SEC Series DC Distributed Charger User Manual

Issue 01
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Important Safety Instructions

SAVE THESE INSTRUCTIONS

WARNING:
This manual contains important instructions for installation and use.
When install and use, always follow basic precautions, including the following.

Safety instructions for operation

- Before using for the first time you must read this document carefully, make sure that the equipment is installed and commissioned according to the instructions in the installation manual.
- For the safety of personnel, the tips, safety, and warning instructions contained in this manual must be strictly followed
- The SEC is a high power and high voltage electric equipment. Only qualified professionals are allowed to install and maintenance it.
- Do not perform maintenance operations when the device is not powered off. When repairing the device, turn off the upper switch of the charger, hang the maintenance sign, and check for dangerous voltage to ensure that the charger is completely powered off.
- Even if all switches in the charger are disconnected, there is still a dangerous voltage in the copper bar of the device, Please pay attention to safety.
- The device must be grounded at all times. Poor or ungrounded grounding can lead to electric shock or fire.
- In case of any abnormal condition, press the emergency button immediately, which will cut input and output to ensure safety. It is forbidden to use the emergency button in non-emergency situations.
- After the emergency button is pressed, the operator shall be informed that the charger cannot be started, and only the operation and maintenance personnel or professional operators can restart the charger.
- Properly lock the door after installation or maintenance operations to prevent rainwater from entering the equipment
- Installation conditions should be far away from fire hazards or other dangerous environment.

Foreword

Reader

This document (this guide) is primarily intended for the following engineers:

- Technical Support Engineer
- Maintenance Engineer
- Installation team

Symbol Conventions

The following symbols may appear in this document and their description are as follows:

Symbol	Description
	**DANGER** Dangerous Voltage Dangerous voltages can cause death or injury
	**WARNING** Hazard Warning May cause equipment damage and personal injury
	**WARNING** Heat warning May cause scald when touch the special parts
	**ATTENTION** Cause of Hazard Failure to comply may result in equipment damage or functional failure

Catalog

1 Safety Precautions

1.1 Special symbols for warnings and dangers

Symbol	Symbol Word	Description
	DANGER	Since some parts of this power system are under high voltage during operation, it is fatal for direct contact or indirect contact with these parts
	DANGER	Construction operation of high voltage lines may cause fire or electric shock. The wiring area and the area where the line passes through for AC cables must comply with local regulations and laws. Only personnel who are qualified to work with high DC and AC voltage are allowed to install and maintain the DC Charger.
	DANGER	It is strictly forbidden to carry out installation and maintenance work during thunderstorms.
	DANGER	The DC Charger is a high voltage DC power supply, and short circuits may cause damage to the DC Charger and personal safety hazards.
	WARNING	Special tools must be used during various operations of high DC and AC voltages.
	WARNING	Avoid touching specific parts of the charger (E.g., air outlet) to prevent high temperature scald.
	ATTENTION	Signal cables shall be kept away from power cables to avoid interference.
	ATTENTION	The device will release heat during operation. Ensure that the area around the device is well ventilated

1.2 Disclaimers

Chargetronix shall not be liable for any consequence caused by any of the following events:

- Warranty expiration of the warranty service;
- Failure to follow the operation instructions and safety precautions in this document, and the resulting equipment malfunction, component damage, personal injuries, or property damage are beyond the warranty scope;
- Installation or use in environments which are not specified in related international standards.
- Incorrect transportation, removal, storage, installation, or use.
- Unauthorized modifications to the product or software code or removal of the product;
- Device damage due to force majeure (such as lightning, earthquakes, fire, and storms);
- Unauthorized modifications to the product nameplate or serial number or product appearance;
- Storage conditions that do not meet the requirements specified in this document, unused products should be stored in packing cases and placed in a dry, (After delivery shall be started and test equipment operation status within 6 months, otherwise it shall be return to Sinexcel for aging test and payable the shipping cost.);
- Ensure that the area required for heat dissipation, Otherwise, the equipment may become faulty, and the resulting equipment malfunction, component damage, personal injuries, or property damage are beyond the warranty scope;
- Installation or use by unqualified personnel;
- This document content here is for indicative purpose only. If there is any inconsistency between the content and the actual product, it should base on the actual product.

2 Product Overview

2.1 Briefing

SEC series DC charger is a high-power DC distributed charger independently developed by Sinexcel. It supports new 40kW DC charging module, with a maximum charging power of 480kW. The whole charging system has high efficiency and flexible configuration. By controlling the User Terminal to charge for EV, it can realize not only even load sharing, but also the flexible output distribution of several connectors. In this way, the SEC distributed charger can realize the flexible power distribution among the connectors.

SEC series charger can provide liquid cooling and air cooling User Terminal, as well as CCS1 and CHA charging standard. The charger can meet the charging demand of larger capacity and high endurance from electric vehicle on the market.

SEC series charger adopts modular design, and has multiple protections, flexible power distribution and charging control system, which has high efficiency, stable outputs and high reliability. Therefore, it can charge for the EV with high power via reliable User Terminal.

2.2 SEC series products model

WARNING:
This manual contains important instructions for Models that shall be Followed during installation, operation and maintenance of the unit.

SEC 1000 / 500 U - FC - U
1 2 3 4 5 6 7 8

NO.	Meaning
1	S: Sinexcel
2	E: Electric vehicle
3	C: DC Charger
4	Rated output voltage: 1000Vdc
5	This means the output parameters, which can be divided into power bank parameters and charging terminal parameters. Power bank parameters: 360 and 480 are available, indicating the power level of the system. Terminal parameters: 200, 300 and 500 selectable, indicating the maximum output current of a single connector;
6	Type of equipment F: Power bank, stands for Flexible power bank U: Charging terminal, stands for User Interface of charging terminal

NO.	Meaning
7	Power bank: N for Null, leave this position blank Terminal: This position indicates the charging connector type; F: CCS1 liquid-cooled charging connector H: CCS1 high power air-cooled charging connector C: CCS1 200A air-cooled connector J: CHA, Japan standard charging connector for 125A
8	U: means UL certified model

2.3 Models description

2.3.1 Description of Power Bank

Specification	Maximum Output Power	Maximum Output Current
SEC1000/360F-N-U	360kW	1200A
SEC1000/480F-N-U	480kW	1600A

2.3.2 Description of User Terminal

Model	Power Distribution		Maximum Output Current	
	Connector A	Connector B	Connector A	Connector B
SEC1000/200U-C-U	CCS1:200kW	/	200A	/
SEC1000/200U-CC-U	CCS1:200kW	CCS1:200kW	200A	200A
SEC1000/200U-CJ-U	CCS1:200KW	CHA:62.5kW	200A	125A
SEC1000/300U-H-U	CCS1:300kW	/	300A	/
SEC1000/300U-HH-U	CCS1:300kW	CCS1:300kW	300A	300A
SEC1000/300U-HC-U	CCS1:300kW	CCS1:200kW	300A	200A
SEC1000/300U-HJ-U	CCS1:300kW	CHA:62.5kW	300A	125A
SEC1000/500U-F-U	CCS1:480kW	/	500A	/
SEC1000/500U-FH-U	CCS1:300kW or 480KW	CCS1:300KW or 0KW	500A	500A
SEC1000/500U-FC-U	CCS1:300kW or 480 kW	CCS1:200KW or 0KW	500A	200A
SEC1000/500U-FJ-U	CCS1:300kW or 480 kW	CHA:62.5kW or 0 kW	500A	125A

2.4 Product technical specifications

Technical Specifications of Power Bank		
Category	**Item**	**Parameter**
Input Characteristic	Input	3P+N+PE
	Input Voltage	AC 480V
	Frequency	60Hz
	Power Factor	0.99
	THDi	<5%
Output Characteristic	Output Voltage	DC 150-1000 Vdc
	Rated Power	360&480kW
	Max current	1200&1600A
	Efficiency	95%
Standard	System Standard	UL2202
Others	Dimensions	W55-1/8*D39-3/8*H82-43/64 inches (W1400*D1000*H2100mm)
	Protection Level	-13°F(-25°C)~+149°F(+65°C) (Derating over 122°F(50°C))
	Weight	≤1984.16lbs (900kg)
	Communication Protocol	≤6561ft(≤2000m),derating over 6561ft(2000m)
Environmental Conditions	Cooling Method	Forced air cooling
	Operating Temperature	-13°F(-25°C)~+149°F(+65°C) (Derating over 122°F(50°C))
	Humidity	5%~95%
	Altitude	≤6561ft(≤2000m),derating over 6561ft(2000m)
Protection		Lightning protection Emergency protection Overload protection Short - circuit protection Leakage protection Overcharge protection Over/Under voltage protection Reverse connection protection Over temperature protection

Technical Specification of User Terminal		
Category	**Item**	**Parameter**
Input Characteristic	Operating Voltage	AC277V
	Input DC Voltage	DC 50-1000V
Output Characteristic	Output Voltage	DC 50-1000 V
	Max Output Power	480kW
	Max Current	500A
	Connector Standard	UL2251 CSAC22.2NO.282-17
Standard	System Standard	UL2202
Others	Energy Meter	DC meter
	Connector Type	1(CCS1) OR 2 (CCS1+CHA or CCS1+CCS1)
	Network Interface	4G/LAN
	Dimensions	D29-17/32*W17-23/32*H82-43/64 inches (D750*W450*H2100 mm)
	Protection Level	NEMA 3R/IP55/Rainproof
	Weight	≤531.3lbs(≤241kg)
	Cable Length	Maximum overall length 24.6ft(7.5m) (In Canada, the maximum overall length is 16.4ft(5m))
	Communication Protocol	OCPP1.6/2.0(Upgrade)
	Screen	15 inches
	Payment	QR code/Swiping card/NFC (Optional)
Environmental Conditions	Cooling Method	Liquid cooling/Air cooling
	Operating Temperature	-13°F(-25°C)~+149°F(+65°C) (Derating over 122°F(50°C))
	Humidity	5%~95%
	Altitude	≤6561ft(2000m)
Others		DC Over current protection Lightning protection Emergency protection Overload protection Short-circuit protection Leakage protection Overcharge protection Over/Under voltage protection Reverse connect protection Over temperature protection

2.5 Product Features

- The maximum charging power can reach 480kW, and there are various power configurations from 360kW to 480kW to meet the customized needs.
- The system includes Power Bank and User Terminals, one Power Bank can provide power to three User Terminals to meet the needs of charging multiple vehicles simultaneously.
- The liquid-cooled User Terminal can automatically allocate power according to vehicle needs and can achieve 480kW high power charging.
- Constant power charging method provides high charging efficiency, simple operation, and reliable performance.
- Ultra-wide output voltage range. The maximum output voltage can reach DC1000V, which can not only meet the low-voltage charging of smaller vehicles, but also meet the charging needs of buses and other high-voltage vehicles.
- The system has multiple protection functions for hazards such as overload, short circuit, leakage, lightning, overcharge, overvoltage, reverse connection and overtemperature.
- The intelligent standby mode can effectively reduce the operating cost of the customer's entire project life cycle and improve the yield of charging stations.
- The cabinet shell is made of stainless steel or hot-dip galvanized sheet + double-layer spraying material, and the protection level is IP55, which is suitable for outdoor environment.

2.6 Product View

1. SEC Series Power Bank

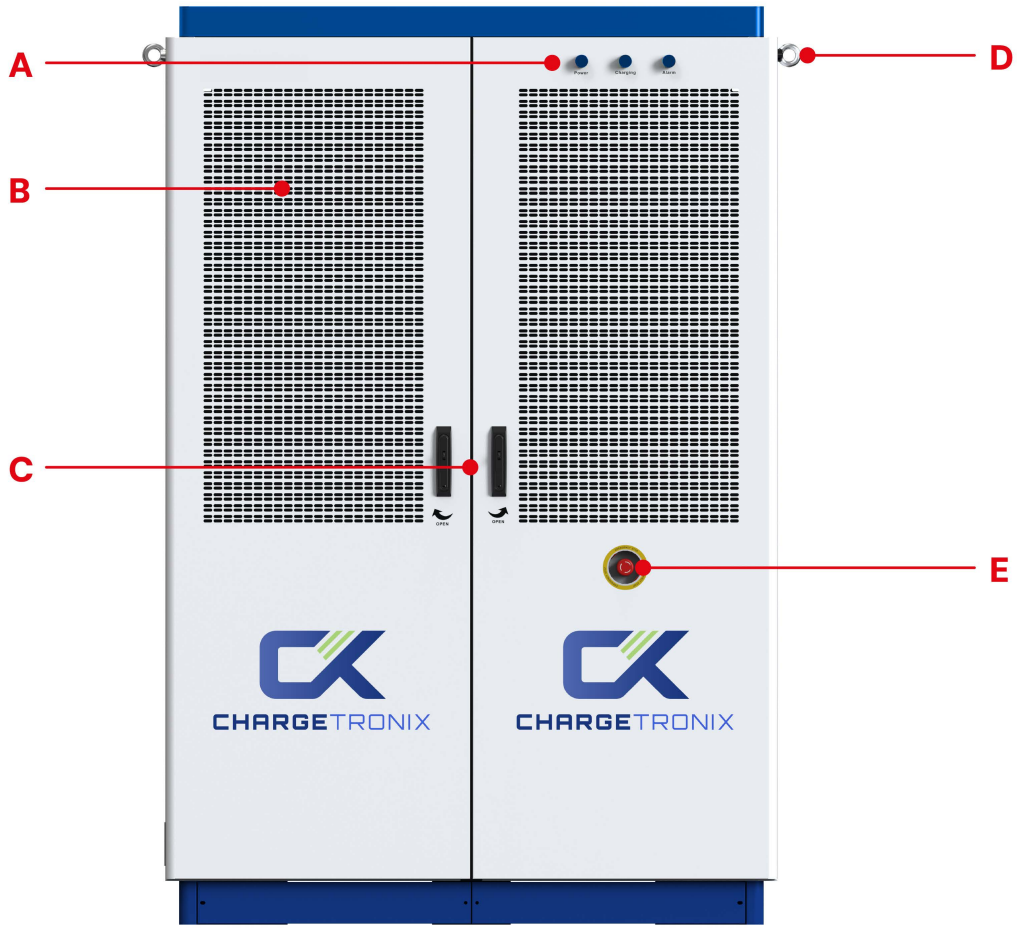


Figure 2.6.A SEC Series Power Bank

A LED indicator	**D** Eye bolts for lifting
B Ventilation area	**E** Emergency button
C Door handle/ lock	

2. SEC Series User Terminal

Figure 2.6.B EC Series User Manual

A Eye bolts for lifting	**E** Charging connector
B LED indicator	**F** Door
C Human machine interface	**G** Door handle/ lock
D Card reader	**H** Ventilation area

