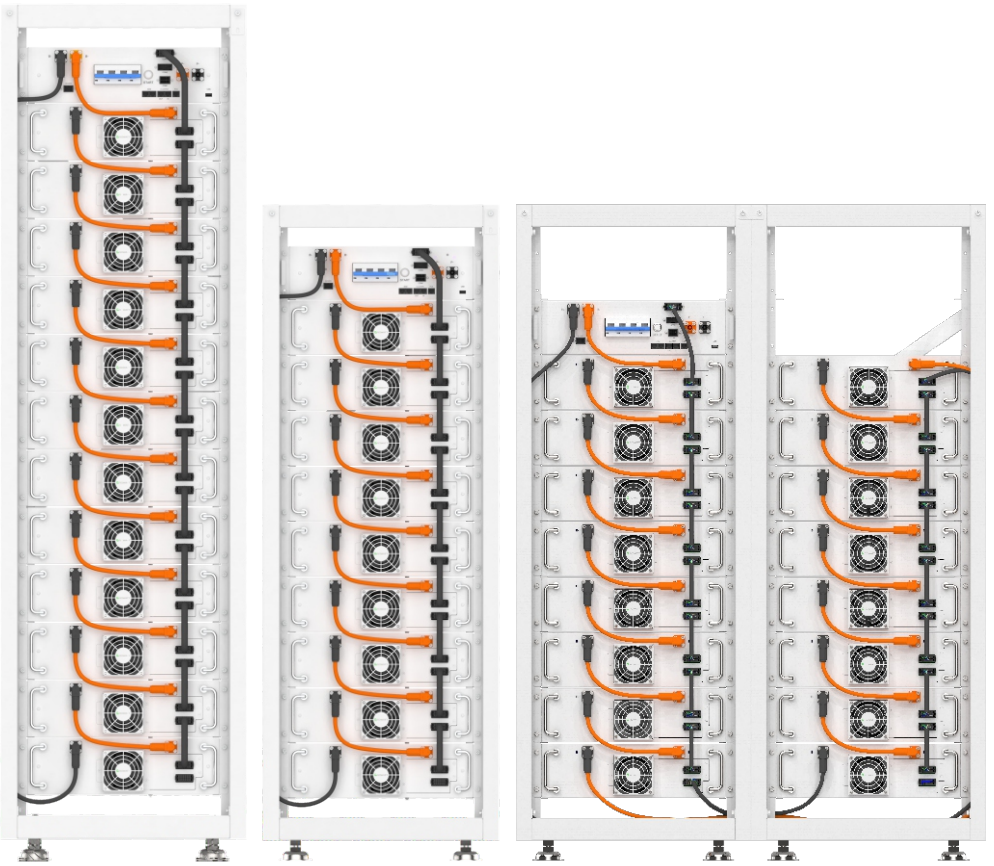
AXE 15.0~80.0H-1HR-E1
Quick Guide



Shenzhen Growatt New Energy Co., Ltd

Installation environment

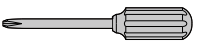
Max.+50℃

Min.-10℃

RH+5%~+95%

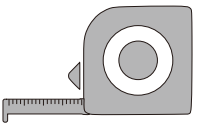
Installation tools

Knife



Cross-head screwdriver

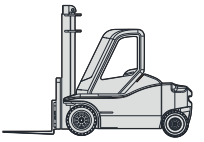
Wrench



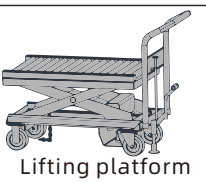
Measuring tape

Electric screwdriver

Level



Forklift



Lifting platform

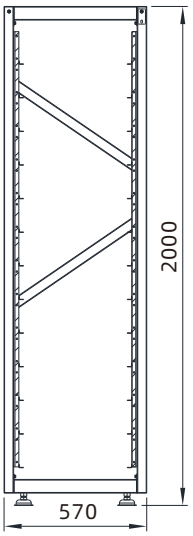
Appearance & Dimensions

AXE battery rack comes in two version. The standard version has 13 tiers, supports up to 12 battery modules; the smaller version has 10 tiers, supports up to 9 battery modules.

