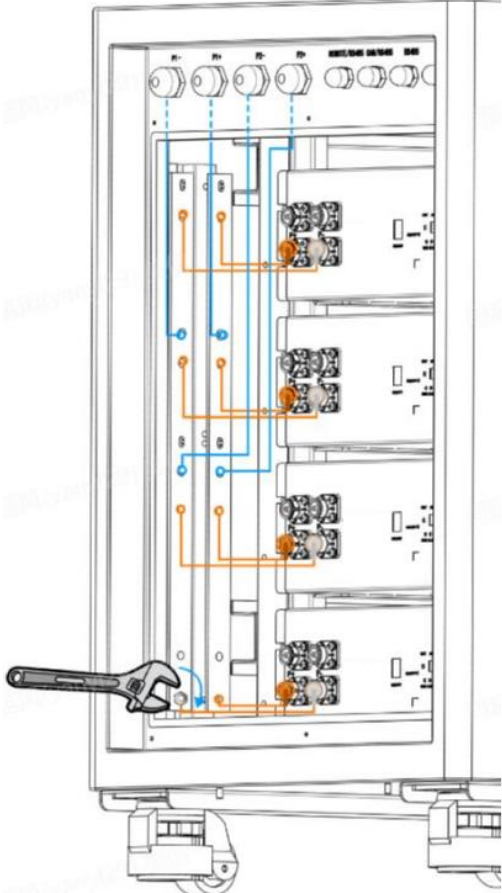
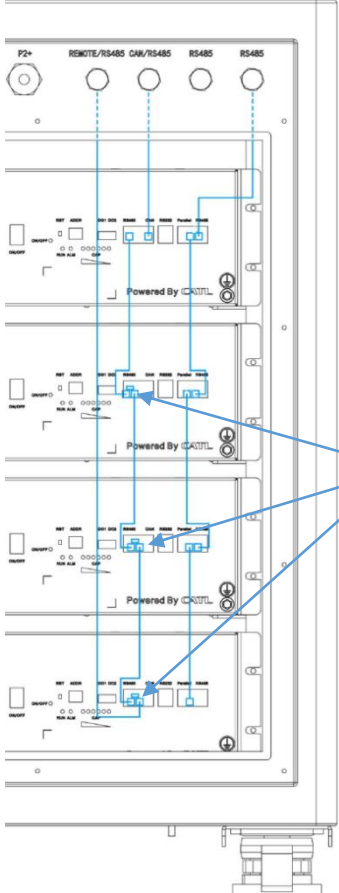
2. Install the battery box into the four battery cabinets, as shown in the figure below. Fix the four cross recessed pan head triple combination screws (M5x14) in each battery box via tools.



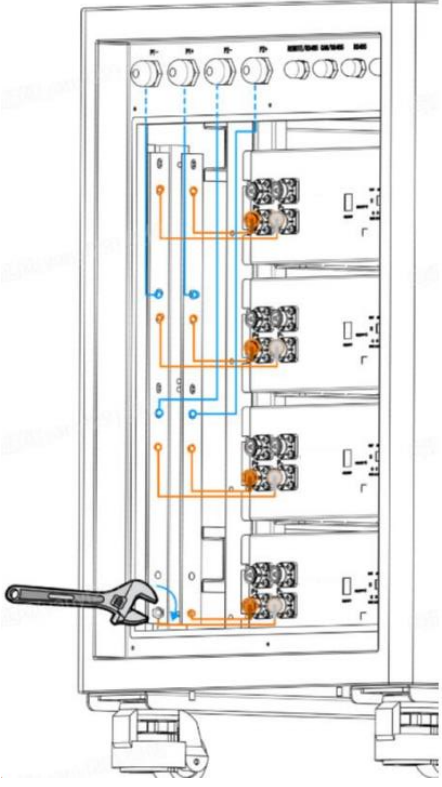
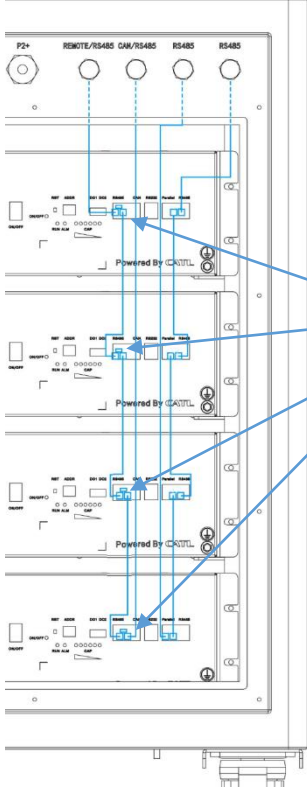
Installation of wiring harness of battery box:

There are three types of cable harnesses available in the battery cabinet. Connect cable harnesses according to the following battery cabinet numbers, based on which, the system will be connected.