3 Installation Instruction

3.1 Dimensions

3.1.1 Power Bank

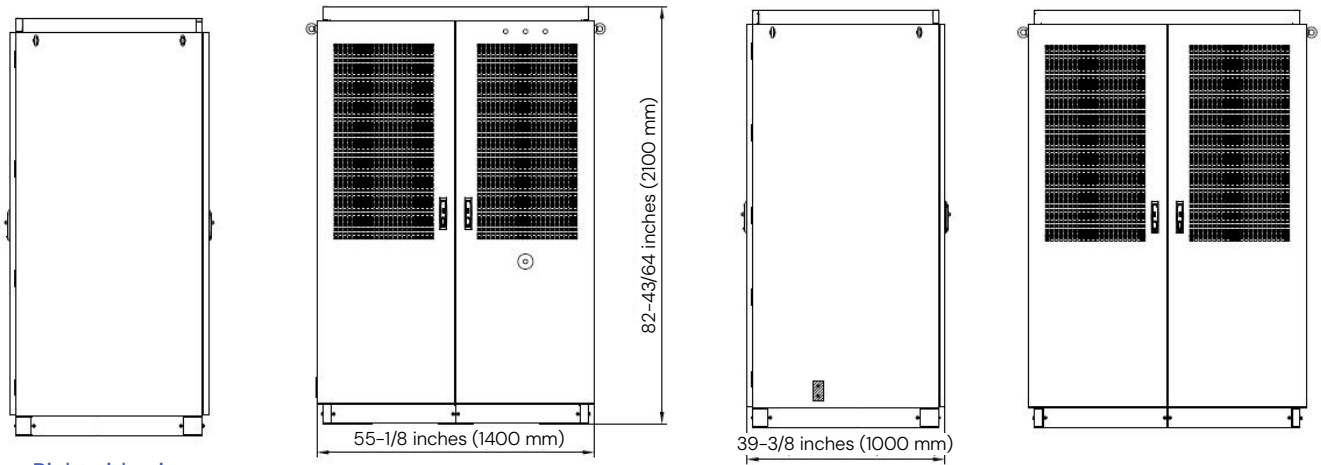


Figure 3.1.1-A Views and dimensions of SEC Series Power Bank

3.1.2 User Terminal

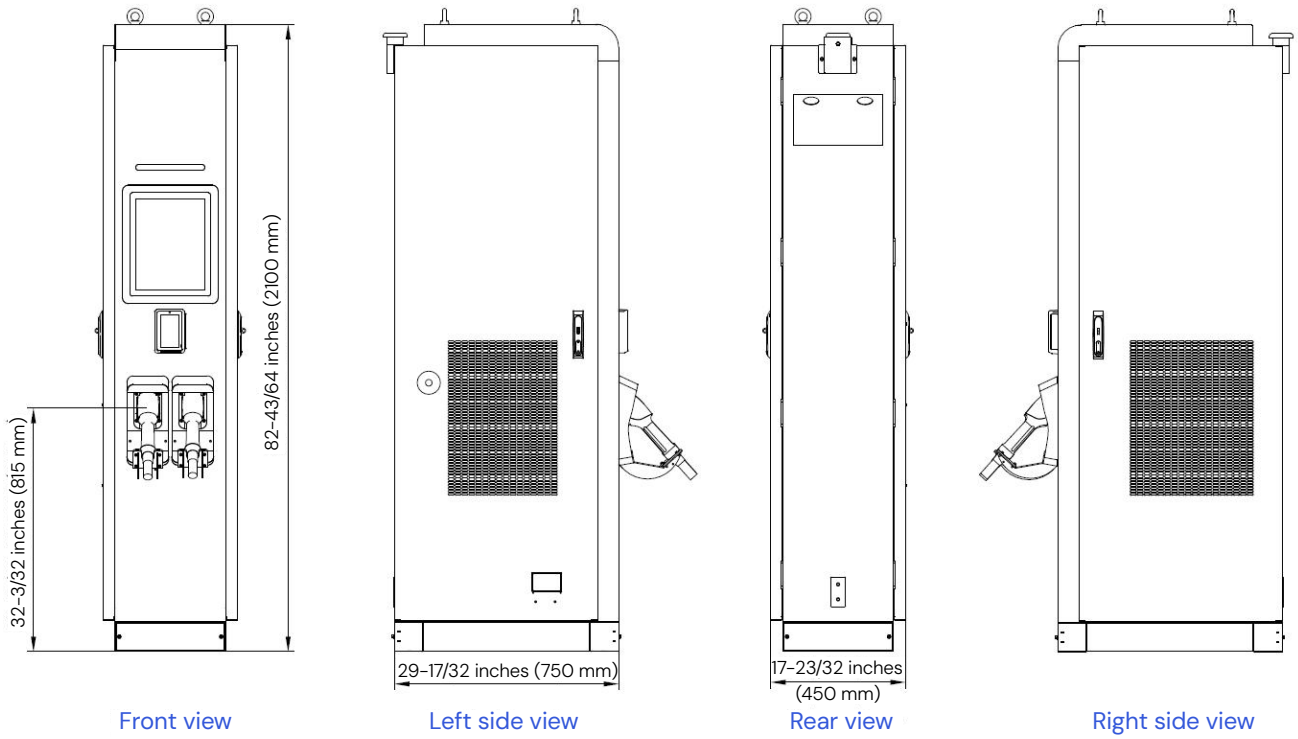


Figure 3.1.2-A Views and dimensions of SEC Series User Terminal

3.2 Installation Requirement

WARNING:
Ensure that you comply with the following installation requirements.
Otherwise, the normal operation and ventilation of the cabinet may be affected!

3.2.1 Power Bank

1. Space needs to be reserved for the opening of front and rear doors of the Power Bank. Please refer to Figure 3.2.1-A for the reserved space dimensions;

2. Figure 3.2.1-B shows the hole drilling positions and dimensions at the bottom of the Power Bank;

3. The Power Bank is recommended to be installed on concrete foundation, and the construction size of the concrete foundation is suggested to be as shown in Figure 3.2.1-C;

4. The height of the foundation is recommended to be 7-7/8±25/32 inches(200mm±20mm), and the vertical inclination of the installation should not exceed 5°. Refer to Figure 3.2.1-D for details;

5. Lay the power cables in advance. Multi-core cables should be stripped under the foundation. After stripping the AC power cables, the reserved length of the exposed foundation should not be less than 23-5/8 inches(600mm). The reserved length of signal cables and auxiliary power cables should not be less than 39-3/8inches(1000mm). Refer to Figure 3.2.1-D for details;

6. Install 4 M15/32*3-5/32inches(M12*80mm) stainless steel expansion bolts between the foundation and the Power Bank cabinet.

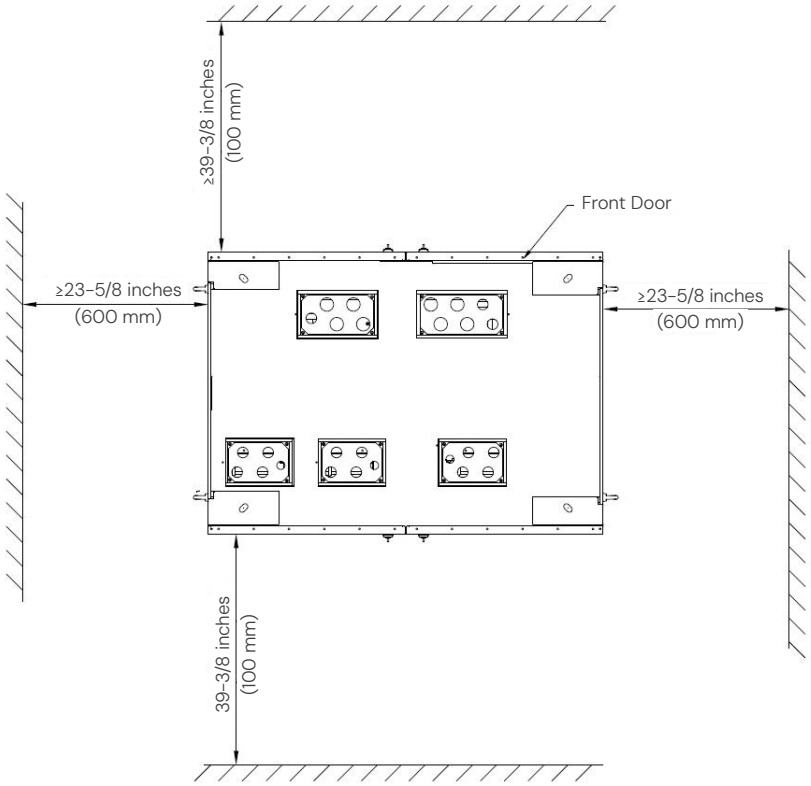


Figure 3.2.1 - A Power cabinet placement requirements

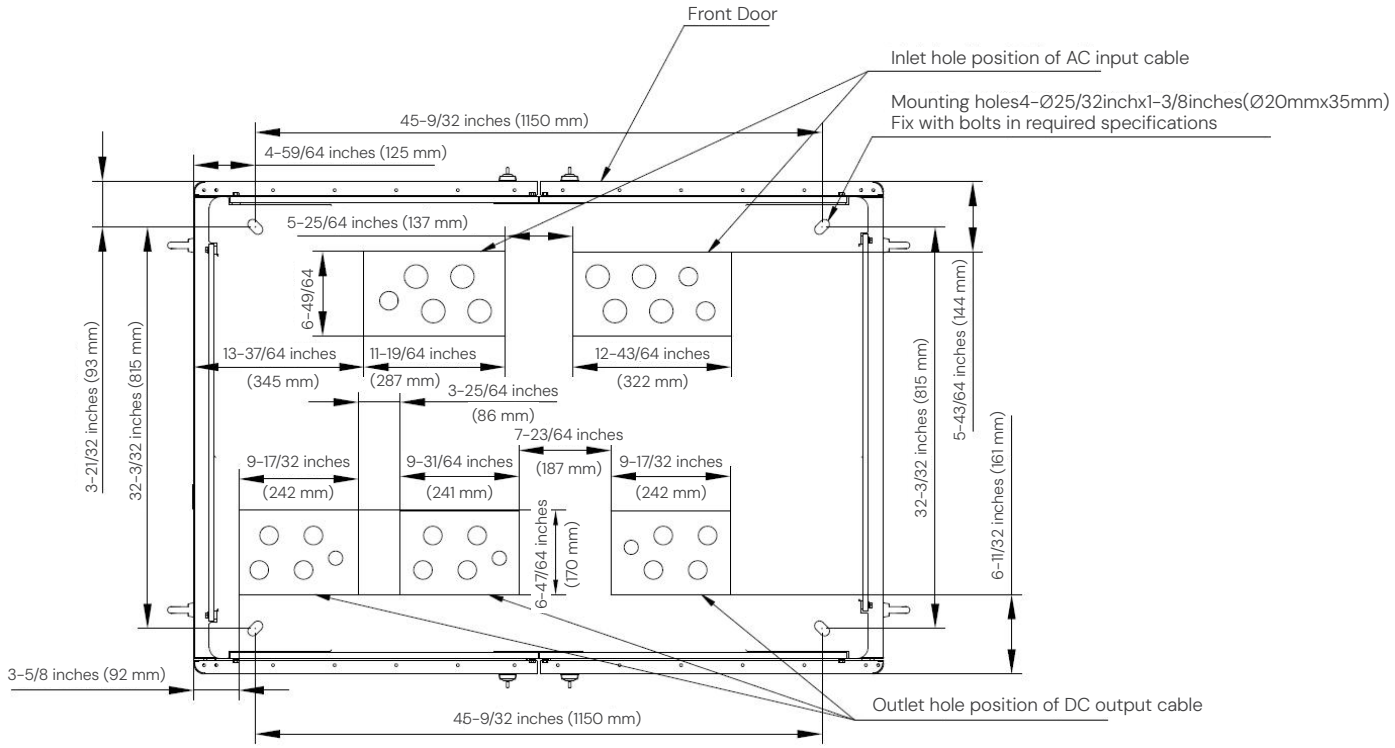
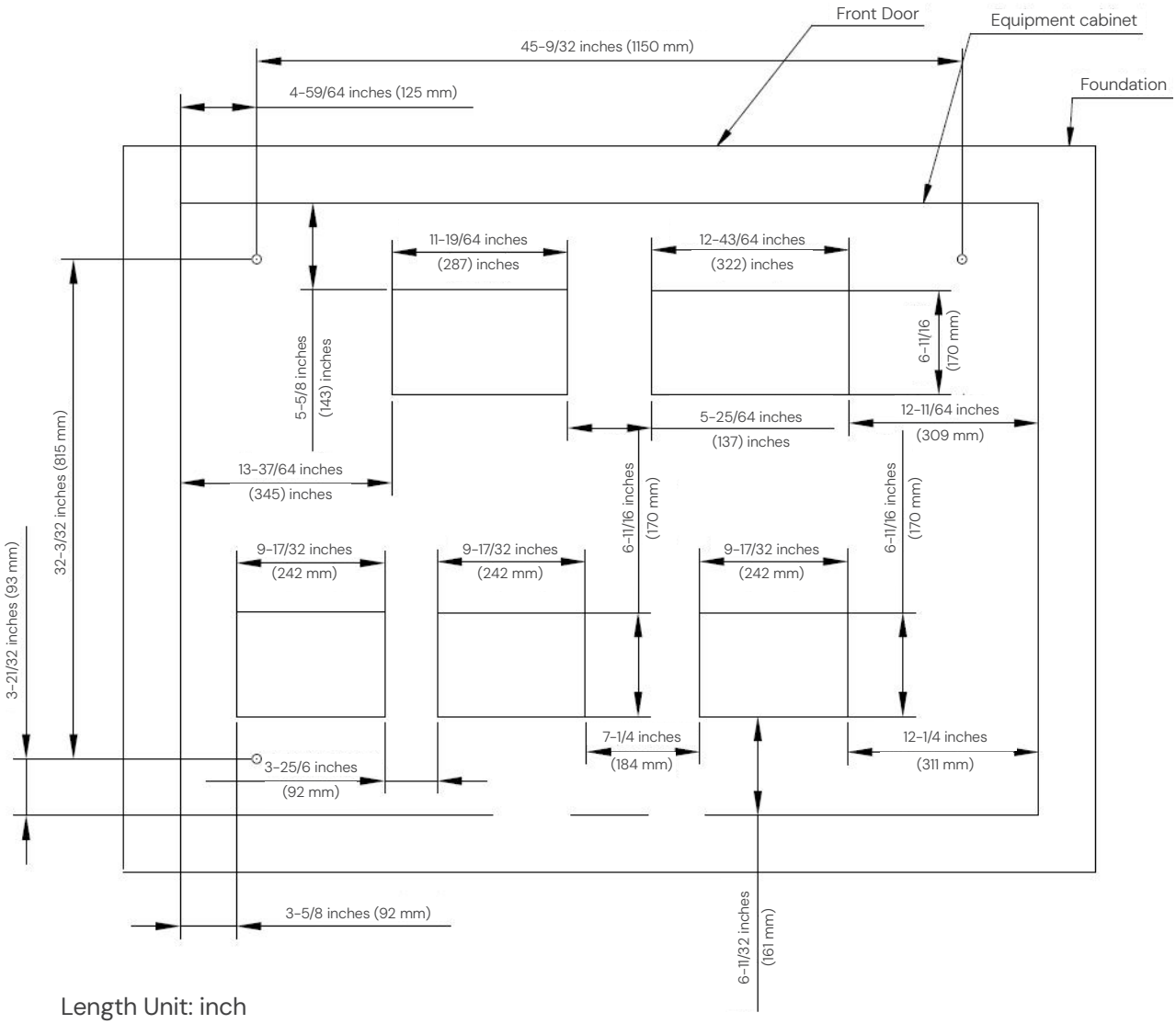


Figure 3.2.1 - B hole positions and dimensions at the bottom of Power Bank

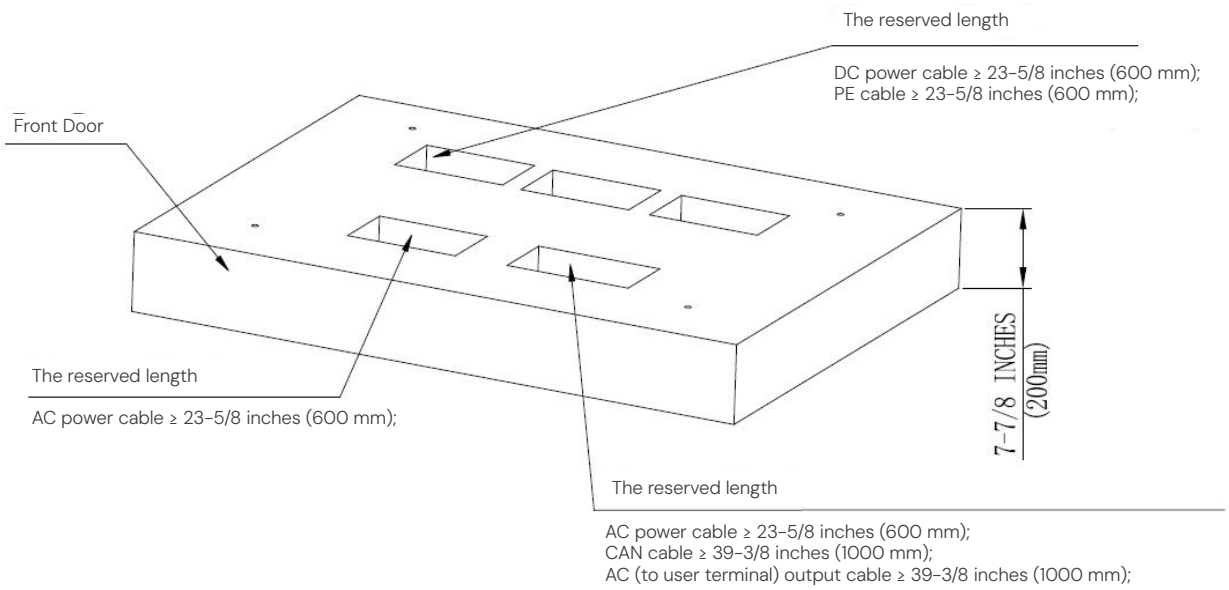


Length Unit: inch

Figure 3.2.1-C Hole positions and dimensions of the Power Bank concrete foundation

ATTENTION

The reserved cable length cannot be lower than the value shown in the picture; otherwise, the installation may fail!



Length Unit: inch

Figure 3.2.1-D Power bank concrete foundation height and the reserved length of the input and output cables

3.2.2 User Terminal

WARNING:
Ensure that you comply with the following installation requirements.
Otherwise, the normal operation and ventilation of the cabinet may be affected!

