AXE 50.0-60.0H-1HT-S1
Quick Guide

Shenzhen Growatt New Energy Co., Ltd

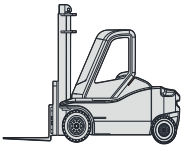
Installation environment

Max.+55℃

Min.-25℃

RH+5%~+95%

Installation tools

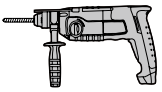


Forklift

Knife

working with M6/M8 bit holders & P2 Phillips bit

Electric screwdriver

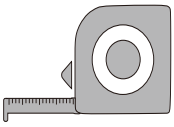


working with 16 mm drill bit

Impact drill

Hammer

Marker



Measuring tape

Wrench

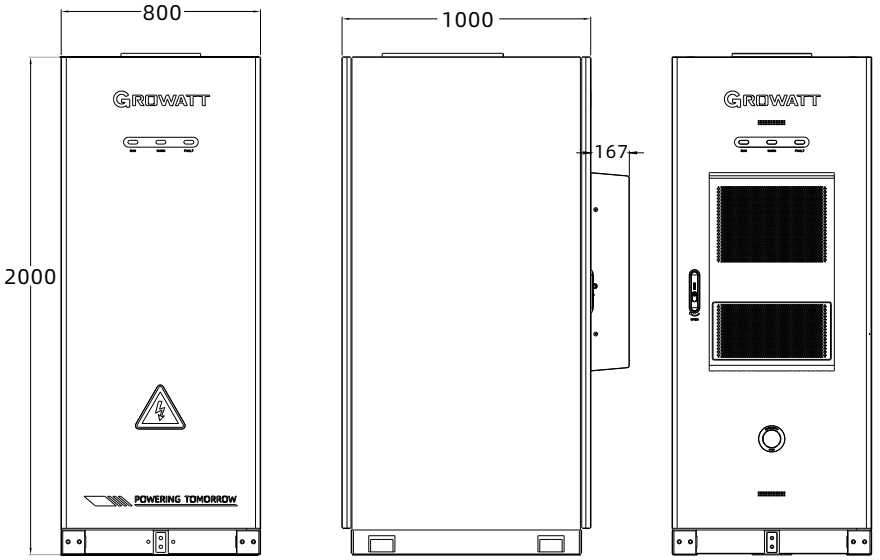
Appearance & dimensions

Unit: mm

Front view

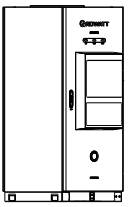
Side view

Rear view

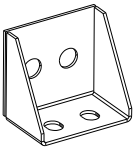


1. Inspection upon delivery

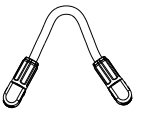
1-1 Check the accessories



Battery cabinet
X1



Anchor bracket
X4



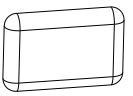
Cable set
X1

Desiccant
X2

Expansion bolt
X8

M12*60 screw
X8

Quick installation guide
X1



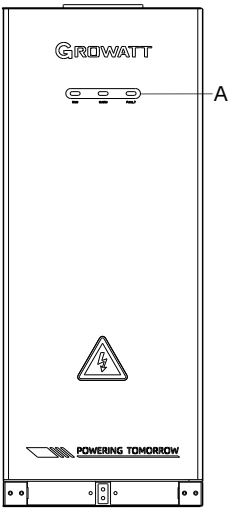
Sealing clay
X1

M10*30 screw
X4

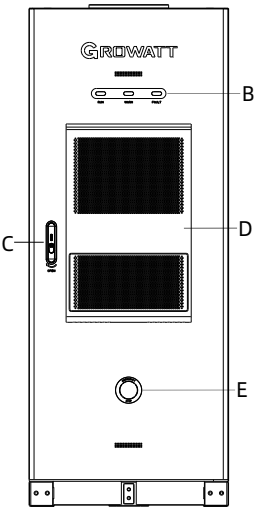
2. Introduction to the battery cabinet

2-1 Introduction to the appearance of the battery cabinet

Front view

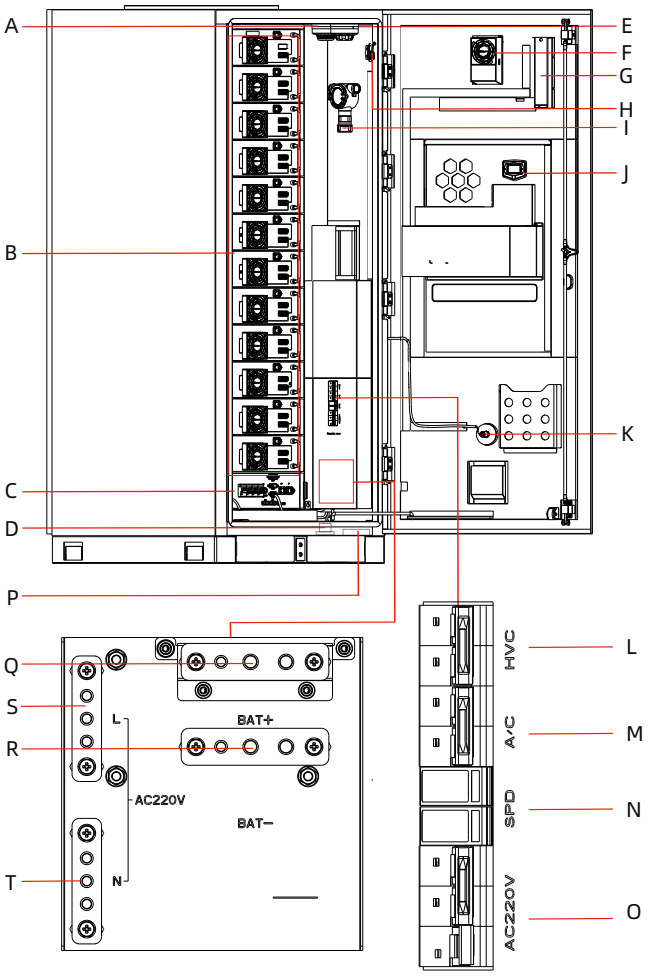


Rear view



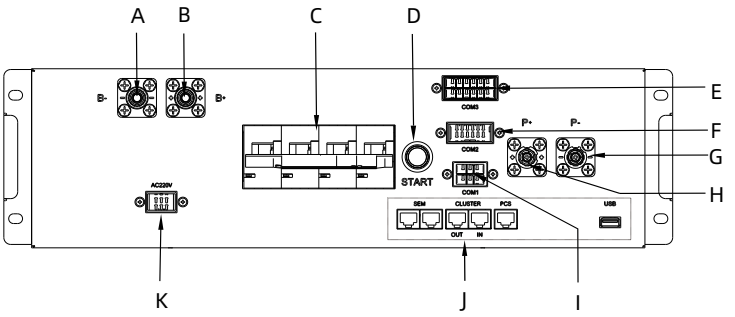
No.	Component	Description
A	LED indicator of front	Indicates the operating status of the energy storage system Green: Running normally; Yellow: Alarm; Red:Fault