Unit: mm

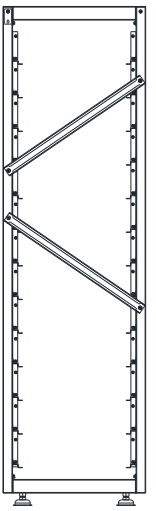
Standard version

Front view



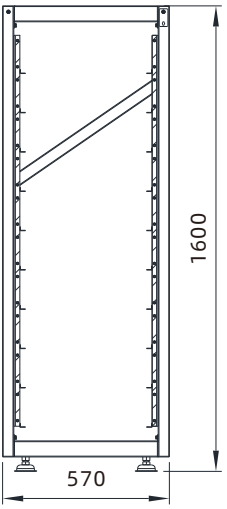
Side view

Rear view

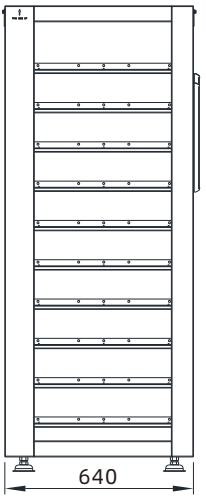


Smaller version

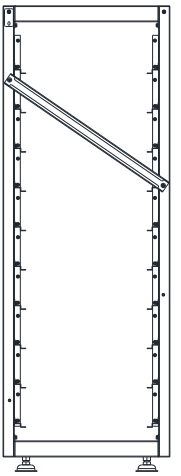
Front view



Side view

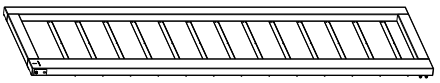


Rear view



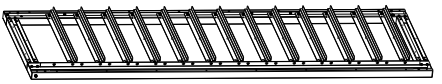
1.Checking before installation

1-1 Introduction to the rack components



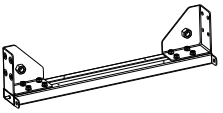
Right frame

A



Left frame

B

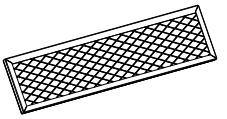


Horizontal frame

C

Diagonal support

D



Dust-proof net

E

Foot mount

F

M6*16 screw

G

Quick installation guide

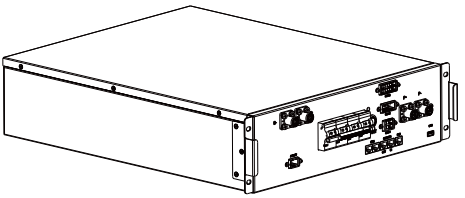
H

Ground terminal

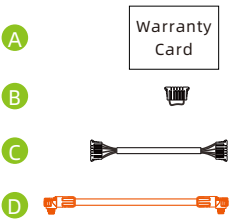
I

Version	Composition
Standard	A+B+4*C+2*D+12*E+4*F+95*G+1*H+2*I
Smaller	A+B+4*C+1*D+9*E+4*F+80*G+1*H+2*I

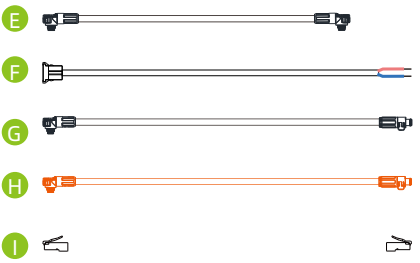
1-2 Checking the package of high voltage box



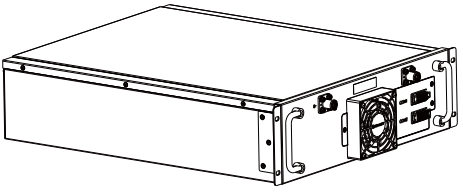
High voltage box (CM)



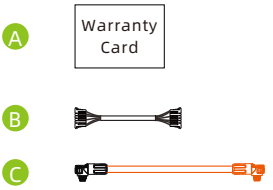
- A Warranty Card
- B Short-circuit connector cap
- C COM1-COM3 communication cable
- D BM-CM positive power cable
- E BM-CM negative power cable
- F BMS-AC cable
- G PCS-CM negative power cable
- H PCS-CM positive power cable
- I RJ45 Network cable



1-3 Checking the package of battery module



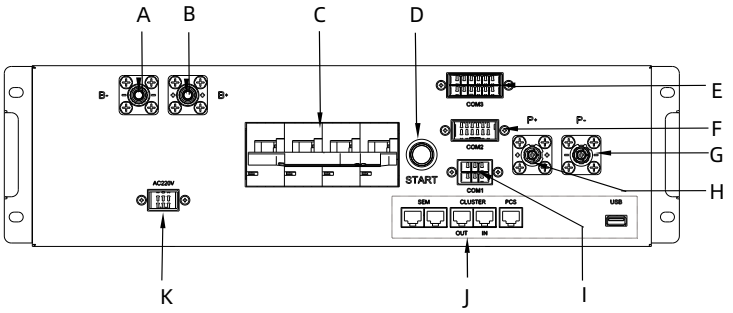
Battery module (BM)



- A Warranty Card
- B COM1-COM2 communication cable
- C BM series power cable

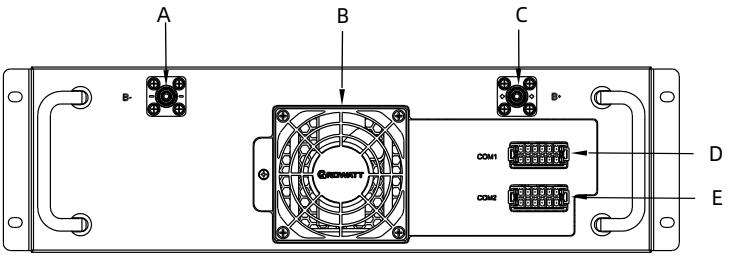
2.Component description

2-1 Introduction to the panel of the high voltage box



Position	Item	Description
A	BAT- power terminal	Connected to the negative power terminal of the battery cluster
B	BAT+ power terminal	Connected to the positive power terminal of the battery cluster
C	Circuit breaker	To control the battery output
D	Start button	To power on/off the energy storage system
E	COM3 communication terminal	Connected to the communication port of the battery pack's BM board and the 24V power supply port
F	COM2 communication terminal	Connected to panel indicators, tripping control board and emergency stop switch, etc.
G	PCS-power output terminal	Connected to the negative terminal on the DC side of the PCS
H	PCS+ power output terminal	Connected to the positive terminal on the DC side of the PCS
I	COM1 communication terminal	Connected to the RS485 communication port and the 24V power supply port of the EM (Environmental Monitor) board
J	Common wiring terminals	Connected to communication terminals of PCS, SEM and USB
K	Power supply port	Auxiliary AC 220V power input