1. Space needs to be reserved for the opening of front and rear doors of the User Terminal. Please refer to Figure 3.2.2-A for the reserved dimensions;

2. Figure 3.2.2-B shows the hole drilling positions and dimensions at the bottom of the User Terminal;

3. The User Terminal cabinet is installed on the concrete or channel steel foundation, and the construction size of the concrete foundation is suggested to be as shown in Figure 3.2.2-C;

4. Lay the cables in advance. The reserved length of communication cables and auxiliary power cables should not be less than 27-9/16 inches(700mm); The reserved length of network cables should not be less than 157-31/64 inches(4000mm); The reserved length is not less than 27-9/16(700mm) inches. Refer to Figure 3.2.2-D for details;

5. The height of the foundation installation is recommended to be 7-7/8±25/32 inches(200mm ±20mm), and the vertical inclination of the installation should not exceed 5°. Refer to Figure 3.2.2-D for details.;

6. Install 4 M15/32*3-5/32inches(M12*80mm) stainless steel expansion bolts between the foundation and the User Terminal.

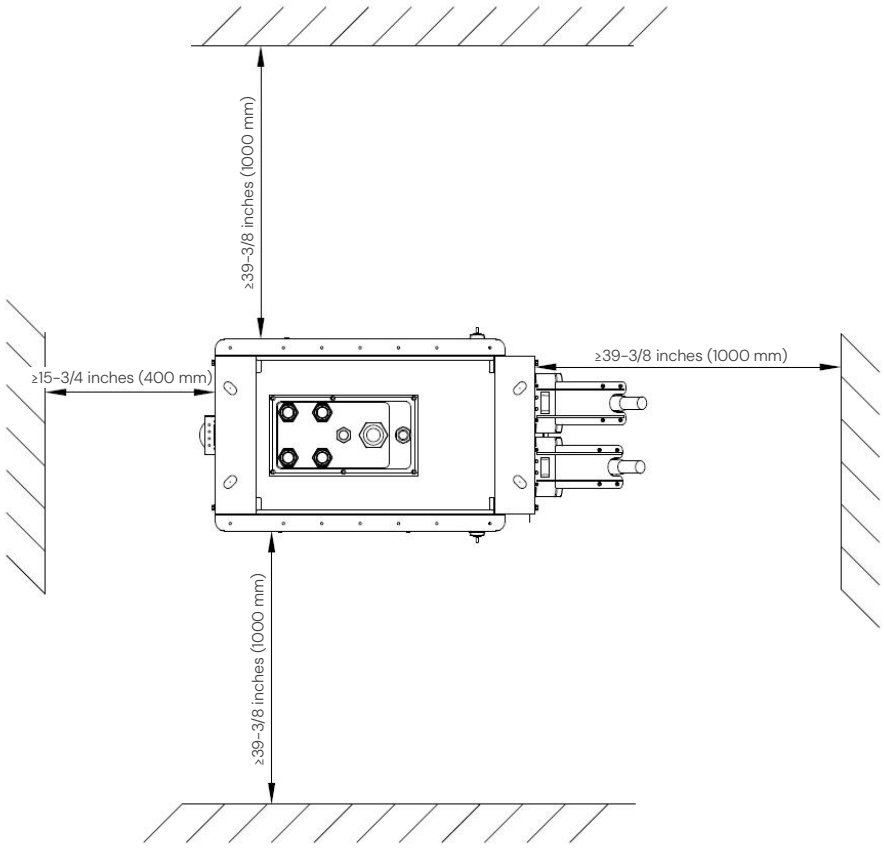


Figure 3.2.2-A User Terminal placement requirements

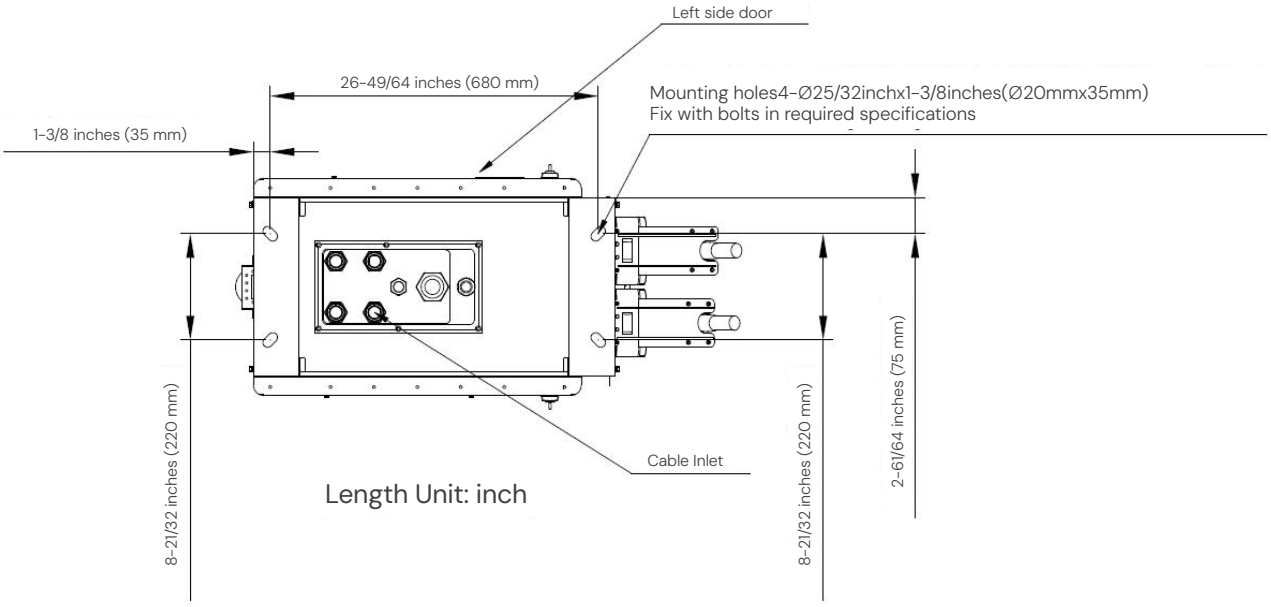


Figure 3.2-2-B Hole positions and dimensions at the bottom of User Terminal

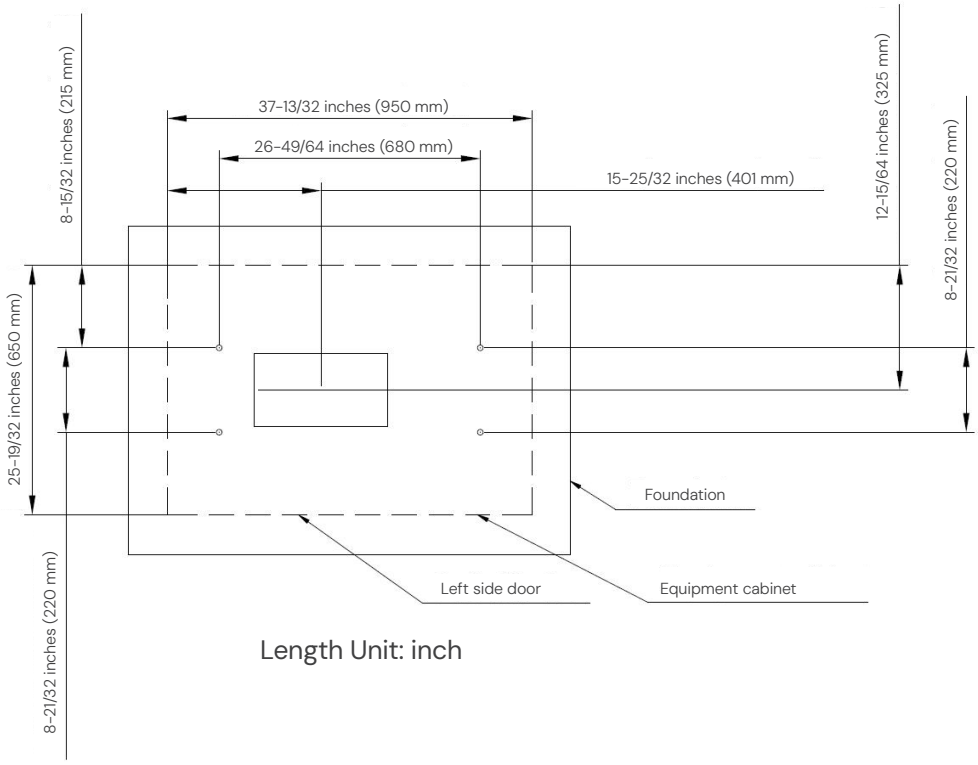


Figure 3.2.2-C Hole positions and dimensions of the User Terminal concrete foundation

ATTENTION

The reserved cable length cannot be lower than the value shown in the picture; otherwise, the installation may fail!

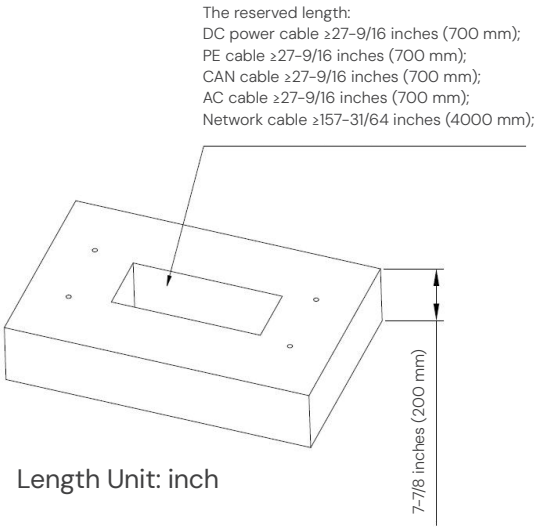
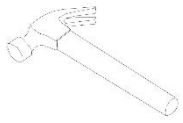
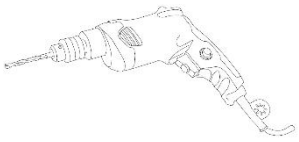
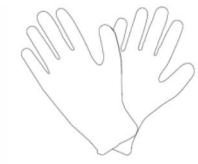
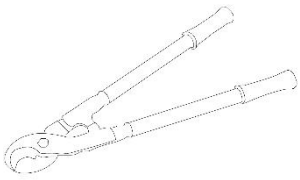
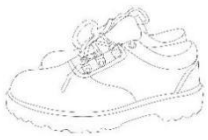
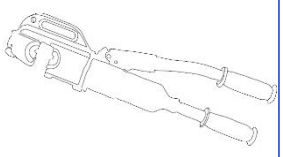
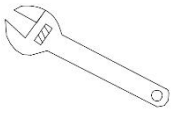
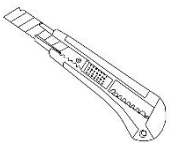


Figure 3.2.2-D User Terminal concrete foundation height and the reserved length of the input and output cables

3.3 Installation Steps

ATTENTION
The following tools should be included as far as possible, but are not limited to those listed in the following table.

S/N	Tools	No.	Drawing	S/N	Tools	No.	Drawing
1	Claw hammer	1		6	Cross screw-driver	1	
2	Herring-bone ladder	1		7	Electric drill Equipped with φ 16mm drill bit	1	
3	Insulating gloves	1		8	Cable clipper	1	
4	Insulating shoes			9	Hydraulic clamp	1	
5	Adjustable wrench	1		10	Art knife	1	

3.4 Movement installation Process

3.4.1 Power Bank

WARNING:
Proper movement and installation are necessary to ensure the proper operation of the equipment, and it is necessary to follow the operation instructions in the manual!

1. Unpacking the outer package of the cabinet

Tools required: herringbone ladder, claw hammer, art knife, protective gloves

1) With the help of the herringbone ladder, straighten the metal card on the top of the packing material with a claw hammer, and remove the upper cover plate. As shown in Figure 3.4.1-A.

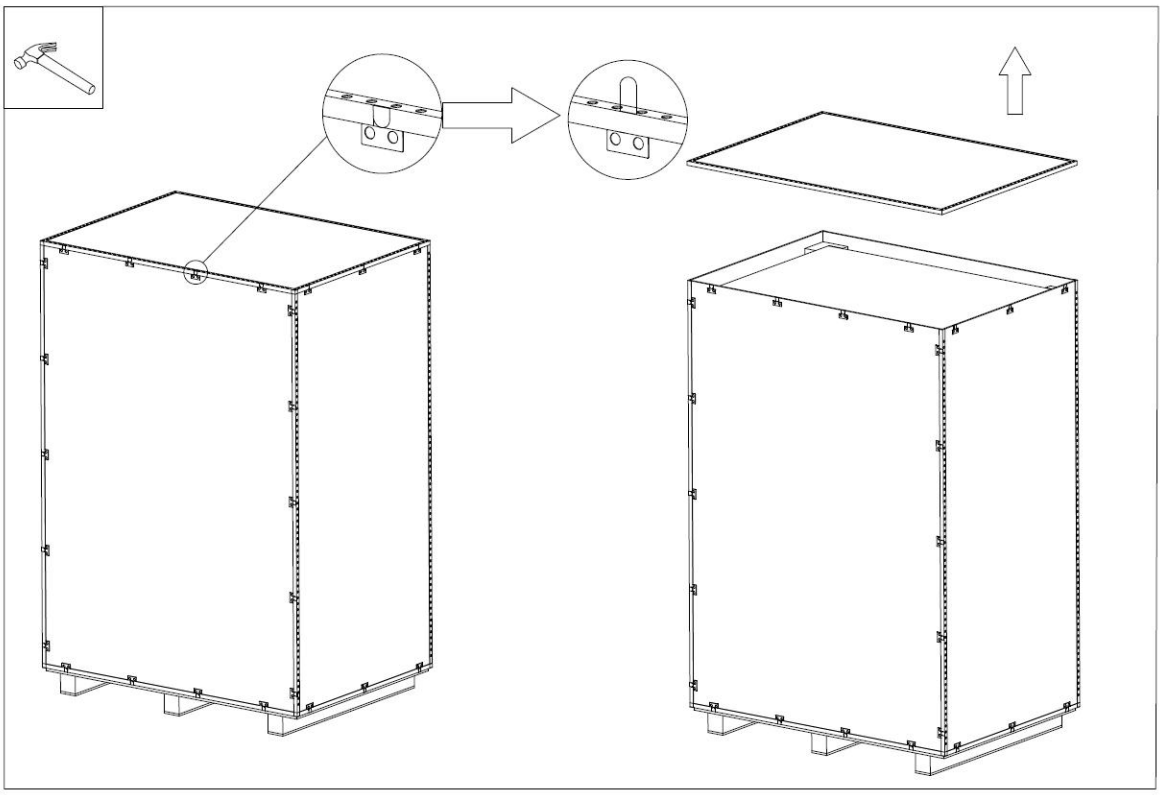


Figure 3.4.1-A.

2) Straighten all metal cards with a claw hammer, remove the surrounding wood boards, cut the PE bags wrapped around the cabinet with the art knife, and remove the PE bags and foam. As shown in Figure 3.4.1-B.