B	LED indicator of back	Indicates the operating status of the energy storage system Green: Running normally;Yellow: Alarm;Red: Fault
C	Lock	Safety gear
D	Air conditioner	Regulates temperature and humidity inside the cabinet.
E	Emergency stop	Emergency power off

2-2 Introduction to intra-cabinet components



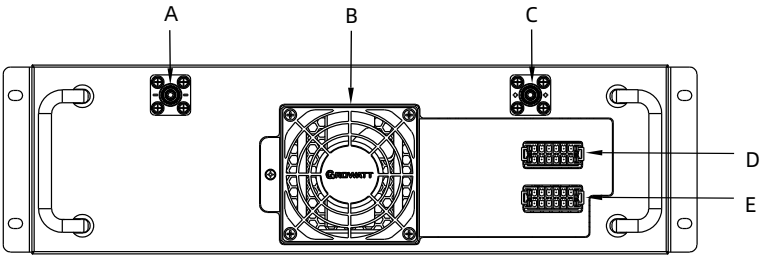
Position	Module	Description
A	Temperature sensor	Temperature detection
B	Battery pack	Energy storage device
C	High voltage box	Battery charge/discharge control device
D	Water leak sensor	Water leak detection
E	Smoke sensor	Smoke detection
F	Hydrogen Exhaust System	Exhaust of combustible gases from the cabinet
G	Aerosol	For firefighting
H	Access Control Sensor	Monitoring of door opening and closing status
I	Combustible gas detection sensor (Optional)	Combustible gas detection
J	Air conditioner	Regulates temperature and humidity inside the cabinet.
K	Emergency stop	Emergency power off
L	HVC	High voltage box AC input terminal
M	A/C	Air conditioner AC input terminal
N	SPD	SPD (Surge Protective Device) input control terminal
O	AC 220V	220VAC input terminal
P	PE	cabinet grounding bar
Q	BAT+ busbar	BAT+ parallel connection port
R	BAT- busbar	BAT- parallel connection port
S	L line busbar	L line of AC220V parallel connection port
T	N line busbar	N line of AC220V parallel connection port