Battery cabinet 1 Install power cables and communication cables as per the following figure:

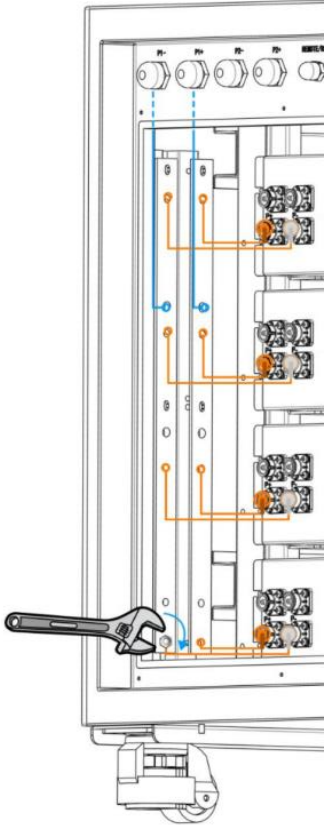
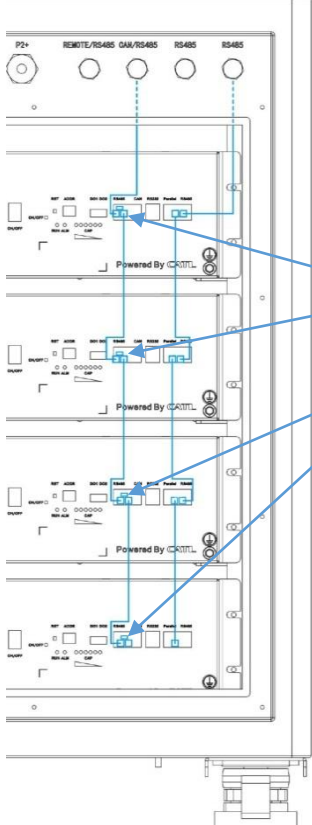
		The arrow refers to 3 one-to-two network interface plugs. Install them as per the figure.
Connect the plug-in end of power cable to the socket of corresponding color and fix the OT terminal and copper bar via eight hexagon triple combination screws (M8x20) on the other end. Connect one end to the cable gland of the battery cabinet via P2+, P2-, P1+ and P1- interfaces, and fix the OT terminal via four hexagon triple combination screws (M10x20) on the other end Use No.1 wiring harnesses (four), No. 2 wiring harnesses (four), and No. 7/8/10/11 wiring harnesses.	Connect communication cable / via a wiring harness with a crystal head as shown above. Use No. 3 wiring harnesses (six) , No. 4 wiring harnesses (one), and No. 6 wiring harnesses (two)	

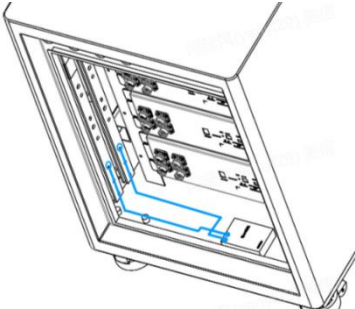
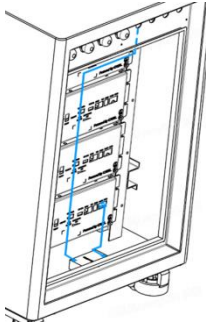
Power cable and communication cable should be installed for battery cabinets 2 and 3 as per the following figure:

		The arrow refers to 4 one-to-two network interface plugs. Install them as per the figure.
Connect the plug-in end of power cable to the socket of corresponding color, and fix the OT terminal and copper bar via eight hexagon triple combination screws (M8X20) on the other end. Connect one end to the cable gland of the battery cabinet via P2+, P2-, P1+ and P1- interfaces, and fix the OT terminal via four hexagon triple combination screws (10x20) with the copper bar. Use No. 1 wiring harnesses (four), No. 2 wiring harnesses (four), and No. 7/8 wiring harnesses.	Connect communication cable via a wiring harness with a crystal head as shown above. Use No. 3 wiring harnesses (six), No. 4 wiring harnesses (two), and No. 6 wiring harnesses (two)	/

Power cables, communication cables and DTU should be installed for battery cabinet 4 as per the following figure:

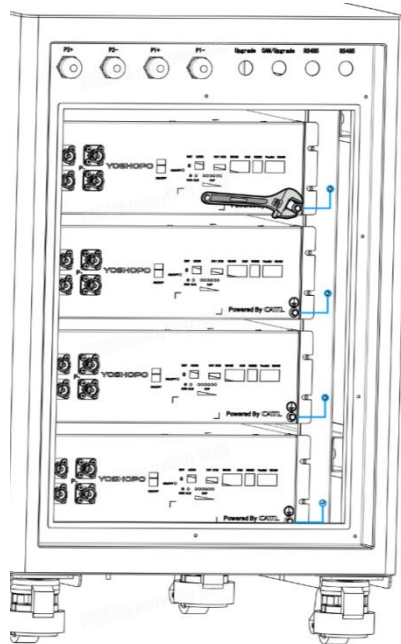
Installation of power cables and communication cables

		The arrow refers to 3 one-to-two network interface plugs. Install them as per the figure.
The plug-in end of power cable is connected with the socket of corresponding color, and fix OT terminal and copper bar via eight hexagon triple combination screws (M8X20) on the other end. Connect one end to the cable gland of the battery cabinet via P2+, P2-, P1+ and P1- interfaces, and fix the OT terminal via four hexagon triple combination screws (10x20) with the copper bar. Use No. 1 wiring harnesses (four), No. 2 wiring harnesses (four), and No. 7/8 wiring harnesses.	Connect communication cable via a wiring harness with a crystal head as shown above. Use No. 3 wiring harnesses (six) and No. 6 wiring harnesses (two)	/
DTU Installation		

		Take out of the DTU and the required wiring harness attached
Connect DTU with box via two hexagon nuts with flange (M5), and fix the positive and negative wiring harnesses of the DC interface with the copper bar via two cross recessed pan head triple combination screws (M5x14). Use No. 12 wiring harness (one)	Connect wiring harnesses of RS485/422 and 10/100M interfaces based on the diagram Use No. 4/13 wiring harness (one for each)	/

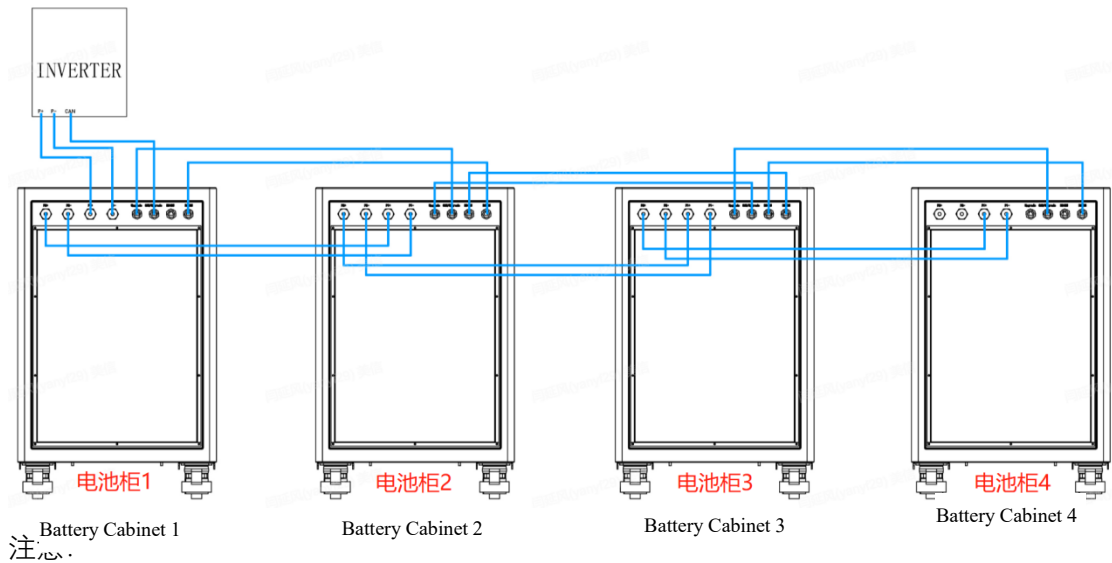
Connection of ground wire of battery box:

Connect ground cables and all battery boxes as per the following figure, and fix both ends with hexagonal flange bolts (M6X12). Use No. 5 wiring harnesses (four).