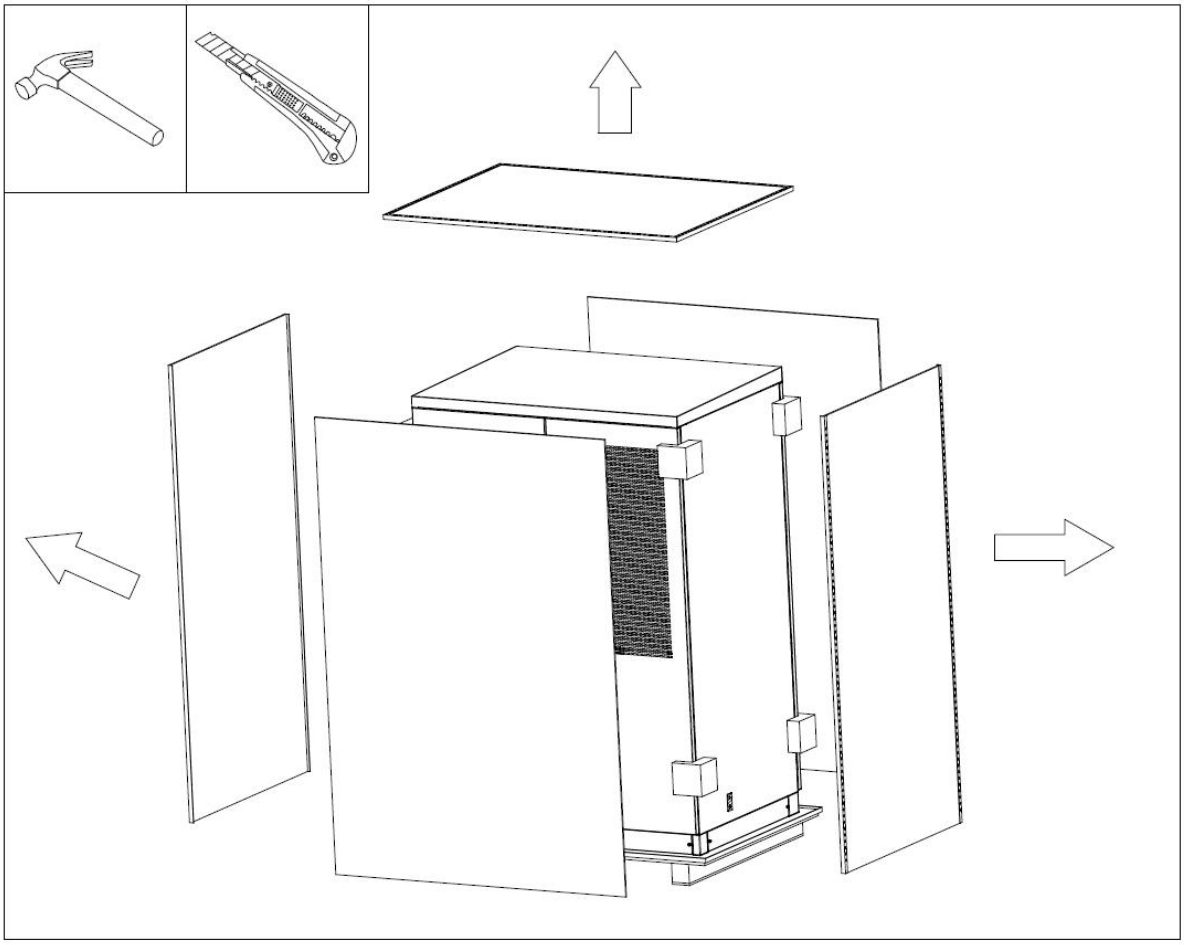
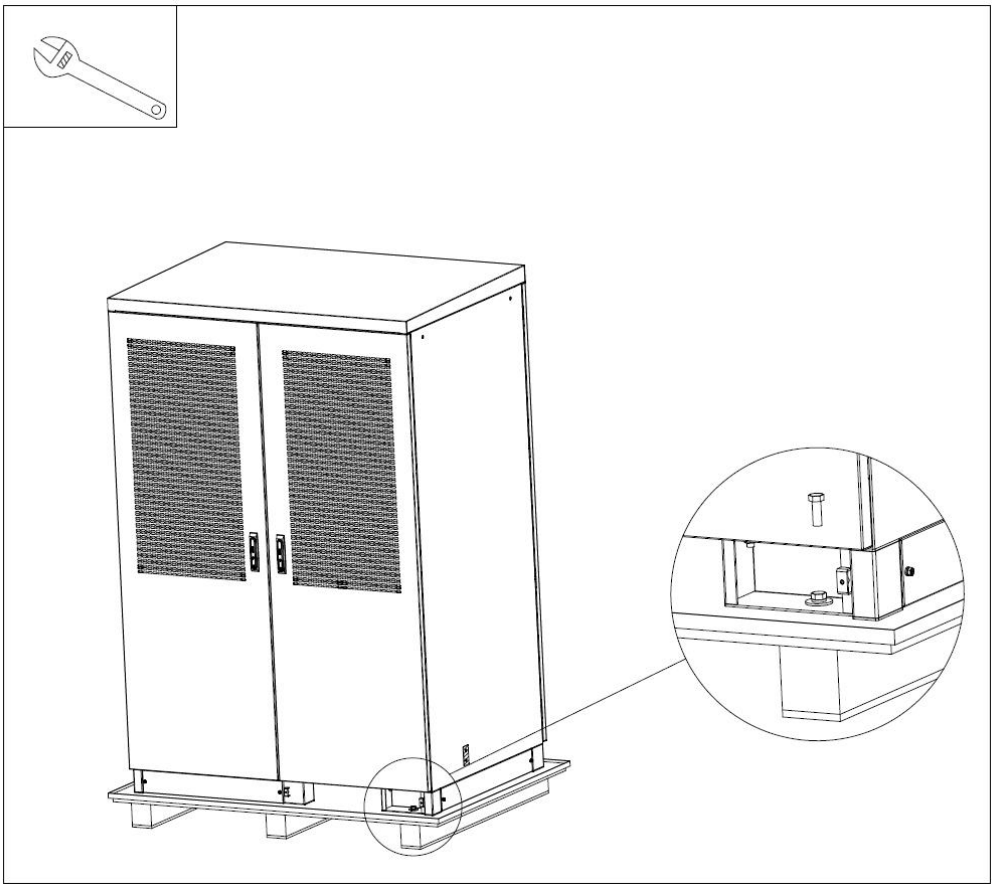


Figure 3.4.1-B.

3) Use a wrench to remove the 4 M12 bolts around the foundation, as shown in Figure 3.4.1-C



2. Foundation drilling

Tools required: electric drill, φ16mm drill bit, protective gloves

1) The foundation is constructed according to the positions and dimensions of the holes shown in Figures 3.2.1-C and 3.2.1-D. The cable holes of the foundation correspond to the cable holes at the bottom of the Power Bank cabinet.

2) According to the marked installation hole positions, use an electric drill to drill 4 φ5/8 inches (16mm) installation holes with a depth of 3-5/32~3-11/32 inches(80~85mm) on the cement installation foundation.

3) Use a claw hammer to knock 4 M15/32*3-5/32inches(M12*80mm) expansion bolts into the holes, and then unscrew the screw part so that the expansion rods are inserted into the foundation mounting holes. As shown in Figure 3.4.1-E.

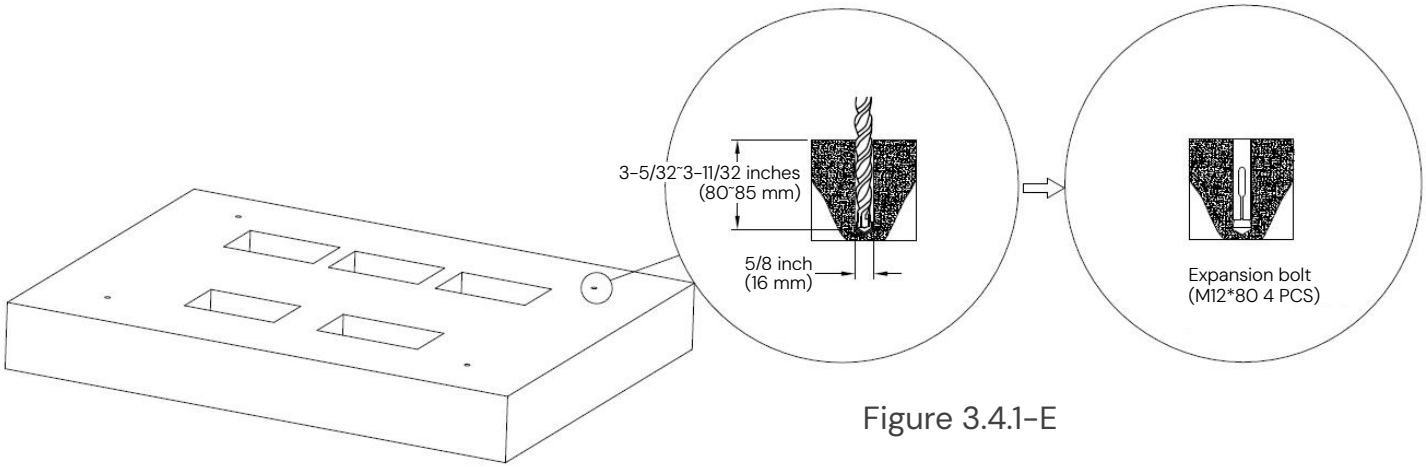
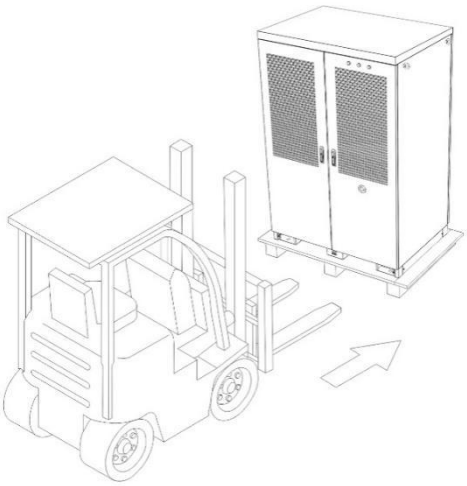


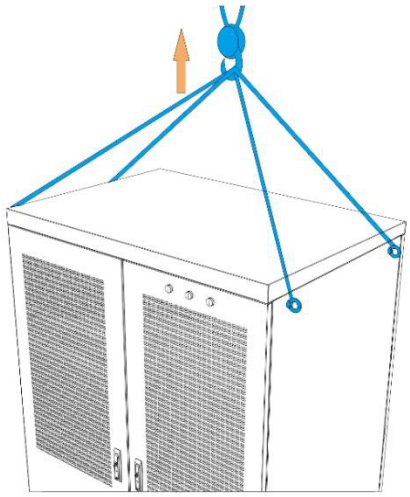
Figure 3.4.1-E

3. Placement of the power cabinet

1) Use a forklift to transport the Power Bank to the mounting foundation. Use a crane to lift the cabinet, as shown in Figure 3.4.1-F.

WARNING:
Select a forklift or crane whose load matches the weight of the cabinet!





2) Suspend the Power Bank cabinet above the cement foundation, align the installation holes, open the front door of the cabinet and the rear door of the cabinet, and pull the pre-laid cables from the bottom of the cabinet through the cable entry holes. After that, slowly lower the cabinet and pull the remaining cables until the cabinet is completely placed on the foundation.

Note:

①The mounting holes of the cabinet foundation need to correspond to the holes on the cement foundation;

②The PG gland of the cable entry hole of the cabinet can be removed, but the damage of the PG gland should be avoided during the removal process;

3 ）Install 4 M15/32*3-5/32inches(M12*80mm) expansion bolts on the drilled mounting holes around the foundation, and tighten the bolts to ensure the cabinet is fixed reliably, as shown in Figure 3.4.1-G

ATTENTION
The torque of these bolts is 376~439lbf*in(434~506kgf.cm).

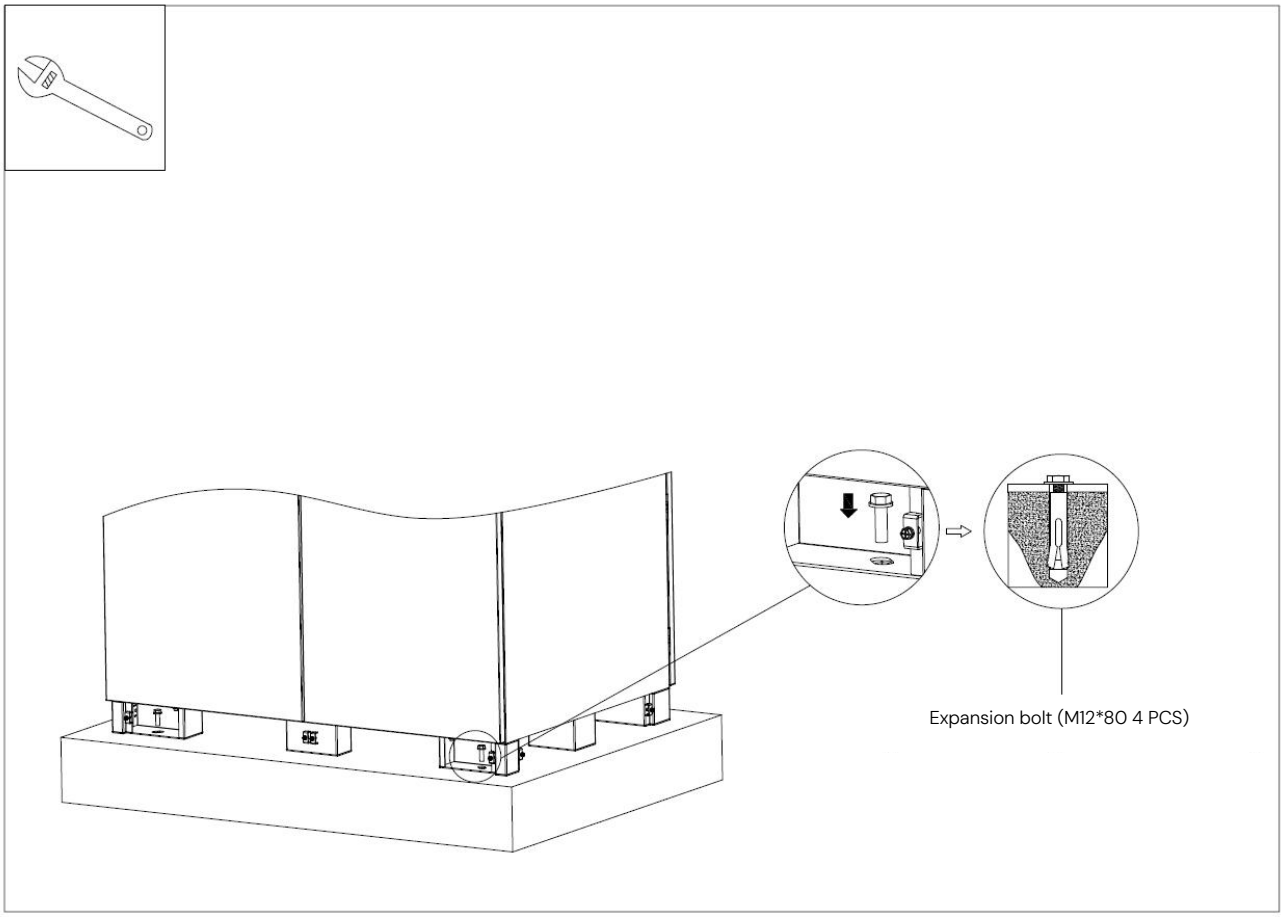


Figure 3.4.1-G

4) Install the front and rear sealing plates of the foundation, as shown in Figure 3.4.1-H.

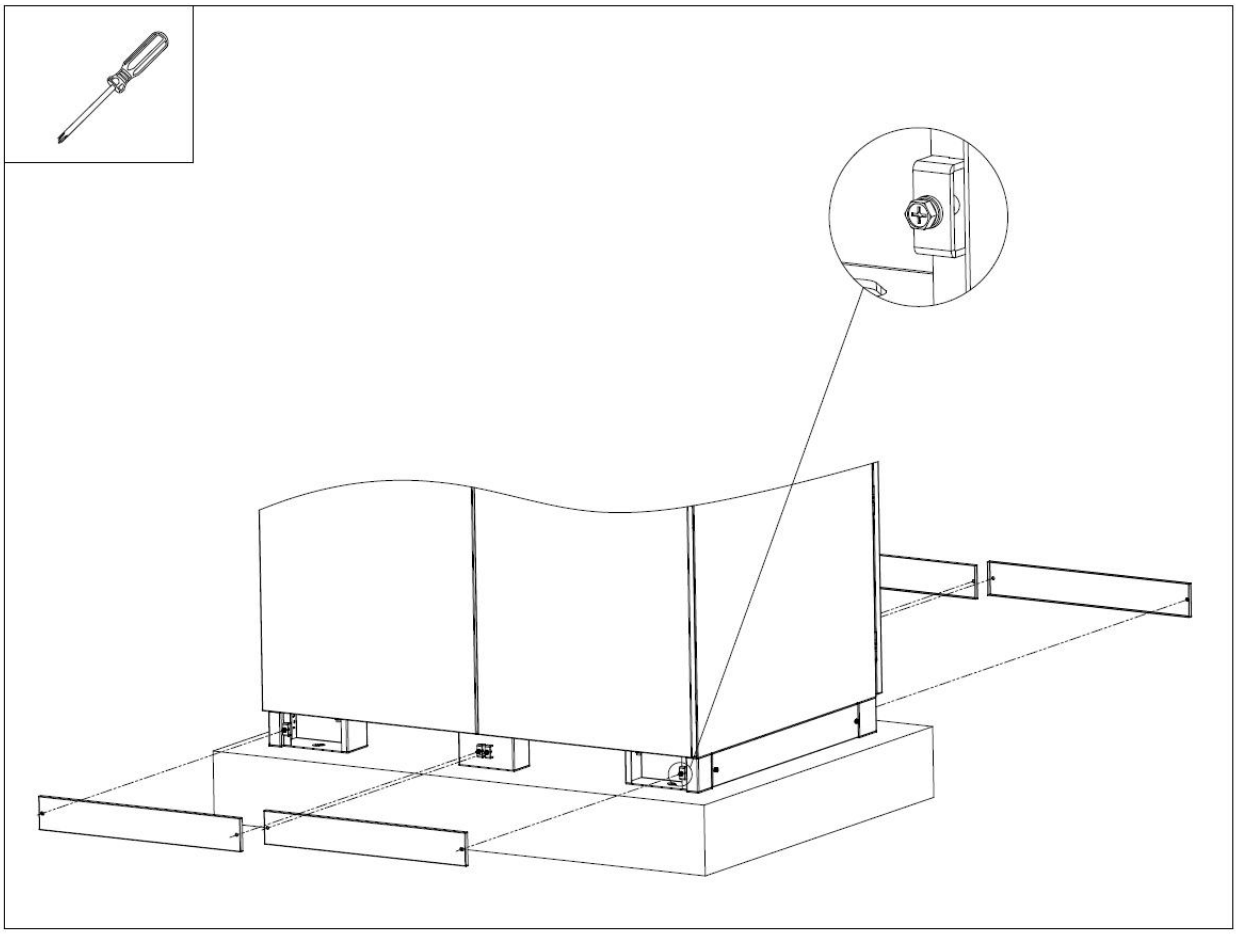


Figure 3.4.1-H

5) Install the sealing plates on the left and right sides, as shown in Figure 3.4.1-I.