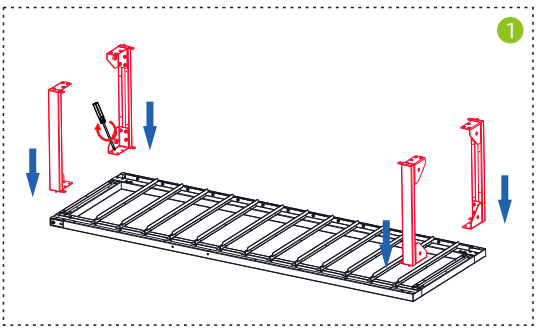
2-2 Introduction to the panel of the battery pack

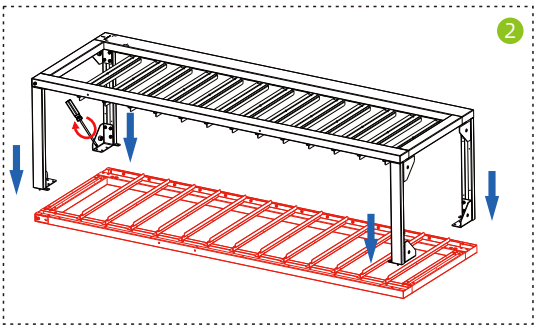


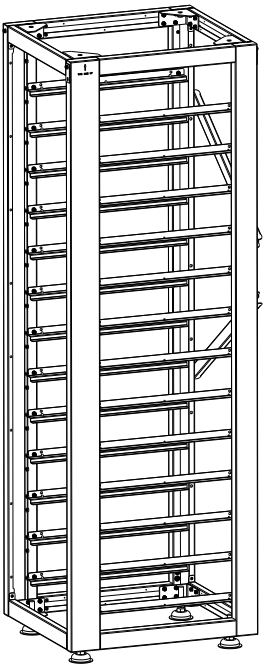
Position	Item	Description
A	Negative battery pack terminal	Negative battery pack connector
B	Cooling fan	For battery heat dissipation
C	Positive battery pack terminal	Positive battery pack connector
D	COM1 communication terminal	For communication between battery packs, and power supply
E	COM2 communication terminal	For communication between battery packs, and power supply