Step 3: Install external wiring harness

1. Install the wiring harness between battery cabinets and inverters as per the following figure.

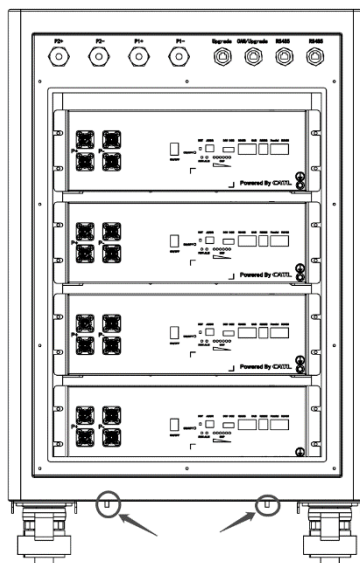


Note:

- Use a 70mm² cable harness to connect ports P1+ and P1- for connecting battery cabinet 1 and inverter and 50mm² cable harness for connecting P1+, P1-, P2+, and P2-. No. 7/8/10/11 wiring harnesses are used.
- Connect standard wiring harnesses between the battery cabinet and inverter. If the wiring harnesses are not suitable, please manufacture wiring harness according to the site conditions. No. 4/10/11 wiring harness (one for each) are used.
- Use 1, 2 and 4, or 1, 3 and 4 if three battery cabinets will be used or 1 and 4 if two battery cabinets are used; If only one battery cabinet is used then battery cabinet 4 should be used
- Connect the battery cabinets via 50mm² power lines and network cables, that is, No. 9 wiring harnesses (two) and No. 7/8 wiring harnesses (one for each).

2、Install the wiring harnesses at the ground points of the battery cabinets according to the following requirements.

Because site installation locations, environments and ground bar locations are different, wiring harnesses conforming to laws and regulations at the ground points shall be connected by the installer according to the site conditions. Two ground studs (M6) (hexagon nuts with flange matching M6) are reserved at the bottom of the battery cabinet as shown in the figure below.



Step 4: Set battery box address

Set DIP switch address and DIP switch for battery cabinets 1-4 based on the following serial numbers

		DIP Switch Settings			
Battery cabinet 1	Battery box 1	0	0	0	1
	Battery box 2	0	0	1	0
	Battery box 3	0	0	1	1
	Battery box 4	0	1	0	0
Battery cabinet 2	Battery box 1	0	1	0	1
	Battery box 2	0	1	1	0
	Battery box 3	0	1	1	1
	Battery box 4	1	0	0	0
Battery cabinet 3	Battery box 1	1	0	0	1
	Battery box 2	1	0	1	0
	Battery box 3	1	0	1	1
	Battery box 4	1	1	0	0
Battery cabinet 4	Battery box 1	1	1	0	1
	Battery box 2	1	1	1	0
	Battery box 3	1	1	1	1
	Battery box 4	0	0	0	0

Note:

All addresses must be unique. Otherwise, function faults of the system may occur.

Step 5: Check the connection of wiring harness and turn on the switch of battery box

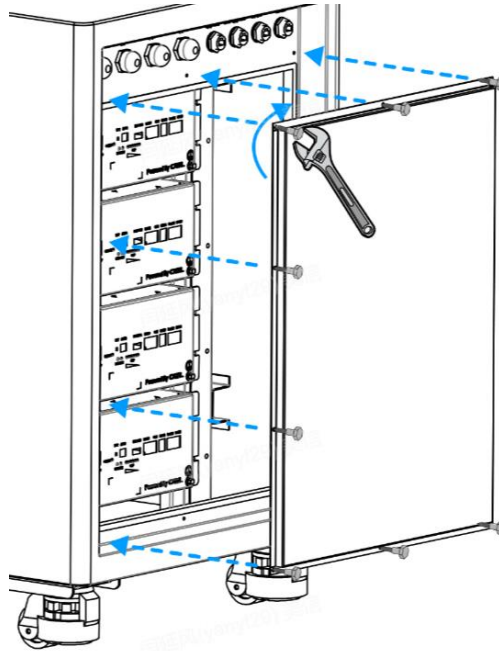
Check whether all wiring harnesses are consistent with the installation instructions. After anode and cathode of the battery box and battery cabinet are connected, turn on the “ON/OFF” switch of each battery box in turn. The “RUN” indicator will turn green, indicating

that the battery box is running normally.

Check whether the inverter works normally according to the User Manual of Inverter. If the inverter does not work or an alarm occurs, turn off the “ON/OFF” switch of all battery boxes for troubleshooting before confirming fault.

Step 6: Install operation window cover plate of the battery box

After the system runs normally, install the operation window cover plate of battery cabinet according to the figure, tighten it with ten cross-recessed pan head bolts (M4x10), and lock the roller at the bottom of the battery cabinet.



The above is the entire installation step for energy storage system. For any problem while using the device, please feel free to contact our after-sales staff in time. Thank you for your using and wish you a happy life!