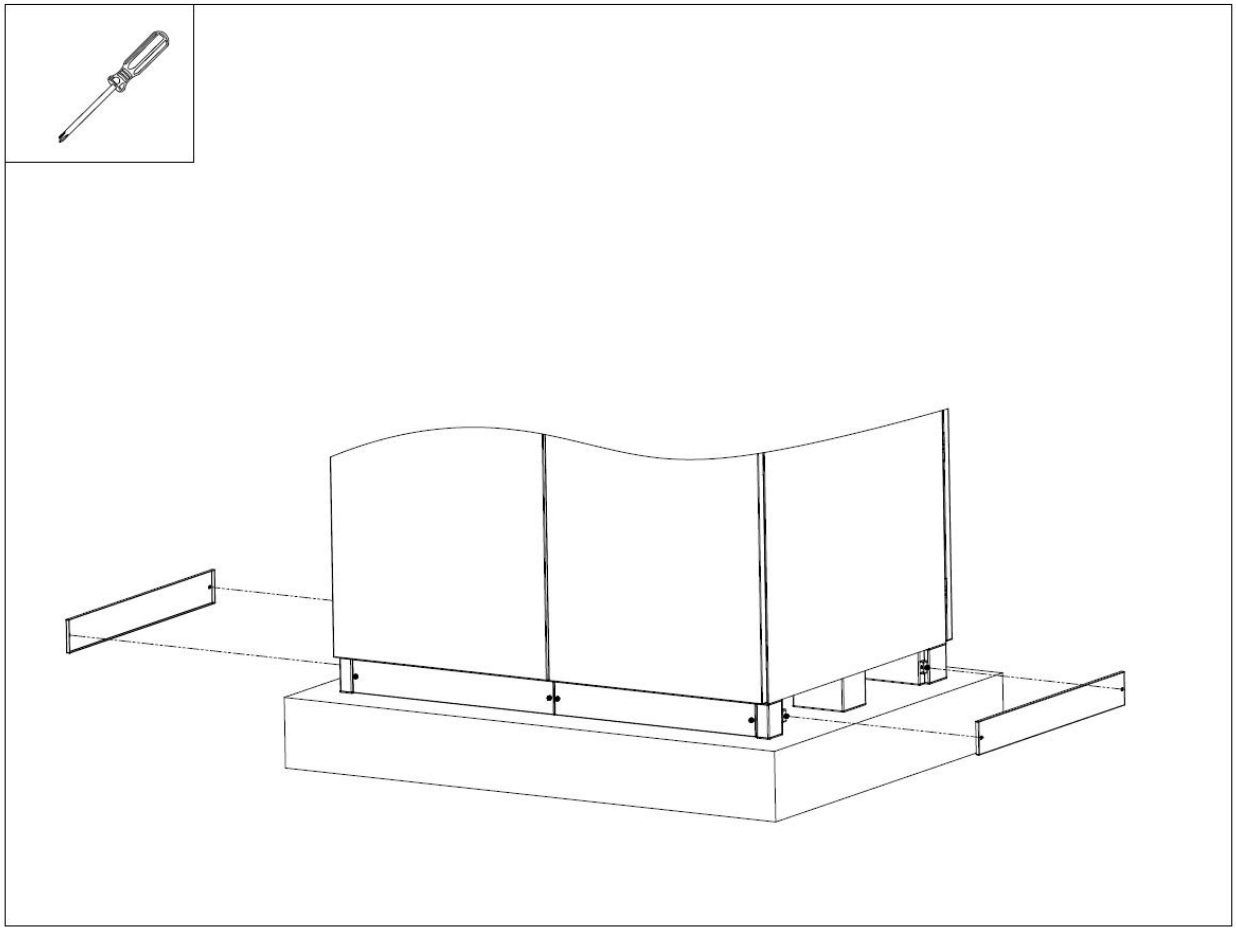


Figure 3.4.1-I

Note: Install the front and rear sealing plates in the direction shown in the figure first. Then install M6*16 screws from both sides of the sealing plate to fasten them.

3.4.2 User unit

1. Unpacking the outer package of the cabinet

Tools required: herringbone ladder, claw hammer, art knife, protective gloves

1) With the help of the herringbone ladder, straighten the metal card on the top of the packing material with a claw hammer, and remove the upper cover plate. As shown in Figure 3.4.1-A.

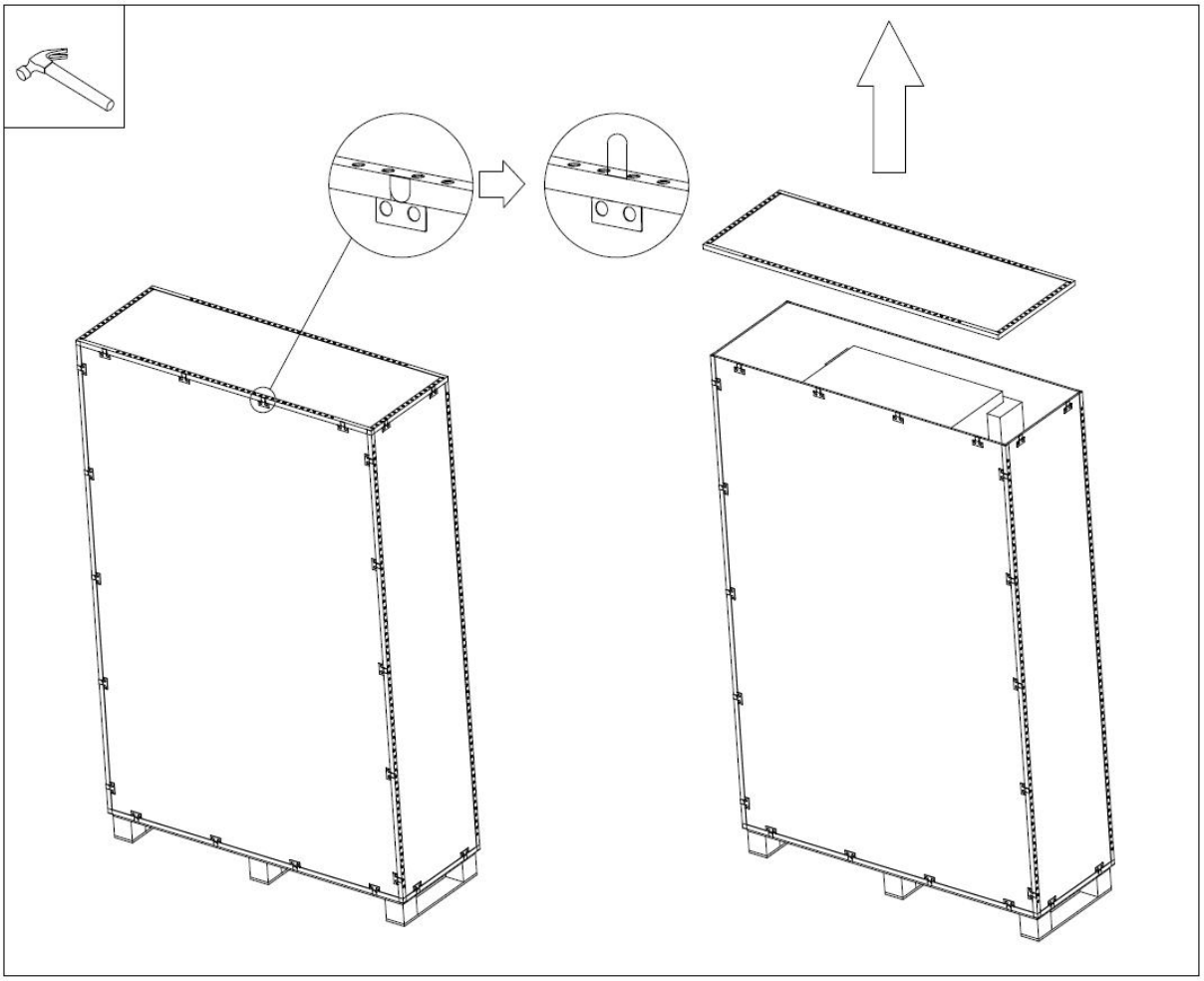


Figure 3.4.2-A

2) Straighten all metal cards with a claw hammer, remove the surrounding wood boards, cut the PE bags wrapped around the cabinet with the art knife, and remove the PE bags and foam. As shown in Figure 3.4.1-B.

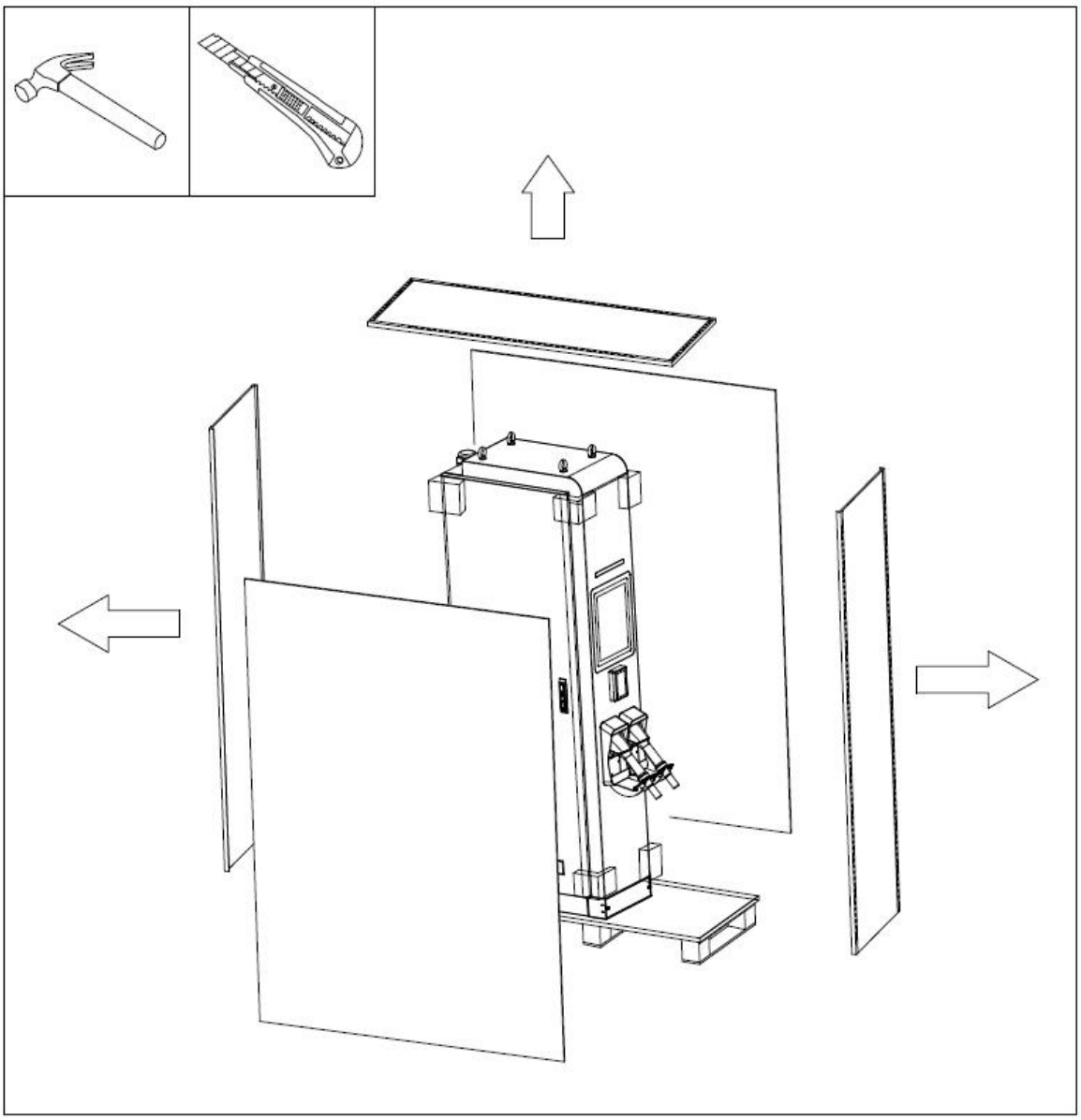


Figure 3.4.2-B

3) Use a wrench to remove the 4 M12 bolts around the foundation, as shown in Figure 3.4.2-C.

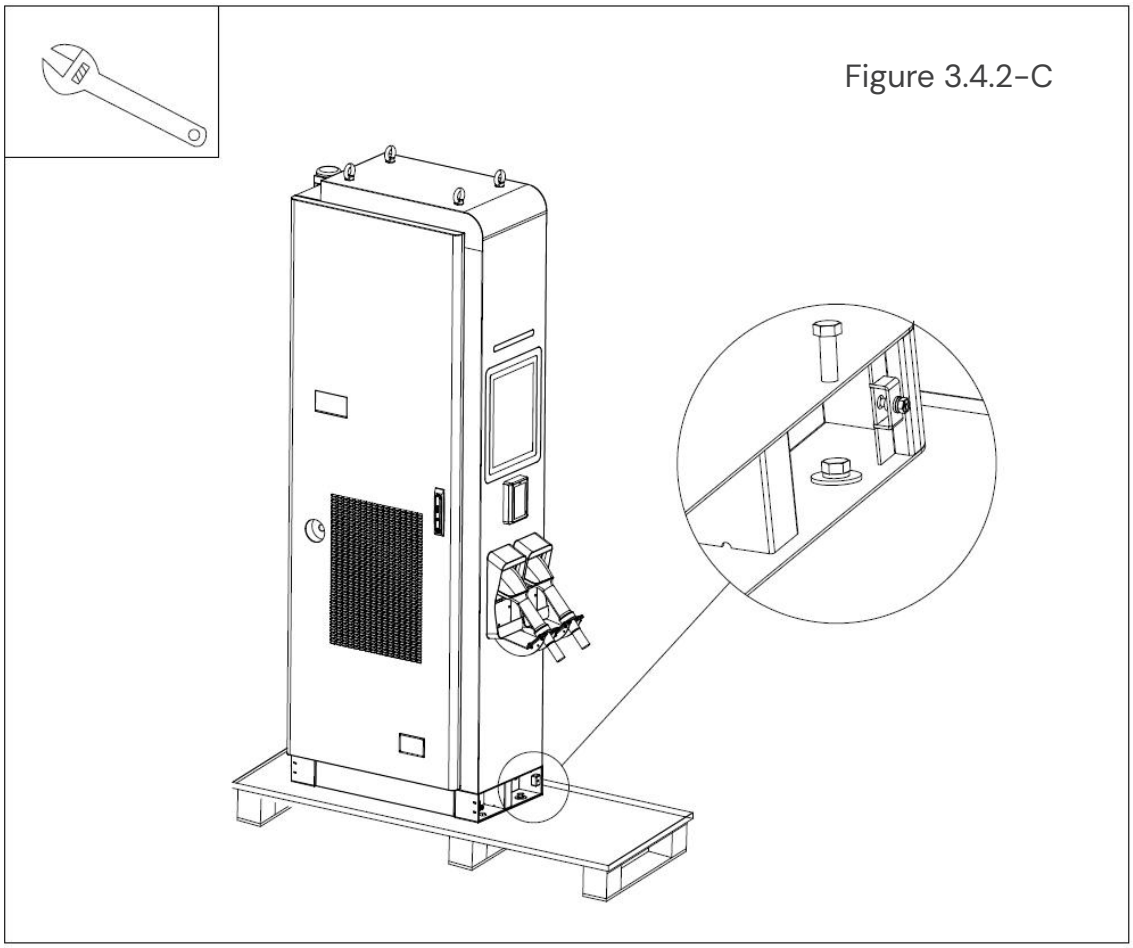


Figure 3.4.2-C

2. Foundation drilling

Tools required: electric drill, φ16mm drill bit, protective gloves

1) The foundation is constructed according to the positions and dimensions of the holes given in Figures 3.2.2-C and 3.2.2-D. The cable holes of the foundation correspond to the cable holes of the foundation of the User Terminal.

2) According to the installation hole positions marked in Figure 3.2.2-C, use an electric drill to drill 4 φ16mm installation holes with a depth of 3-5/32~3-11/32 inches(80~85mm) on the cement installation foundation.

3) Use a claw hammer to knock 4 M15/32*3-5/32inches(M12*80mm) expansion bolts into the holes, and then unscrew the screw part so that the expansion rods are inserted into the foundation mounting holes. As shown in Figure 3.4.2-D.