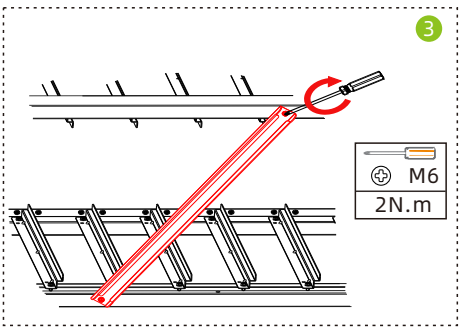
3. Installation

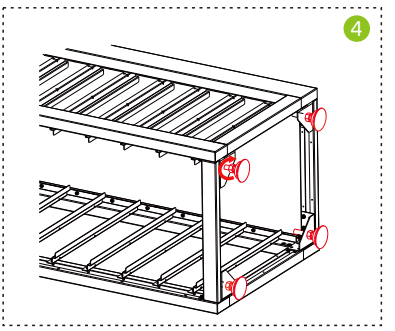
3-1 Installation of the rack

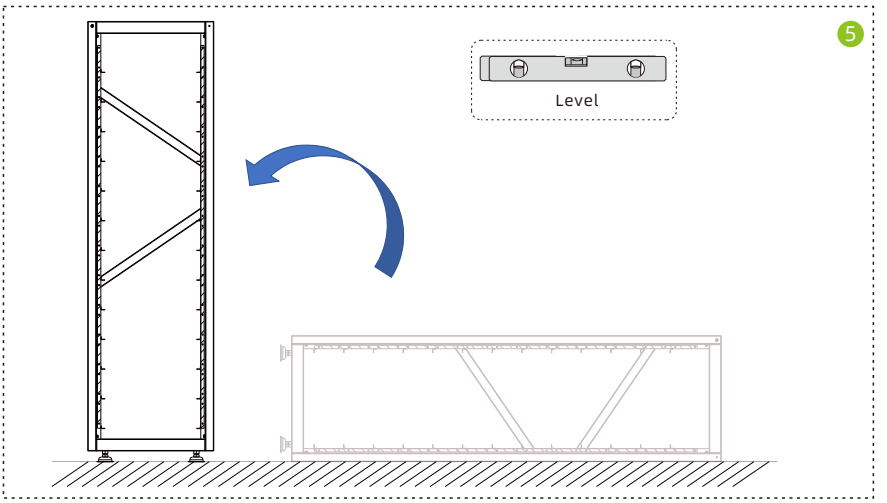








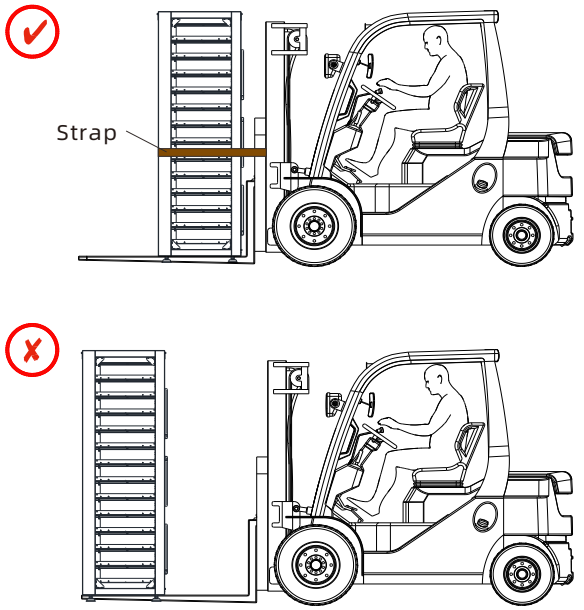




1. Assemble the right frame, left frame and 4 horizontal frames to form a rectangular support rack.
2. Secure the horizontal frames to the left and right frames using the M6 combination screws.
3. Attach the two diagonal supports to the rear of the rectangular rack using the M6 combination screws.
4. Rotate the four foot mounts to the bottom of the rack and tighten them with a wrench or by hand. Upon completion of installation, stand the rack upright.
5. Stand the rack up and adjust the foot mount to ensure the rack is level.

3-2 Transportation of the rack

When moving the equipment with a forklift, secure it properly according to the actual situation to avoid tip-overs.Note: Forklifts cannot transport racks with batteries installed.



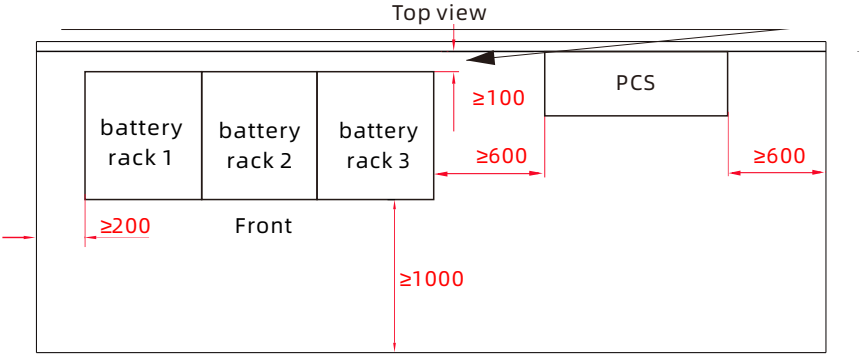
3-3 Installation of environmental requirements

The battery system is necessary to be installed in closed rooms at least 14km offshore, or closed rooms with air conditioning 5-14km offshore. The battery energy storage system may only be installed and operated in closed rooms, and works in an ambient temperature range of -10°C to 50°C and at a maximum humidity of 95%. The battery rack may not be exposed to direct sunlight or placed directly beside sources of heat.
① The clearance requirements of the AXE 15.0H-60.0H-1HR are shown below. Take the installation of three battery racks connected with the PCS (WIT 29.9-50K-XHU) as an example.

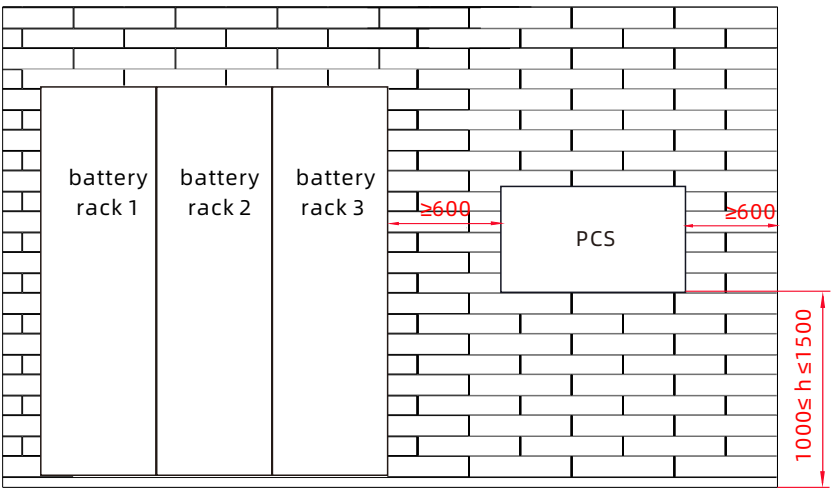
Unit: mm

For dust-proof net's maintenance accessibility , the clearance between the battery rack and wall surface can be increased appropriately.