2-3 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 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 and heating film power line
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	Communication terminals to external devices, including PCS, SEM-X, parallel battery cabinet, and USB
K	Power supply port	Auxiliary AC 220V power input

2-4 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. Basic installation requirements

3-1 Safety clearance requirements

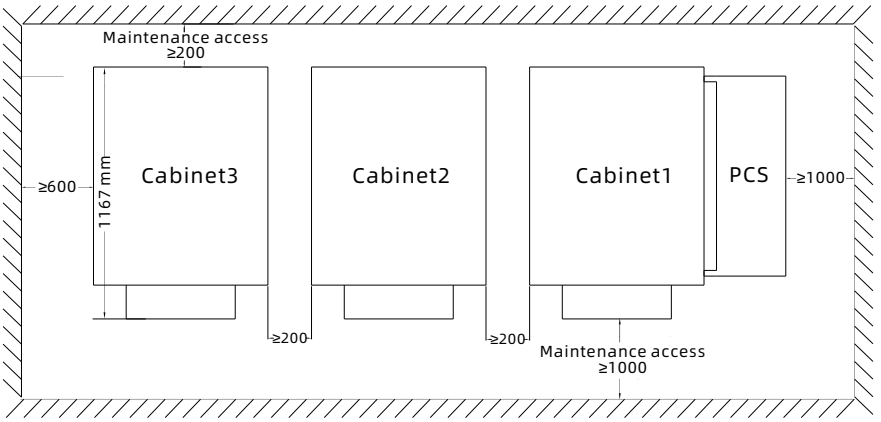
Unit: mm

Energy Storage System Installation Environmental Requirement:
The ESS may corrode if installed in areas with salt damage or pollution. The ESS is suitable for the following or better environments
1. Outdoor environments more than 2000 meters away from the coast . Installation within 2000 meters of the coast is not recommended. (If installation is necessary, consult with the distributor or our company's engineer for confirmation).
2. More than 3000 meters away from heavy pollution sources . such as smelters, coal mines, and thermal power plants.
3. More than 2000 meters away from moderate pollution sources . such as chemical plants, rubber factories, and electroplating facilities.
4. More than 1000 meters away from light pollution sources . such as food processing plants, leather factories, heating boilers, slaughterhouses, centralized garbage dumps, and sewage treatment stations.

- For maintenance purposes, please leave a clearance of not less than 1000mm from the door of the cabinet. When matching the PCS(WIT 29.9-50K-XHU), it supports connecting up to 3 cabinets, as shown below.