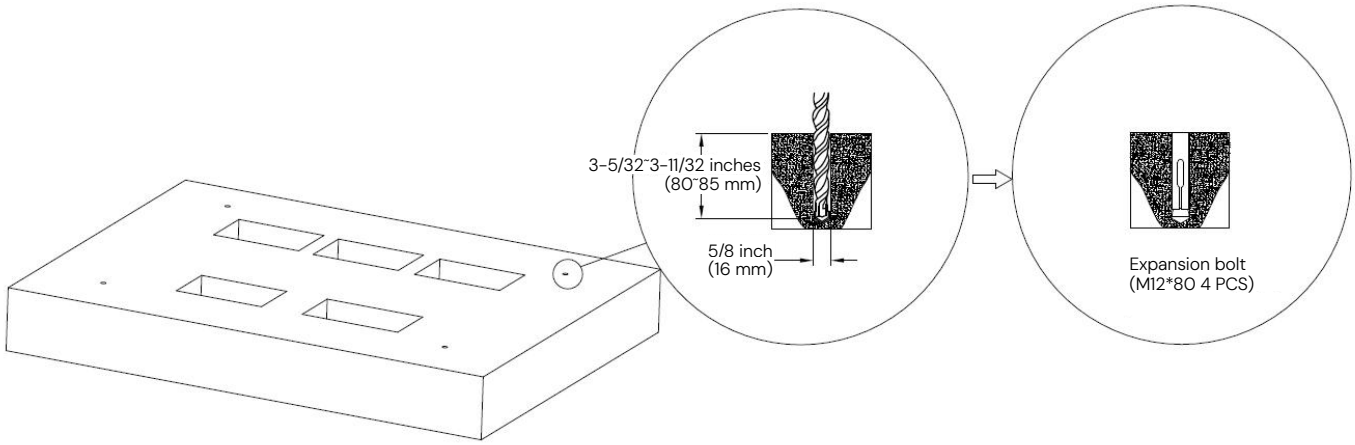


Figure 3.4.2-D

3. Placement of the User Terminal

1) Use a forklift to transport the User Terminal to the mounting foundation. Use a crane to lift the cabinet, as shown in Figure 3.4.2-E.

WARNING:
Select a forklift or crane whose load matches the weight of the cabinet!

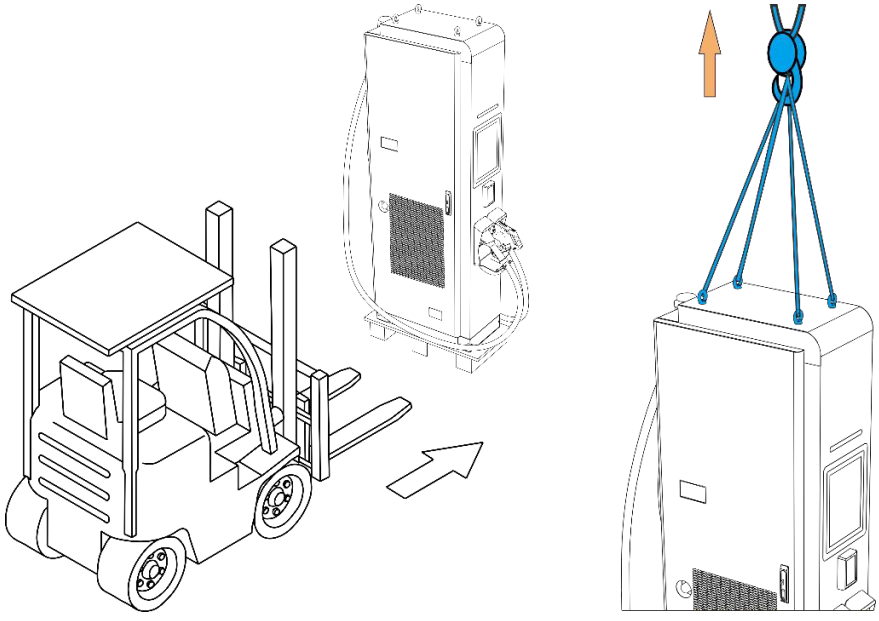


Figure 3.4.2-E

2) Suspend the cabinet above the cement foundation, open the front door of the cabinet, and pull the pre-buried cables from the bottom of the cabinet into the cabinet through the cable entry hole. After that, slowly lower the cabinet and pull the remaining cables from the front door until the cabinet is completely placed on the foundation.

Note:

①The mounting holes of the cabinet foundation need to correspond to the holes on the cement foundation;

②The cable entry sealing plate of the cabinet can be removed. It is recommended to remove the sealing plate before entering the cable, and then pass the cable through the waterproof gland. The waterproof gland needs to be tightened to ensure sealing.

③During the operation, please be careful not to damage the cable and the charging cable, as shown in Figure 3.4.2-F

WARNING:

Avoid damaging the charging connector during installation!

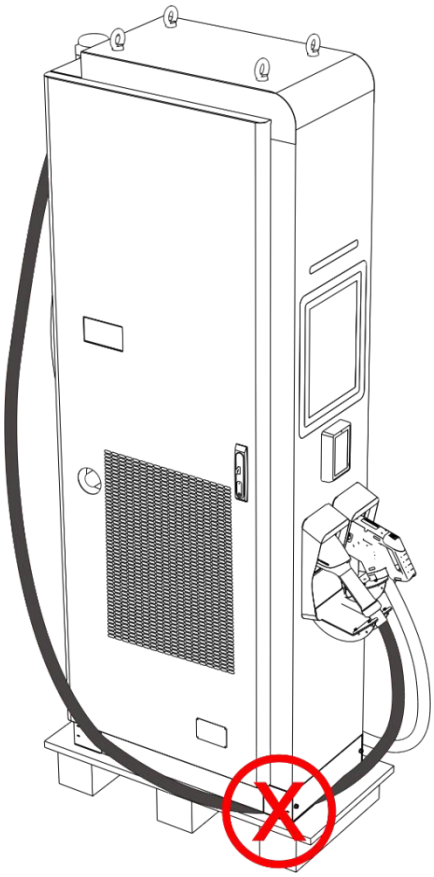


Figure 3.4.2-F

3）Install 4 M15/32*3-5/32inches(M12*80mm) expansion bolts on the drilled mounting holes around the foundation, and tighten the bolts to ensure the cabinet is fixed reliably, as shown in Figure 3.4.2-G

ATTENTION

The torque of these bolts is 376~439lbf*in (434~506kgf.cm).

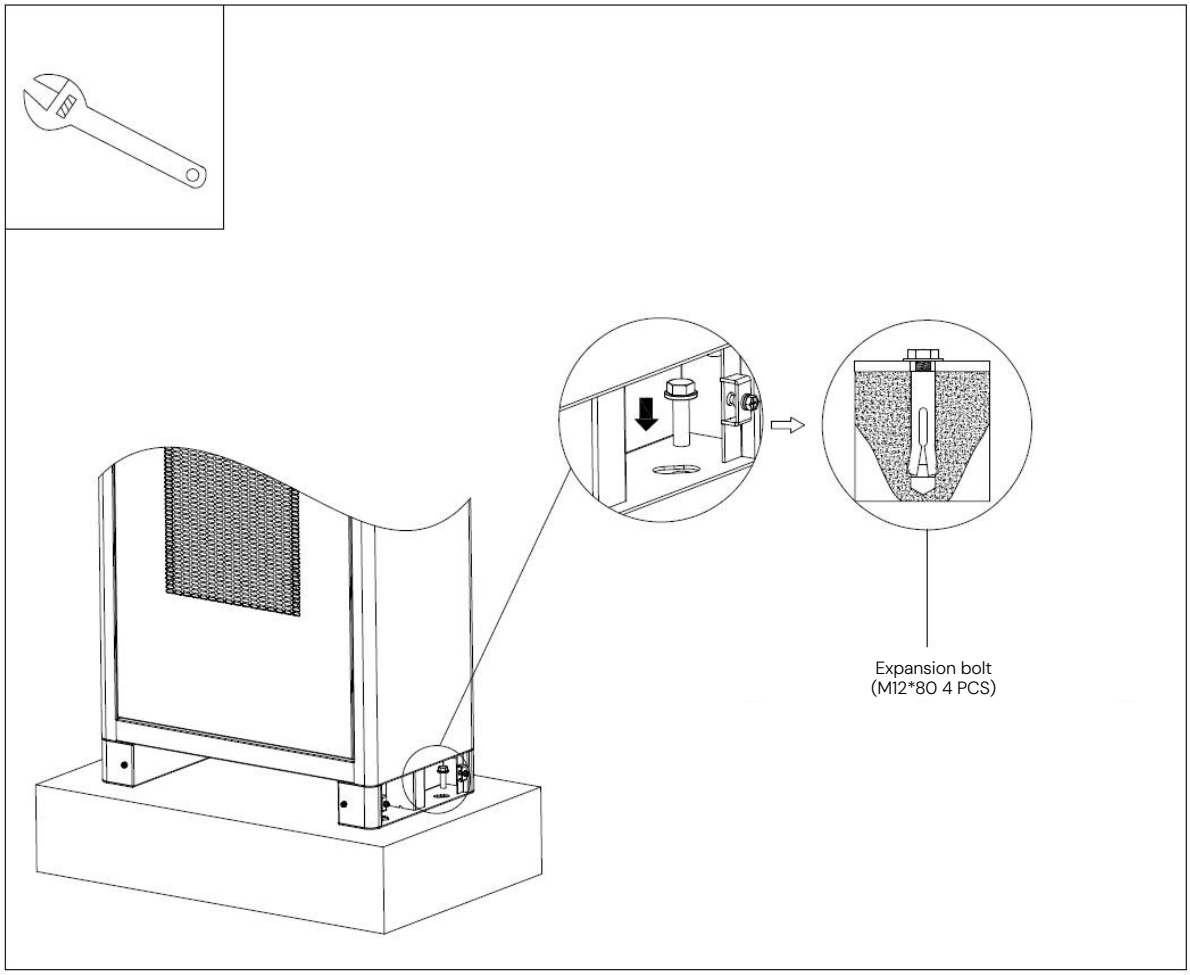


Figure 3.4.2-G

4) Install the front and rear sealing plates of the foundation, as shown in Figure 3.4.2-H.

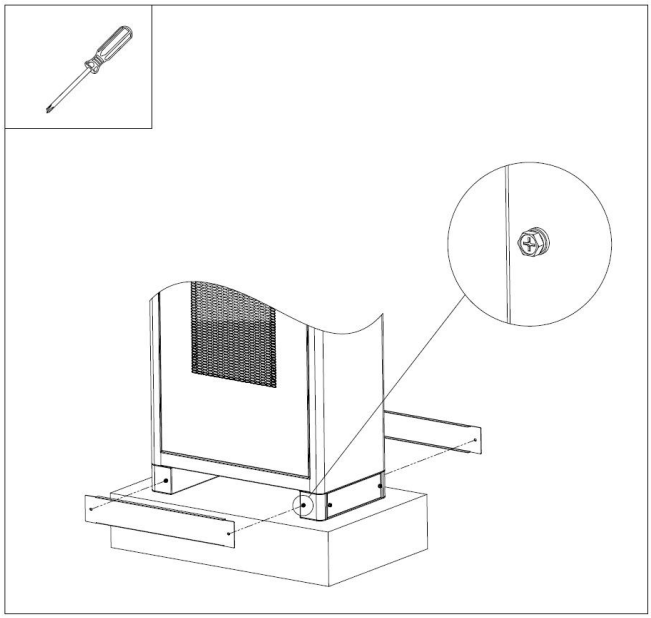


Figure 3.4.2-H

5) Install the sealing plates on the left and right sides, as shown in Figure 3.4.2-I.

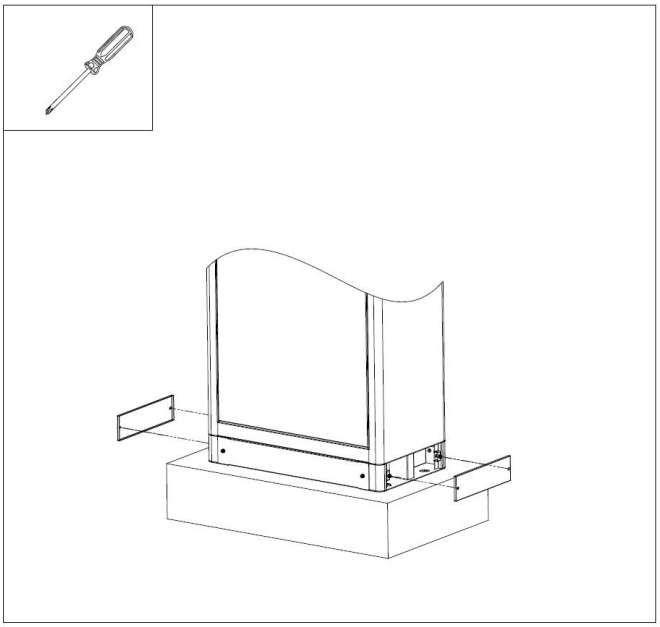


Figure 3.4.2-I

Note: Install the sealing plate in the direction shown in the figure first, and then fasten it with 4 screws from both sides of the sealing plate. The screw size is M15/64*5/8 inch(M6*16).

3.5 Construction of power cables

3.5.1 Layout requirements of power cables

1. The AC input and DC output cables of the Power Bank enter from the Input and output hole at the bottom of the charger, and the cable shall be laid through the cable trench.

2. The AC input and DC output cables of the Power Bank is of copper core wire, and the cross-sectional area of the cable depends on the load.

3. The AC input cable starts from the site distribution switch and connects to the copper bar of the charger's input switch. Protection devices shall be provided at the superior side.

4. The colors of AC input cable are brown (L1), black (L2), gray (L3), blue (n) and yellow&green (PE). If the input cable has only one color, it is necessary to put cable number identification (or sleeve with mark) on it.

5. The power cables, auxiliary source cables and communication cables of the User Terminal come from the input hole at the bottom of the charger through the cable trench.

6. The colors of DC power cable connecting the Power Bank and the User Terminal are red (DC+) and black (DC-). If the DC power cable has only one color, it is necessary to put cable number identification (or sleeve with mark) on it. 7、The outdoor power cable shall be laid according to the power specification. The power cable and the signal cable must be laid separately with signal cable in a separate tube to avoid radio interference.

8. The cable shall not be laid in the area which can be easily damaged by means of mechanical factors, corrosive medium, humidity, strong magnetic field and strong electrostatic field interference. If necessary, please take corresponding protection measures.

3.5.2 Process requirements of power cables

1. Cable laying shall be free from external force, distortion and damage of insulation layer.

2. It is strictly forbidden to twist, flatten, break the protective layer and wear the protective layer severely.

3. The protective pipe shall be cleaned before the cable passes through the pipe, and the wire shall not be damaged.

4. The cable arrangement shall be tidy and the conjunctions should be avoided.
5. Sufficient clearance shall be reserved for each wire of the cable, and the curve ratio shall be consistent.

6. Crimp the terminal of the cable to ensure no clearance between the contact surface.

7. When crimping the terminationtermination of input cable, the hot-shrinking tube should be installed between the cable and the termination, and the inside and outside of the tube shall be smooth without damage and crack. Before setting the hot-shrinking tube, the foreign objects on the cable should be removed (e.g., burr and iron filings) on the surface to prevent damage to the tube. The color of the tube should be in accordance with the phase. When the tube is being heated, flame should be avoided inside the cabinet to prevent burning the internal components and cables. The appearance after it should be flat, smooth, in uniform shrinkage with no dust and crack.

8. Attention should be paid to the wires type when crimping RJ45 connector for ethernet cable. Check whether it is in good status after crimping.