Top view



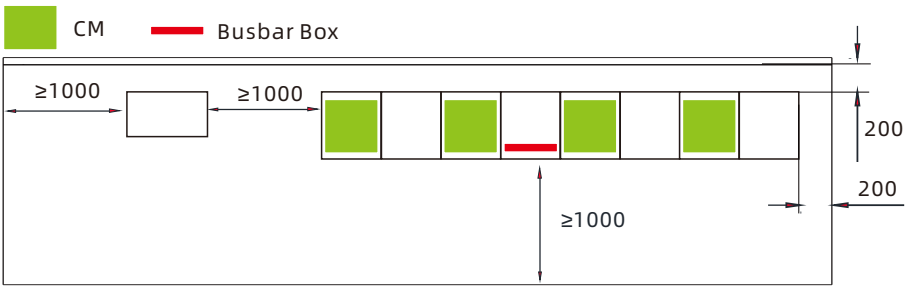
Front view



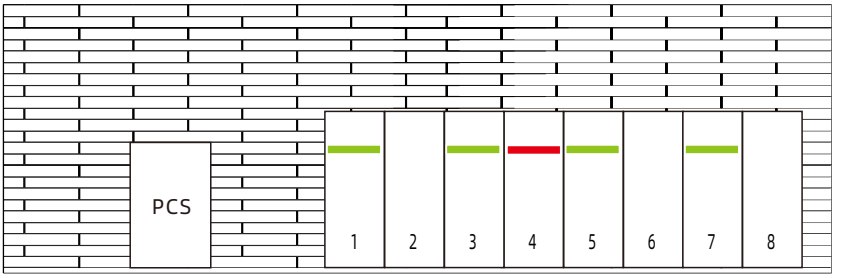
② The clearance requirements of the AXE 75.0H-80.0H-1HR are shown below. Take the installation of eight battery racks connected with the PCS (WIT 50-100K-HU) as an example.

Unit: mm

Top view

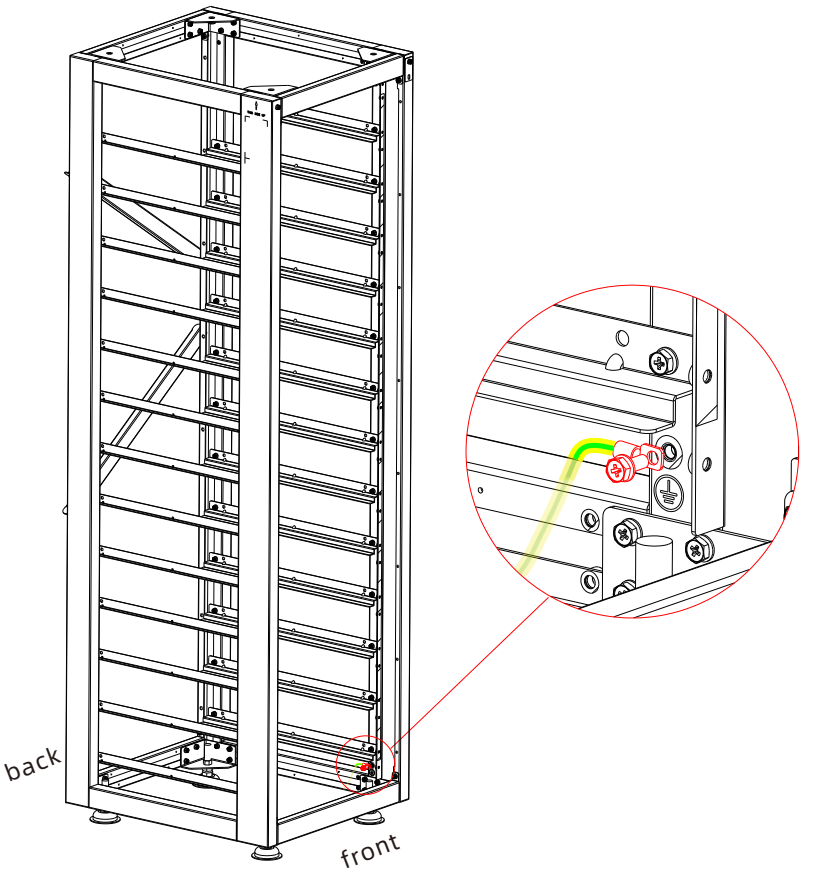


Front view

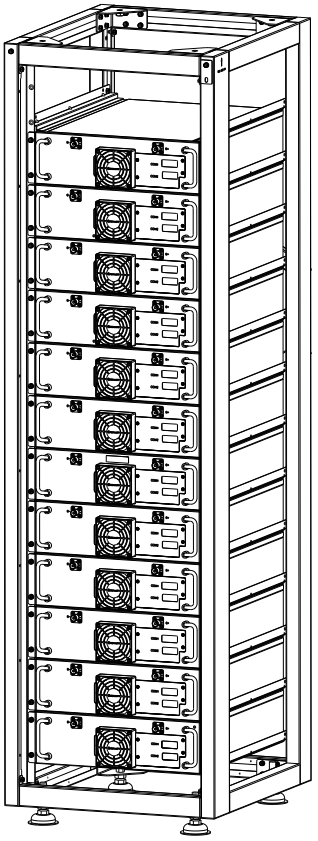


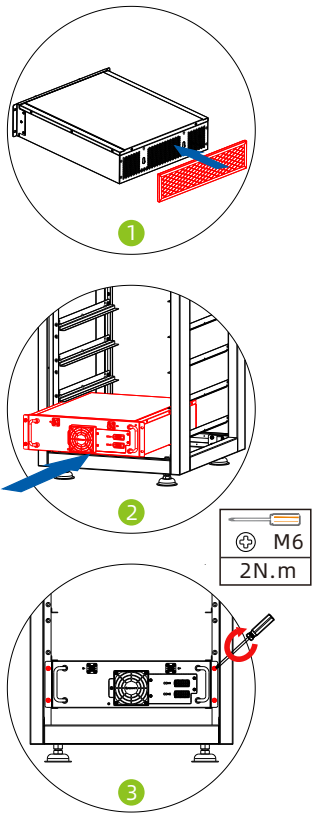
4. Installation of battery modules and cable connections