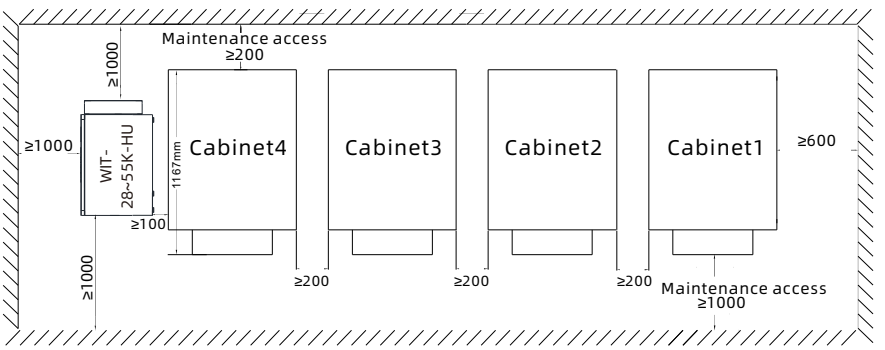
Unit:mm

Top view



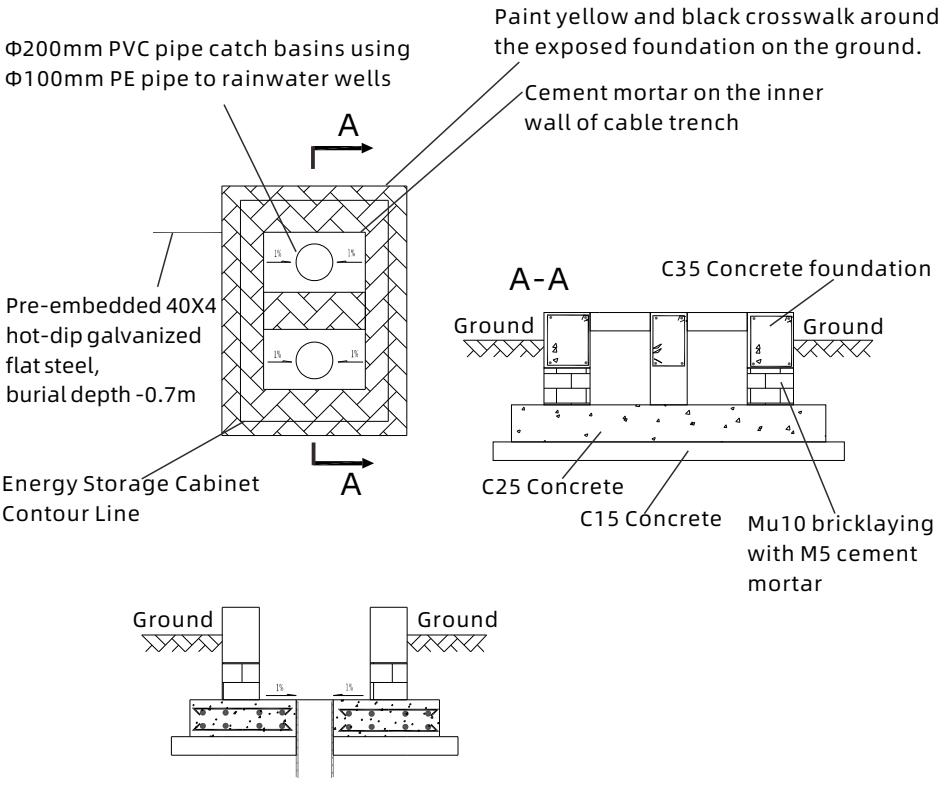
- A maximum of 4 cabinets can be configured in parallel and the cabinets can be mounted side by side with no gap in between.The figure below take the configuration of four cabinets in parallel work with the PCS (WIT 28-55K-HU-US-L2)as an example:

Unit:mm

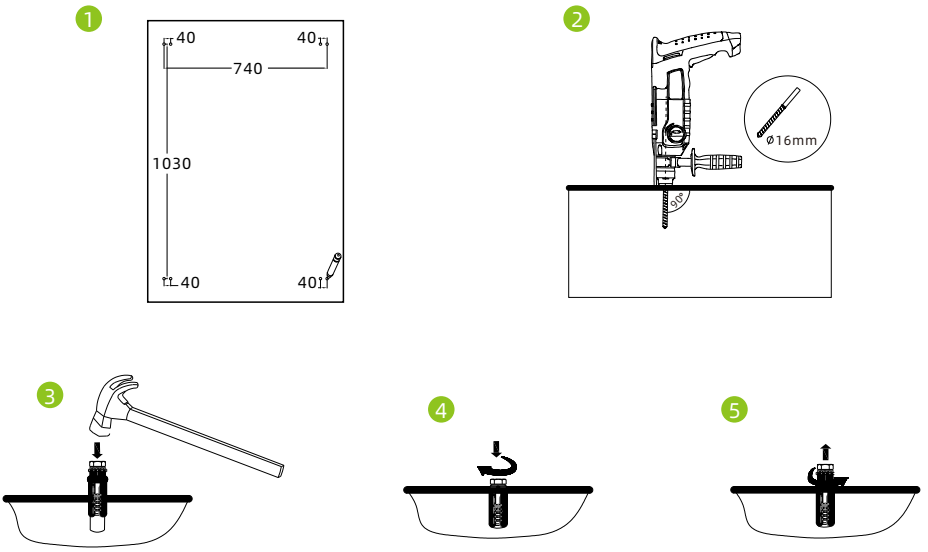


4. Transportation and installation

4-1 Level the fundation



4-2 Drill holes into the ground



1. Mark hole positions at the pre-determined installation location according to the dimensions indicated below.
2. Drill holes at the marked positions.
3. Insert the expansion bolts into the holes.
4. Tighten the bolts to expand the sleeve.
5. Remove the bolts.