3.5.3 Recommended Cable Specifications

1. Cable specifications for AC input of the Power Bank (Recommended)

Capacity (kW)	Cable specification (Use copper conductors only)	Capacity of superior distribution switch	Screw specification (diameter: mm)	Cable Termination specification Single hole
360kW	2*(4*185mm²+1*95mm²)	800A	L1/L2/L3/ N：M16(763~1076lbf*in) (880~1240kgf.cm) PE:M12(376~439lbf*in) (434~506kgf.cm)	(DT185-16)*8+ (DT95-10)*2
480kW	2*(4*240mm²+1*120mm²)	1000A	L1/L2/L3/ N：M16(763~1076lbf*in) (880~1240kgf.cm) PE:M12(376~439lbf*in) (434~506kgf.cm)	(DT240-16)* 8+ (DT120-12)*2

2. Cable specifications for DC input, AC auxiliary input and communication cables of the User Terminal (Recommended)

Cable category	Cable specification (Use copper conductors only)	Screw specification (diameter: mm)	Cable Termination specification Single hole
DC power cable	4*150m²+70mm²	DC1+/DC1-/DC2+/ DC2-: M12(376~439lbf*in)(434~506kgf.cm) PE：M12(376~439lbf*in)(434~506kgf.cm)	(DT150-12)*8+ (DT70-10)*2
AC secondary cable	2*4mm²	/	Tubular termination E4010
Commu-nication cable	shielded twisted pair 2*1.0 (grounding shield)		tubular termination E1010

3.5.4 Connection diagram of whole device

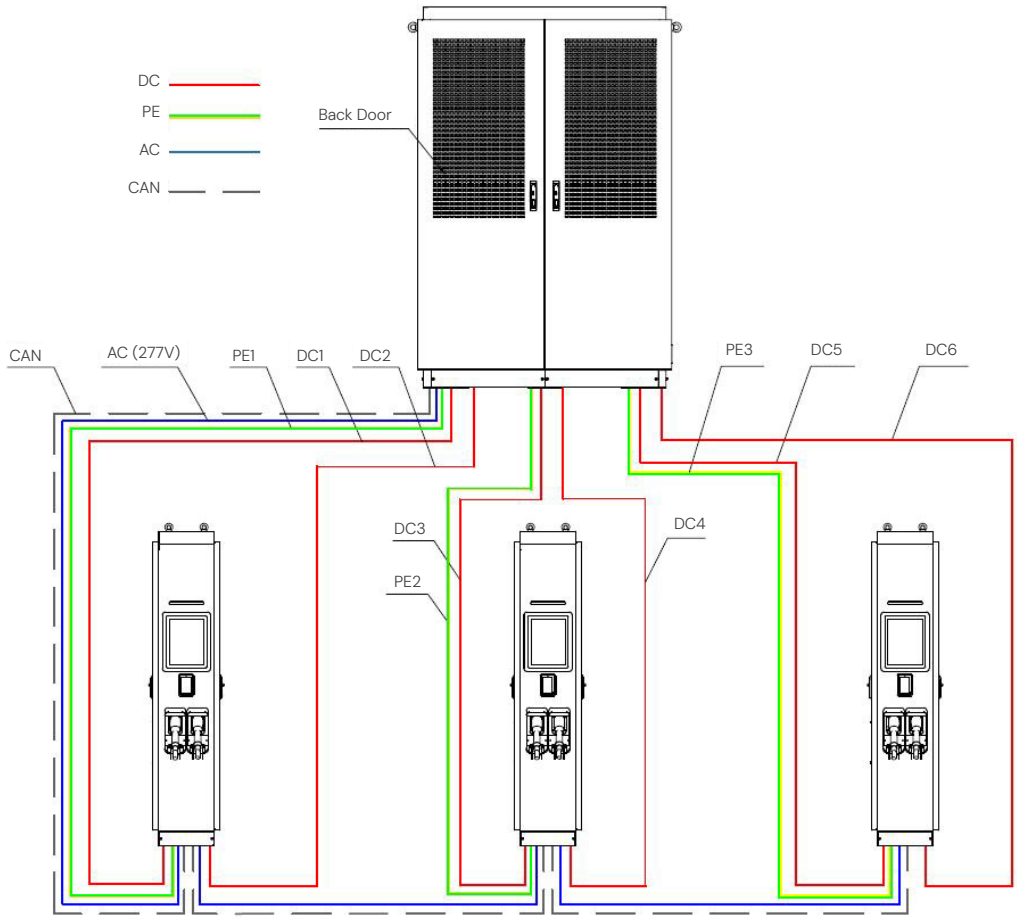


Figure 3.5.4-A Power Bank wiring diagram

Connection Instructions of equipment:

1) The shield of CAN Communication cable must be grounded reliably.

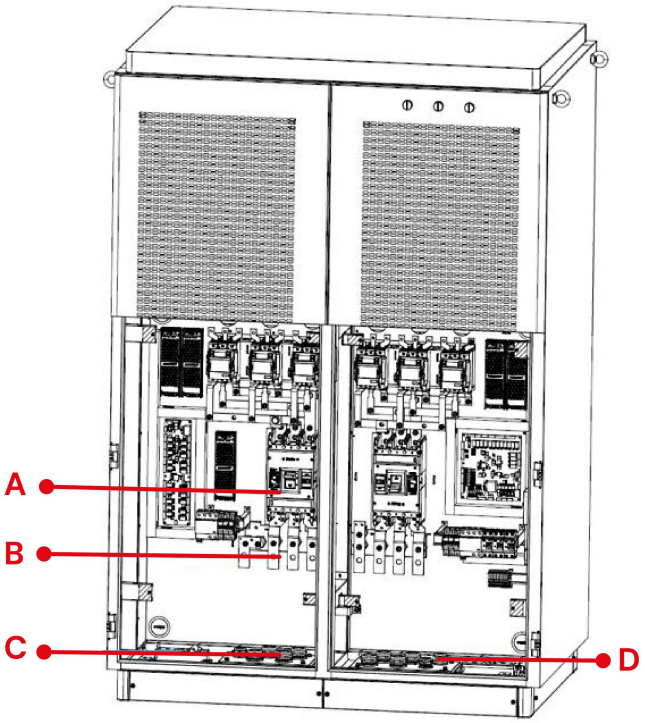
2) The power cable and CAN communication cable need to be laid separately to avoid interference.

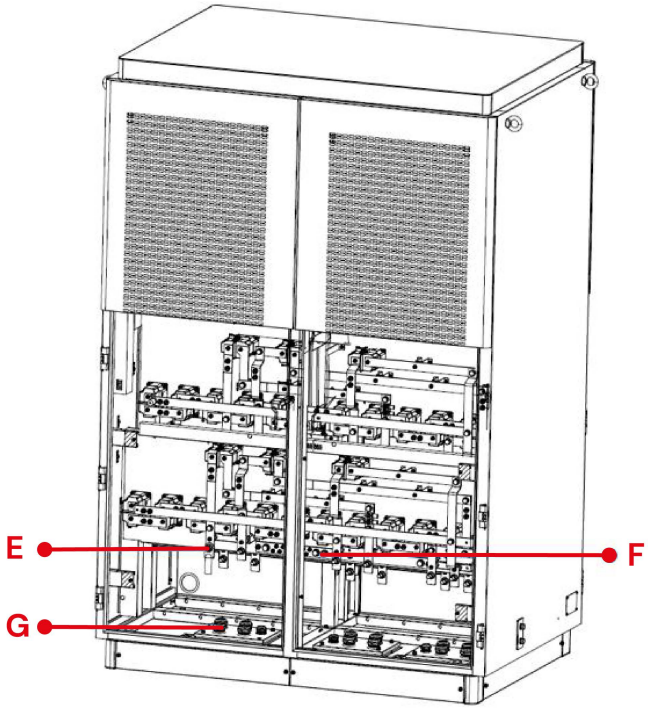
3) The grounding wire of each User Terminal needs to be laid out separately from the host, and the grounding wire between the User Terminals is not allowed to be connected in series.

3.5.5 Input and output parts display diagram

ATTENTION
This figure only shows the user connection points, so that users can quickly understand the input and output cable connection positions of the device.

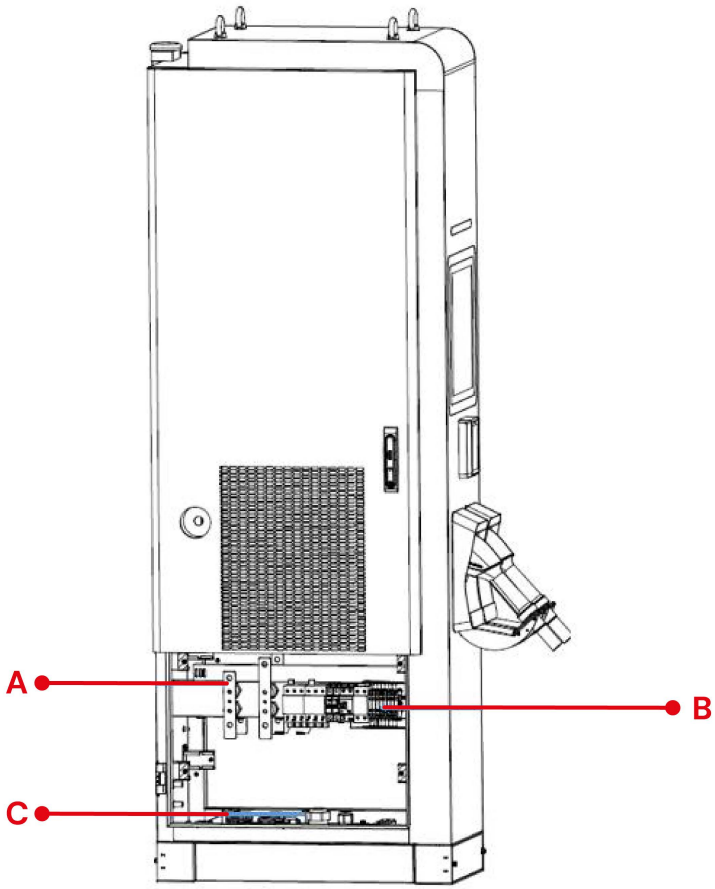
1. Power Bank





A Main circuit breaker	**E** Copper bar of DC output cable
B Copper bar of AC input cable	**F** Grounding copper bar to User Terminal
C Grounding copper bar	**G** DC output hole
D AC Input hole	

1. User terminal



A	DC input copper bar
B	Auxiliary power source and CAN cable transfer terminal
C	Cable inlet hole

3.5.6 Internal wiring details

1. Internal wiring details of Power Bank

AC input:

The Power Bank's internal AC input cables are located behind the front door, and the circuit breaker cables are N、L1、L2、L3 from left to right. The cabinet grounding parts are divided into three parts, two of which are the grounding copper bars inside, and the other one is at the external casing. The auxiliary power source and CAN cable from the Power Bank to the User Terminal are transferred through the terminal block, as shown in Figure 3.5.6-A.

WARNING:
Devices must be grounded reliably when installing cables!

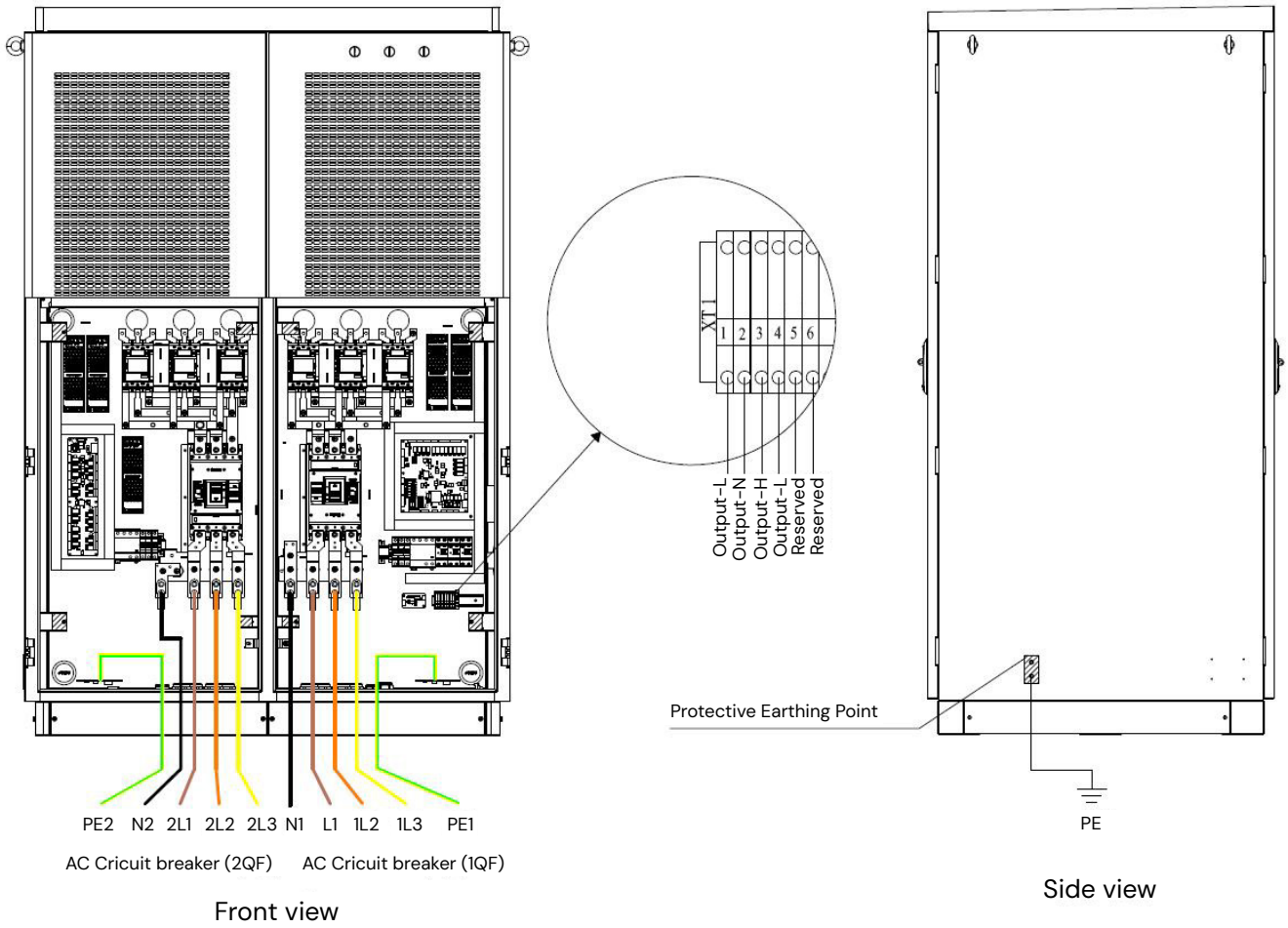


Figure 3.5.6-A Front view of internal wiring diagram of Power Bank

DC input:

The Power Bank's internal DC output power cables are located behind the rear door. The output cables are divided into six groups which are DC1, DC2, DC3, DC4, DC5, DC6 from left to right. The grounding wire of each User Terminal needs to be laid out from Power Bank separately, as shown in Figure 3.5.6-B. The Power Bank output and User Terminal input connection correspondence is shown in table 3.5.6.

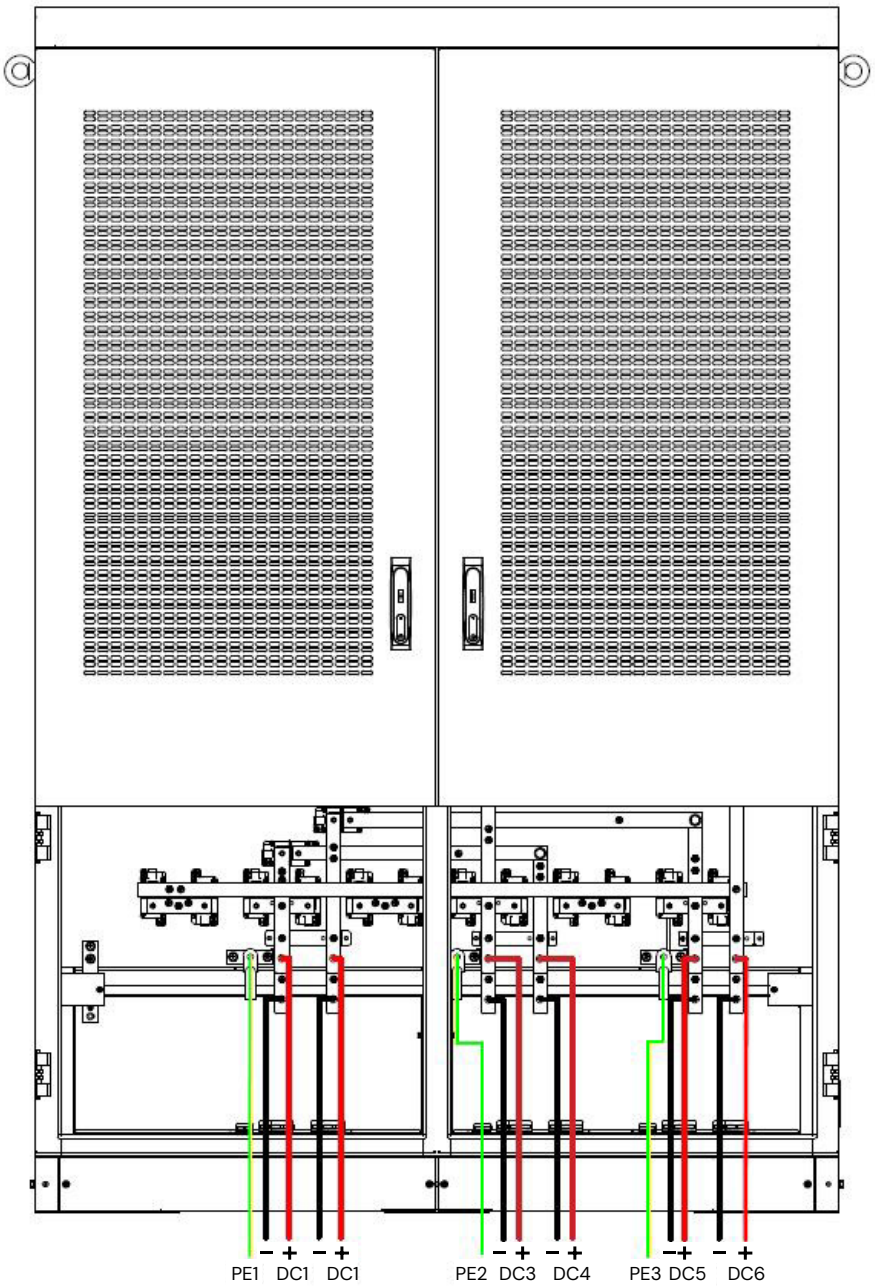


Figure 3.5.6-B Back view of internal wiring diagram of Power Bank

Power Bank	DC1	DC2	DC3	DC4	DC5	DC6	DC7
User Terminal	#1 User TerminalDC1	#1 User TerminalDC2	#1 User TerminalDC1	#1 User TerminalDC2	#1 User TerminalDC1	#1 User TerminalDC2	#1 User TerminalDC1

Table 3.5.6 Power Bank output and User Terminal input connection correspondence

2. Internal wiring diagram of User Terminal

The internal wiring of User Terminal mainly includes DC power cable, AC230V cable and CAN cable. All wiring parts are located behind the front door, which are AC auxiliary power cable, CAN cable, DC1+, DC1-, DC2+, DC2- output cables from left to right. The wiring diagram is shown in Figure 3.5.6-C:

WARNING:
Devices must be grounded reliably when installing cables!