4-1 Wiring of the grounding cable of the rack



4-2 Installation of battery modules

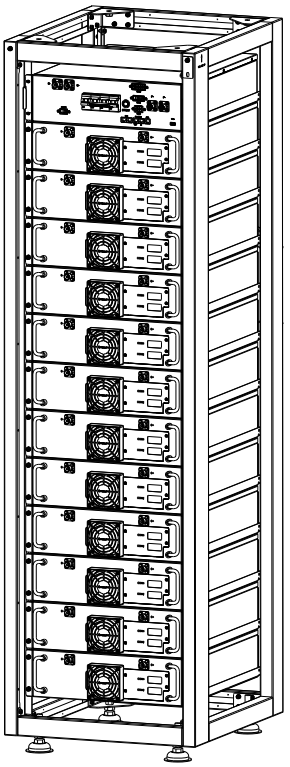


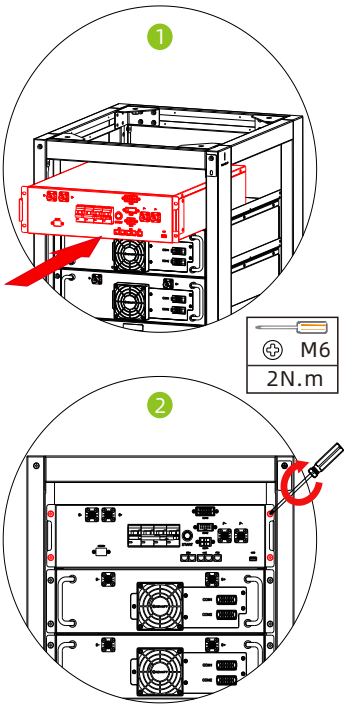


1. Install the dust filter at the rear of the battery module.
2. Install the battery modules into the slots of the rack from bottom to top.
3. Secure the battery modules to the rack using the M6 combination screws.

4-3 Installation of the high voltage box

The high-voltage box can be installed on the top or bottom of the battery rack. Top mounting is preferred.

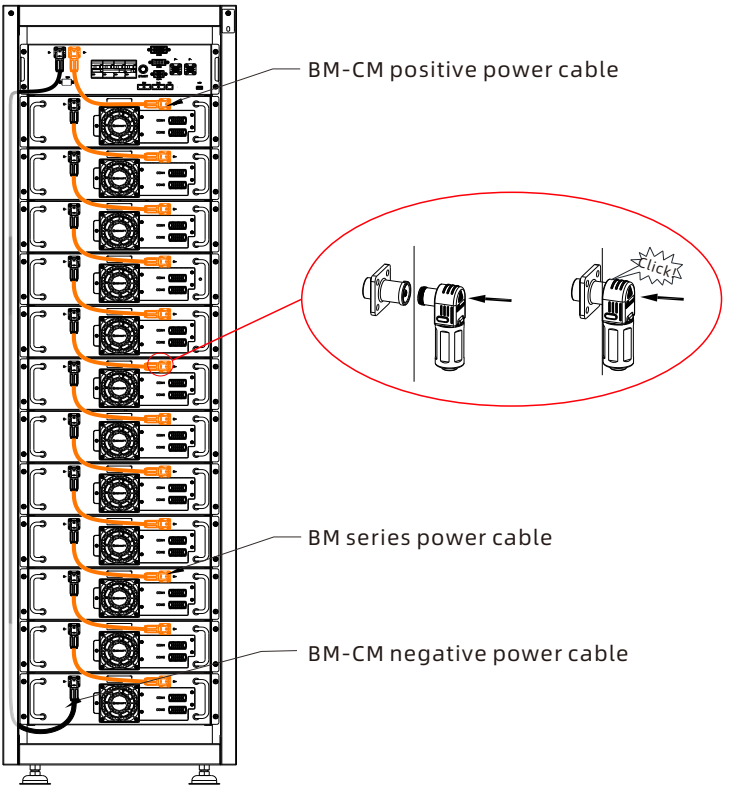




1. Push the high voltage box to the topmost slot.
2. Secure the high voltage box to the rack using the M6 combination screws.