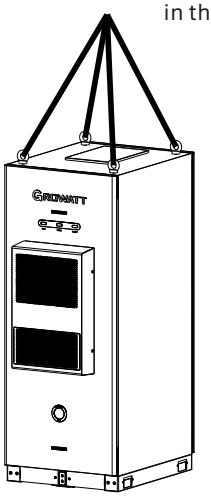
4-3 Transport the battery cabinet

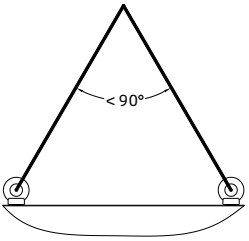
On-site transportation of cabinets can be used lifting or fork lift according to the actual situation.

1. Lifting transportation of battery cabinet:

Pass the lifting rope through the 4 rings on the top of the cabinet, use the lifting equipment to lift the cabinet by the lifting rope and move it to the designated position. During the process, keep it stable and prevent it from shaking.

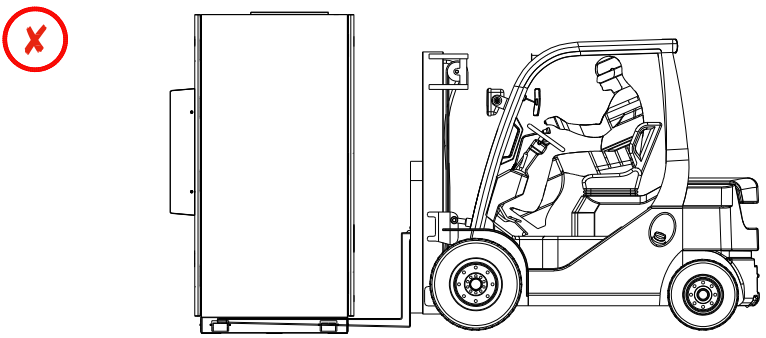
Please make sure the lifting rope is long enough to make the angle of projection of the lifting rope in the vertical plane between the two rings is less than 90°.

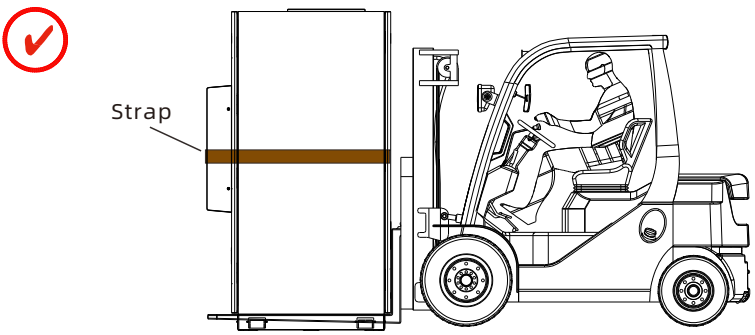




2. Forklist transportation of battery cabinet:

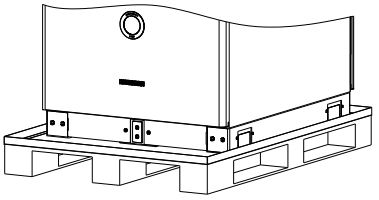
Moving the equipment with a forklift secure it properly according to the actual situation to avoid tip-overs.



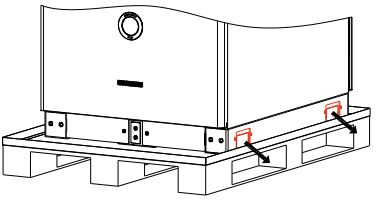


4-4 Install the battery cabinet

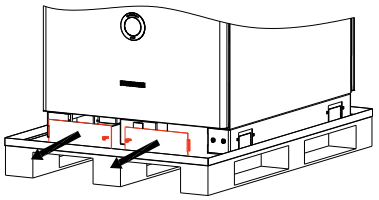
1 Preparation before installing cabinets



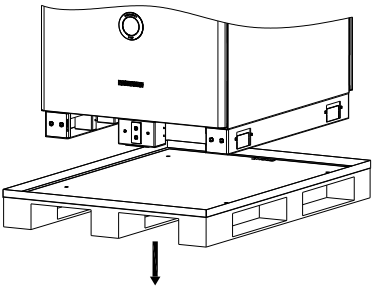
2 Remove the side cover and remove the screws on the pallet