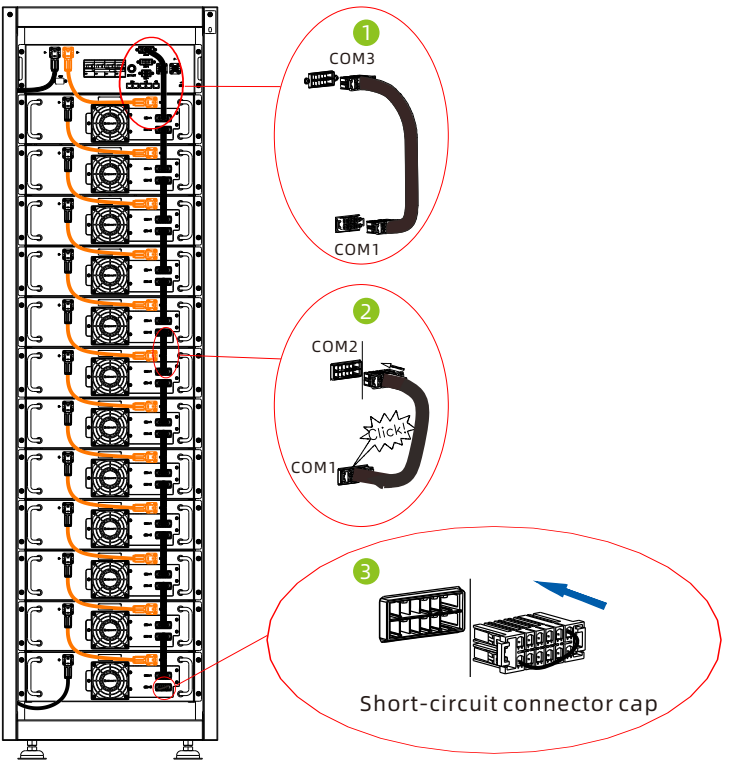
4-4 Cable connections

1 Wiring of power cables between battery modules



Please measure the voltage of each battery pack accurately before connecting the power cable.
The bottom battery pack "B-" terminal is connected to the high-voltage box "B-" terminal.
The "B +" terminal of the top battery pack is connected to the "B +" terminal of the high-voltage box.

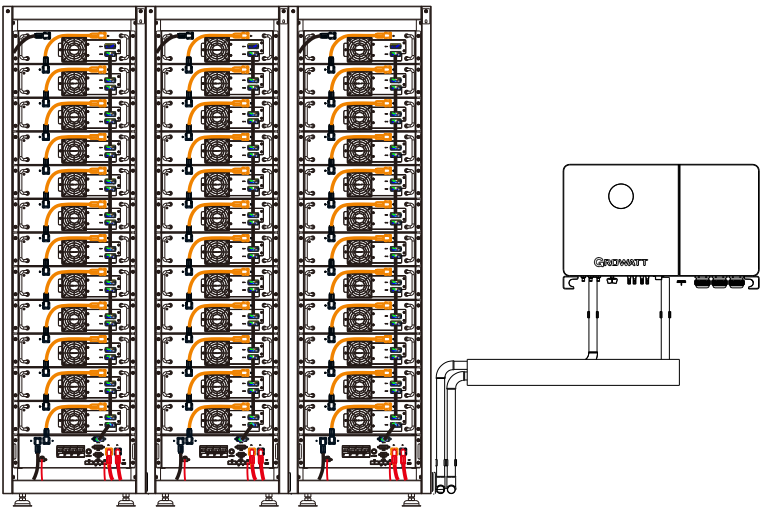
2 Wiring of communication cables between battery modules



1. The top battery pack COM1 is connected to the high-voltage box COM3 with a communication cable
2. Connect the COM1 and COM2 terminals between the battery packs with a communication cable
3. Bottom Battery Pack COM2 Terminal Insert short-circuit connector cap

3 Wiring of cables between the battery system and the WIT 29.9-50K-XHU

Up to 3 clusters of AXE battery system can be connected to a WIT 29.9-50K-XHU, as show below:

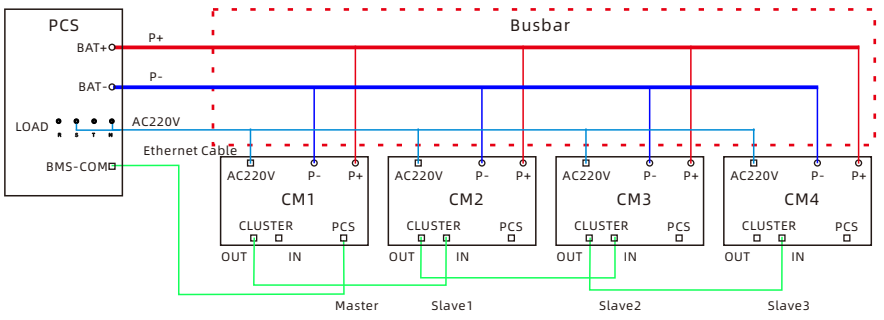


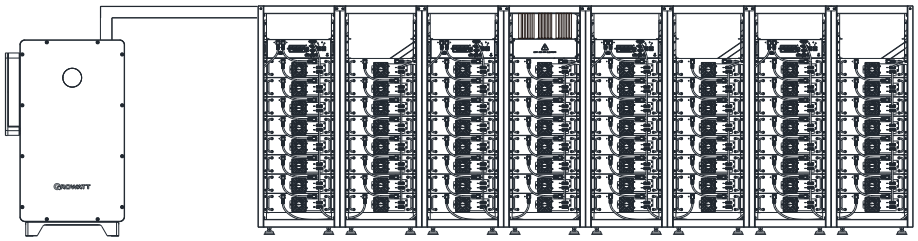
Cable requirements for connecting the battery cabinet and the WIT 29.9-50K-XHU:
1.AXE AC auxiliary power supply wiring: The AC 220V terminal of the high-voltage box should be connected to the AC terminals of the PCS. When connecting, choose a phase on the load terminals of PCS to connect (either one of R/S/T phase +N wire).When connecting multiple battery cabinets, the auxiliary power connections should be distributed to different phases to balance the load.
2.BMS communication wiring: The PCS terminal of the high-voltage box is connected to the BMS1/BMS2/BMS3 terminal of the PCS.
3.The P+/P- terminal of the high-voltage box is connected to the Battery+/Battery- terminal of the PCS.

4 Wiring of cables between the battery system and the WIT 29.9-50K-XHU

Up to 4 clusters of AXE battery system can be connected in parallel to a WIT 50-100K-HU, as show below:

Wiring Diagram





Cable requirements for connecting the battery cabinet and the WIT 50-100K-HU:
1.For single cluster，the AC 220V and P± of the high-voltage box should be directly connected to the PCS.For multiple clusters in parallel，the AC 220V and P± of the high-voltage box should be connected in parallel through the busbar box and then connected to the PCS.
2.AXE AC auxiliary power wiring: The AC 220V terminals of the high-voltage box should be connected to the AC busbar of the busbar box, and then through the busbar box, connected to the AC terminals of the PCS. When connecting, choose a phase on the load terminals of PCS to connect (either one of R/S/T phase +Nwire).

3.BMS communication wiring: The PCS terminal of the first cluster of high-voltage box is connected to the BMS terminal of the PCS. The OUT terminal of the CLUSTER terminal of the first cluster of high-voltage box is connected to the IN terminal of the CLUSTER terminal of the next cluster of high-voltage box, and this connection continues in this manner until the last cluster.
4.Power cable wiring: The P+ / P- terminals of the high-voltage box are connected to the B+/B- busbars of the busbar box, and then through the busbars, they are connected to the B+/B- terminals of the PCS.

5. Check before power-on

5-1 Routine check

No.	Checking item	Acceptance criteria
1	Equipment appearance	• The equipment is intact, free from damage, rust or paint loss. If the paint flakes off, please re-paint the spotted area. • Equipment labels are clear and damaged labels should be replaced in time.
2	Cable appearance	• The cable sheath is properly wrapped with no visible damage. • The cable conduits are intact.
3	Cable connection	• Cables are connected at the designate positions. • Wiring terminals are prepared as required and connected reliably. • Labels on both end of each cable is clear and facing toward the same direction.
4	Cable routing	• Electrical cables and extra low voltage cables are routed separately. • The cables are neat and tidy. • Cable tie joints are evenly cut without burs. • Leave the cable slack at bending points to avoid stress. • Cables are routed neatly without twists or crossovers.
5	Switch	• The switch on the external AC distribution panel or the distribution panel is in the OFF position. • The switch on the high voltage box is in the OFF position.

5-2 Rack inspection

No.	Checking item	Acceptance criteria
1	Installation	• Installation complies with the design requirements. • The rack is level, and each battery module can be properly installed.
2	Appearance	• The surface is free from cracks, dents and scratches. If the paint flakes off, re-paint the spotted area.
3	Rack grounding	• Each rack has at least one grounding point and should be grounded reliably. The site ground resistance should be less than or equal to 0.1Ω.
4	Label	• Labels are correct, clear and complete.

5-3 Internal inspection

No.	Checking item	Acceptance criteria
1	Battery module	The exterior of each battery module is free from damage.
2	High voltage box	The exterior of the high voltage box is free from damage.
3	Foreign object	All foreign objects have been removed from the rack, such as tools and leftover installation materials.

6. Power on/off the equipment

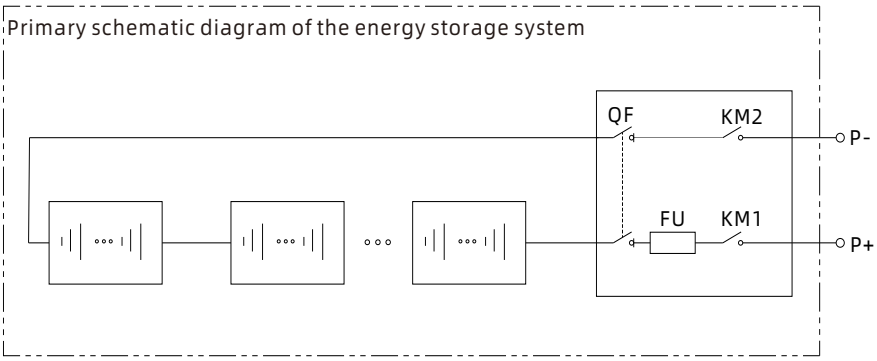
6-1 Power-on procedure

1	Turn on the DC and/or PV Switch on the Inverter and the circuit breaker on the AC side according to the Inverter operating instructions.
2	Turn on the circuit breaker on the high voltage box.
3	Press and hold the START button on the high voltage box for more than 2 seconds.

6-2 Power-off procedure

1	Turn off the DC and/or PV switch on the inverter and the circuit breaker on the AC side.
2	Turn off the circuit breaker on the high voltage box of battery system.

7. Electrical schematic



8. Service and contact

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