3 Remove the front and rear covers of the base

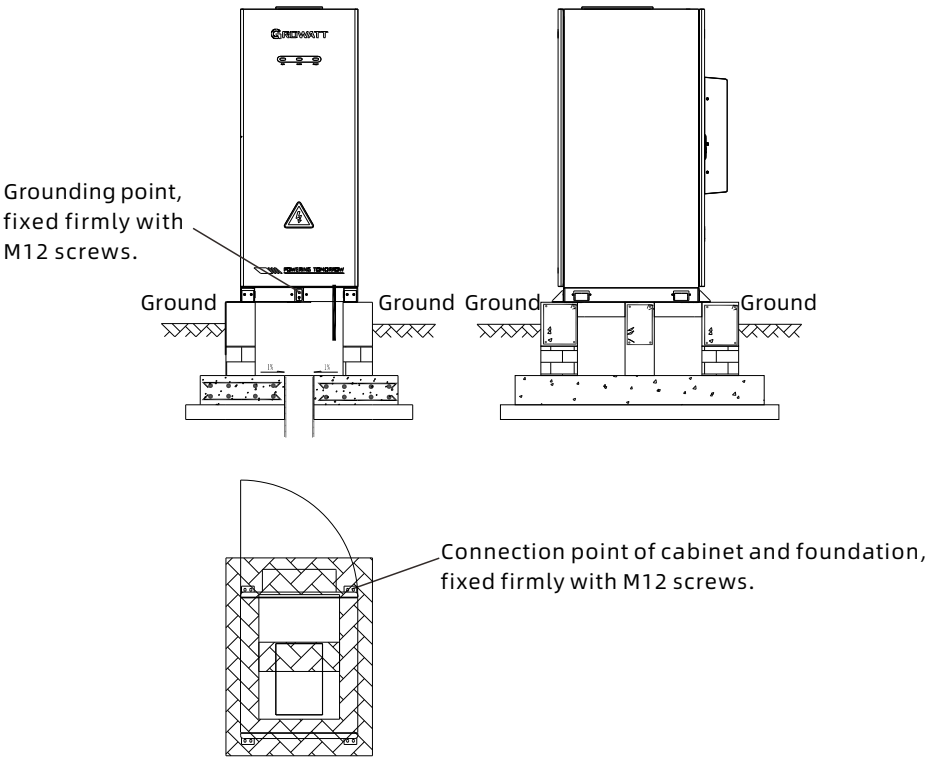


4 Remove the pallet



1. Check the appearance of the cabinet for good condition.
2. Loosen the screws. Remove the front and rear covers of the base.
3. Remove the side cover and remove the screws that are fixed to the pallet.
4. Remove the pallet after the cabinet has been lifted.

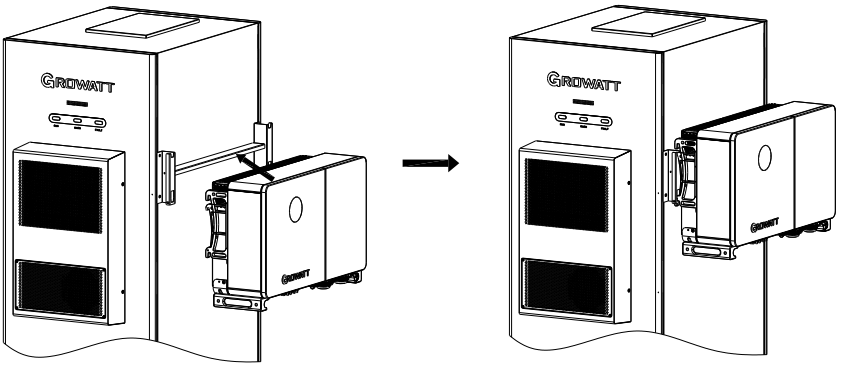
4. Install the cabinet on the foundation



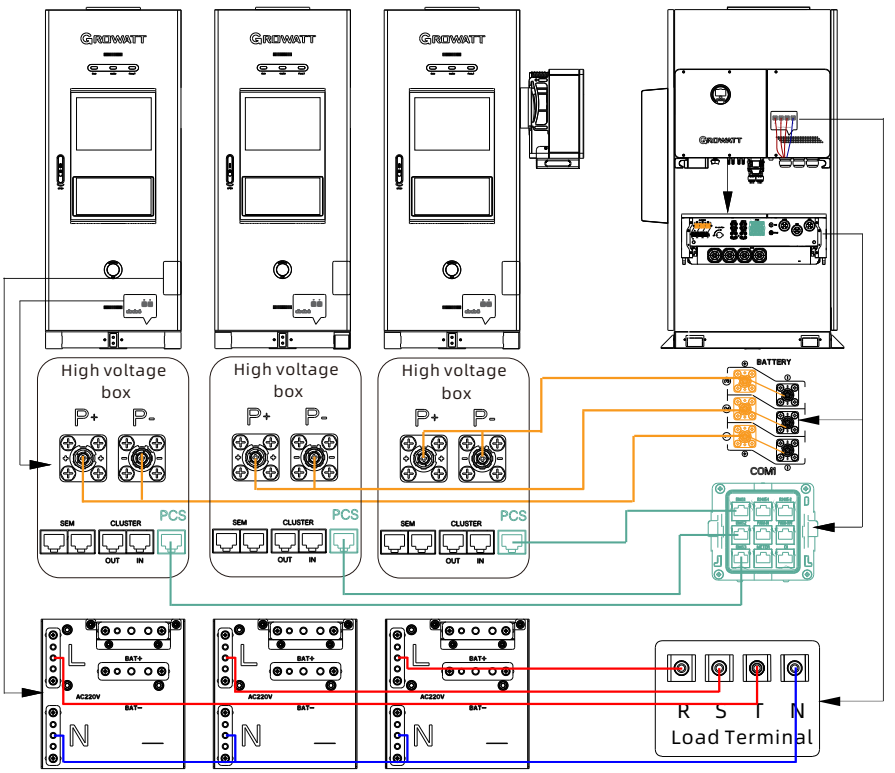
5. PCS Installation of the WIT 29.9-50K-XHU

The battery cabinet supports side-mounting of PCS.
Here taking installation of the WIT 29.9-50K-XHU as an example.

1. Assemble the PCS wall-mount bracket on the side of battery cabinet. Both sides of the battery cabinet support PCS mounting. Use the tool to lift the PCS and hang it on the bracket. Tighten the screws.



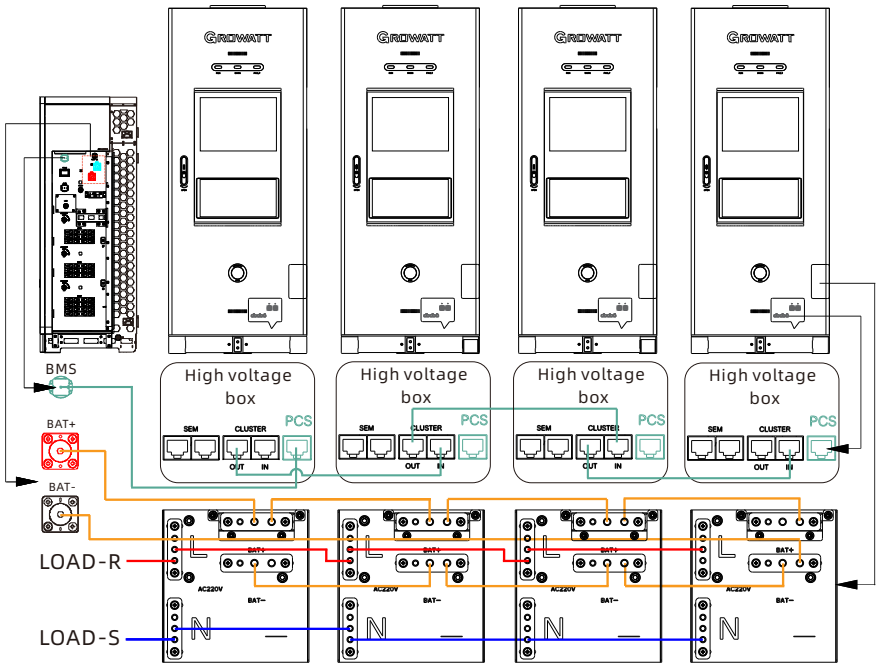
2. The battery cabinet supports parallel connection. For WIT 29.9-50K-XHU, the maximum number of battery cabinets supported for parallel connection is 3 units.



1.AXE AC auxiliary power supply wiring: The AC 220V power input terminal should be connected to a phase on the load port of PCS (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: Connect the PCS terminal of each high voltage box to the corresponding BMS terminal of the PCS (BMS1/BMS2/BMS3 of WIT 29.9-50K-XHU).
3.Power cable wiring: The P+/P- terminal of the high-voltage box should be connected to the Battery+/Battery- terminal of the PCS.

6. PCS Installation of the WIT 28-55K-HU-US-L2

Here taking installation of the WIT 28-55K-HU-US-L2 as an example.
For WIT 28-55K-HU-US-L2, it supports a maximum of 4 battery cabinets in parallel operation. The wiring method is as follows.



1. The AC 220V input terminals are connected in a "parallel" manner on the AC busbar of the battery cabinet. The first group of AC 220V should be connected to the load port of the distribution cabinet or the PCS (Load-R and Load-S), because the input voltage of the air conditioner support only 220±15%VAC;
2. BMS communication wiring: Connect the PCS termianl of the first high-voltage box to the BMS termianl 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.
3. Power cable wiring: Each battery cabinet cluster's B+/ B- is connected to the B+ / B- terminals of the PCS after being paralleled in the power combiner. The recommended connection method is to connect the first battery cabinet B+ to the B+ terminal of the PCS, and the last battery cabinet B- to the B-terminal of the PCS.

7. Check before power-on

7-1 Battery cabinet installation inspection

No.	Checking item	Acceptance criteria
1	Installation	• Installation complies with the design requirements. • The cabinet is level, and each door opens properly.
2	Appearance	• The surface of the cabinet is free from cracks, dents and scratches. If the paint flakes off, re-paint the spotted area.
3	Cabinet grounding	• Each cabinet has at least two grounding points 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.

7-2 Intra-cabinet inspection

No.	Checking item	Acceptance criteria
1	Circuit breaker	The circuit breakers are OFF.
2	Cable	The bolts for securing the cables have been tightened and no loose cable connections.
3	Battery packs	All battery packs are intact.
4	Foreign object	Foreign objects, such as tools and installation leftovers are removed from the cabinet.
5	Cabinet grounding	The grounding conductor is reliably connected to the cabinet's grounding terminal block or copper bar.

8. Power on/off the equipment

8-1 Power-on procedure

1	Test the voltage between BAT+ and BAT- with a multimeter.	Voltage range: 556.8 -681.6V
2	Turn on the HVC's DC load switch	
3	Press and hold the START button on the high voltage box for more than 2 seconds.	
a: Before turning on the internal switches of the auxiliary power supply in the energy storage system, ensure that the AC auxiliary power supply voltage is within the normal range (220V±10%).		

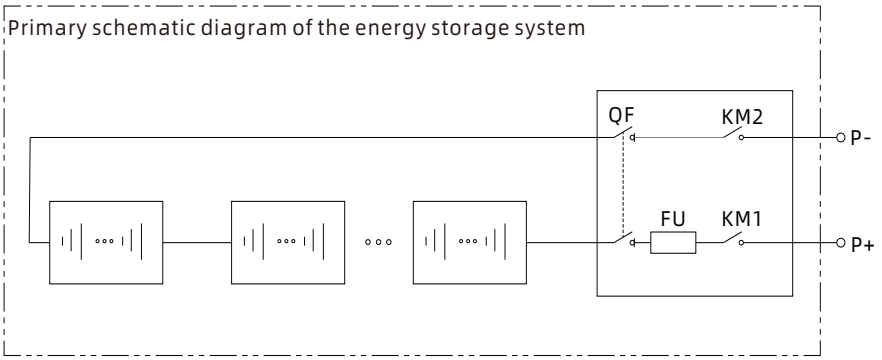
8-2 Commisioning Prerequisites

1) All devices on site have passed the on-site tests.
2) The system has been powered on and no alarm/fault is reported.
3) The commissioning tools are available on site.

8-3 Power-off procedure

1	Follow the steps in the manual or instructions of the inverter to turn it off and make sure it stops operating.
2	Turn off the DC and/or PV switch on the inverter and the circuit breaker on the AC side.
3	Turn off the circuit breaker on the high voltage box of battery system

9. Electrical schematic



10. Service and contact

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For local customer support, please visit https://en.growatt.com/support/contact

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Growatt New Energy

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