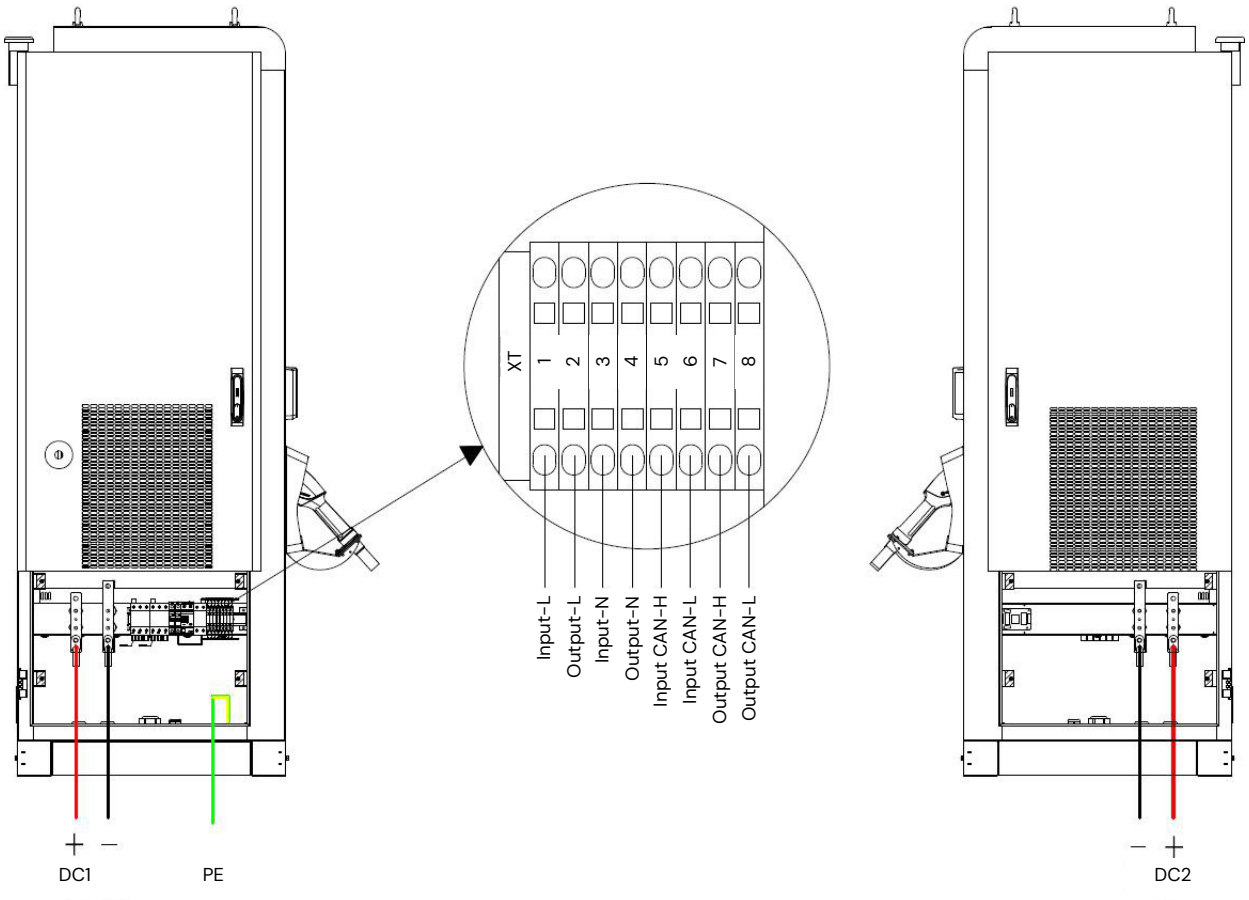


Figure 3.5.6-B Front view of internal wiring diagram of User Terminal

3.6 Inspection after installation

1. Tightness

According to the requirements of design and protection level, the junction between the input sealing plate and the input cable at the bottom of the cabinet should be sealed with waterproof gland to ensure tightness.

2. Stability

After the pile being installed, try to shake the cabinet from different directions, and there should be no obvious loosening and shaking. Please make sure the fastening screws are tightened.

3. Clean up

- Dispose of all transportation and packaging materials in accordance with local regulations.
- Clean up the junk inside and around the cabinet, such as small section of cable, binding tape, screw / nut, desiccant, etc. Do not leave installation tools on site or inside the cabinet (record the type and quantity of tools to prevent loss).
- Wipe the insulation parts with anti-static cloth. Do not use any corrosive solvent.

4. Inspection

- Check whether the base is fixed and sealed.
- Check whether the internal components of the equipment are tight and reliable.
- Check whether the electrical connection and wiring are correct and complete, whether the connection and the grounding parts are reliable.
- Check whether the cable terminal is loose using the screw driver.
- Check whether the cable is broken, damaged and scratched.
- Check whether the protection level of the equipment meets the requirements, especially the cable entrance at the bottom of the pile.
- Check the appearance, marking, integrity and cleanliness.
- Check the installation of the equipment is in accordance to the foundation installation drawing.

4 Operation interface

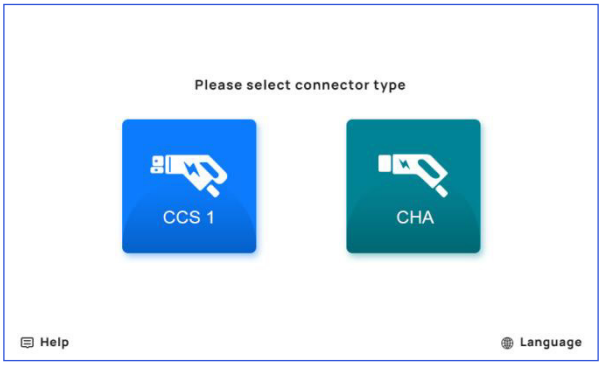
Operating Instructions

	Before charging, make sure that the charger system is in a normal state.
	Before charging, make sure that the charging cable is not damaged, and the charging connector is free of water. If the charging connector gets water, do not charge directly.
	Before charging, the user should fully read the User Manual and be familiar with the safety operation instructions to prevent dangerous operations.
	Before charging, the user should be familiar with the charging operation steps to prevent improper operation.

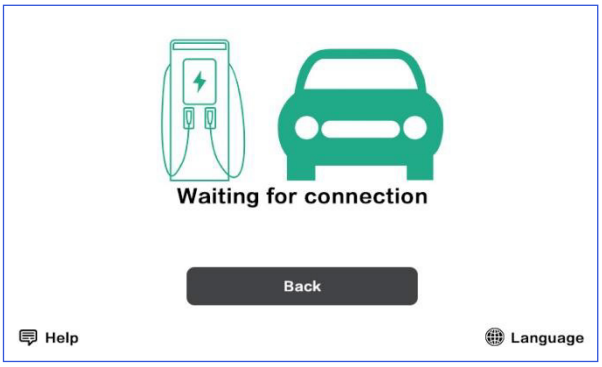
4.1 Charging process

Note: When the charger is in standby mode, the screen is in the energy-saving mode. Before operation, touch the screen with your finger to light up the screen! The screen has been split, which can be used for advertising below the operation interface.

4.1.1 Standby interface



Tip: 1. Select CCS1 connector or CHA connector according to the
socket type of the car. The following is the process of selecting CCS1,
and the CHA steps are consistent with CCS1.
2. Click “language”in any interface to switch the language mode of
the UI. At present, Chinese, English and Korean are supported.

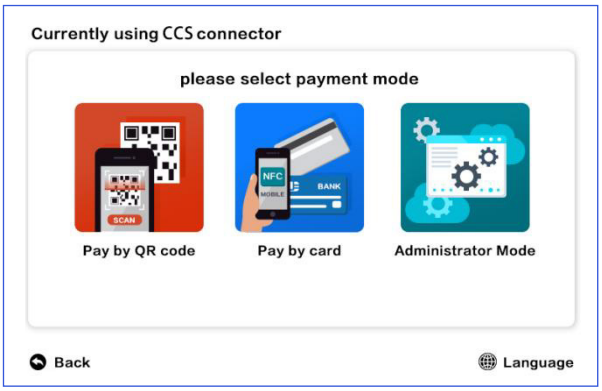


4.1.2 Waiting for connector insertion interface

Tip: connecting the connector to the car will jump to the connector insertion interface.

4.1.3 Connecting interface

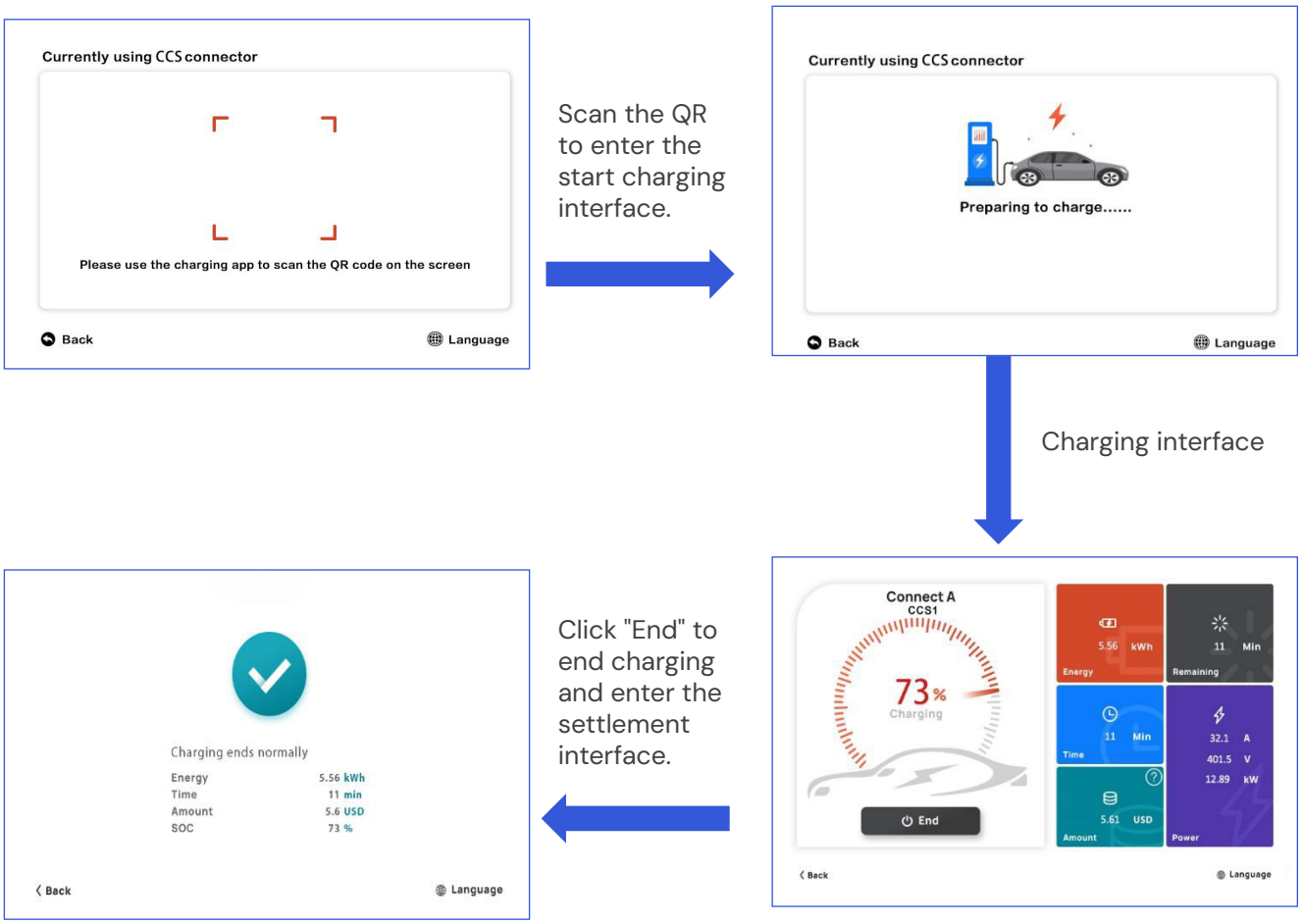
Prompt: click next to enter the interface of charging mode selection.



4.1.4 Select charging mode interface

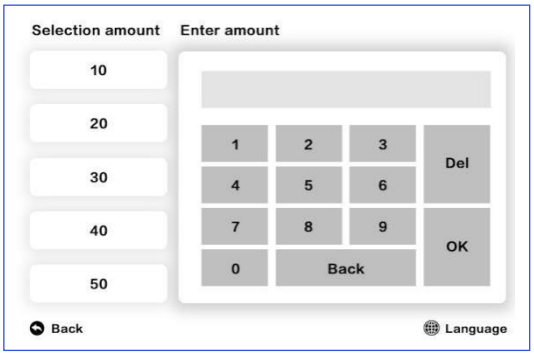
Notice: click the payment method you want to enter the next charging operation.

4.1.5 Code scanning charging interface process

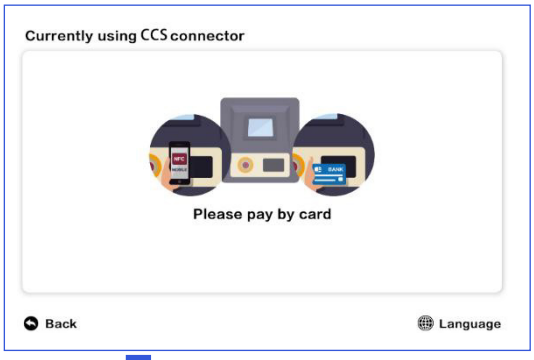


Tip: after charging, click back. If the other charging connector is in charging state, it will jump to the charging interface of the other charging connector, otherwise it will jump to the main.

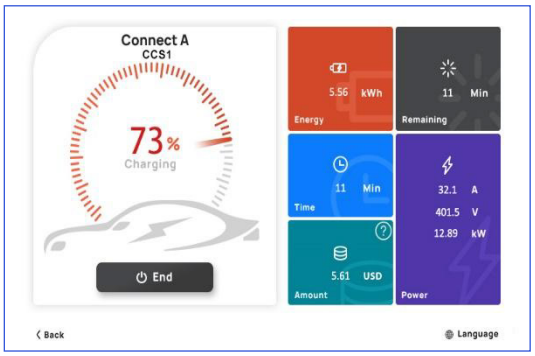
4.1.6 Interface process of pay by card charging



Select or enter the precharge amount to enter the card swiping interface.

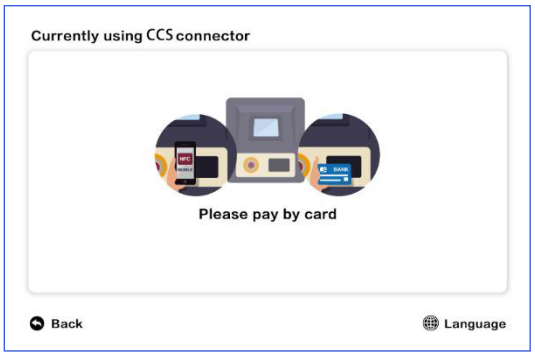


Pay by card according to the interface prompt to enter the charging start interface.

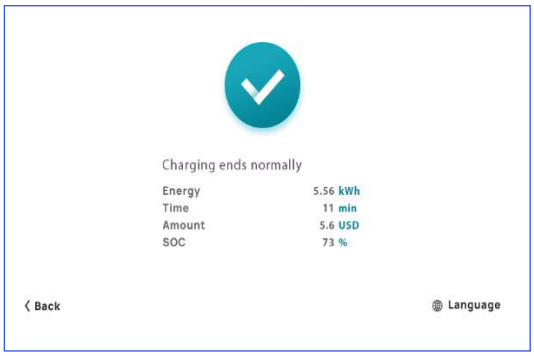


Charging interface.

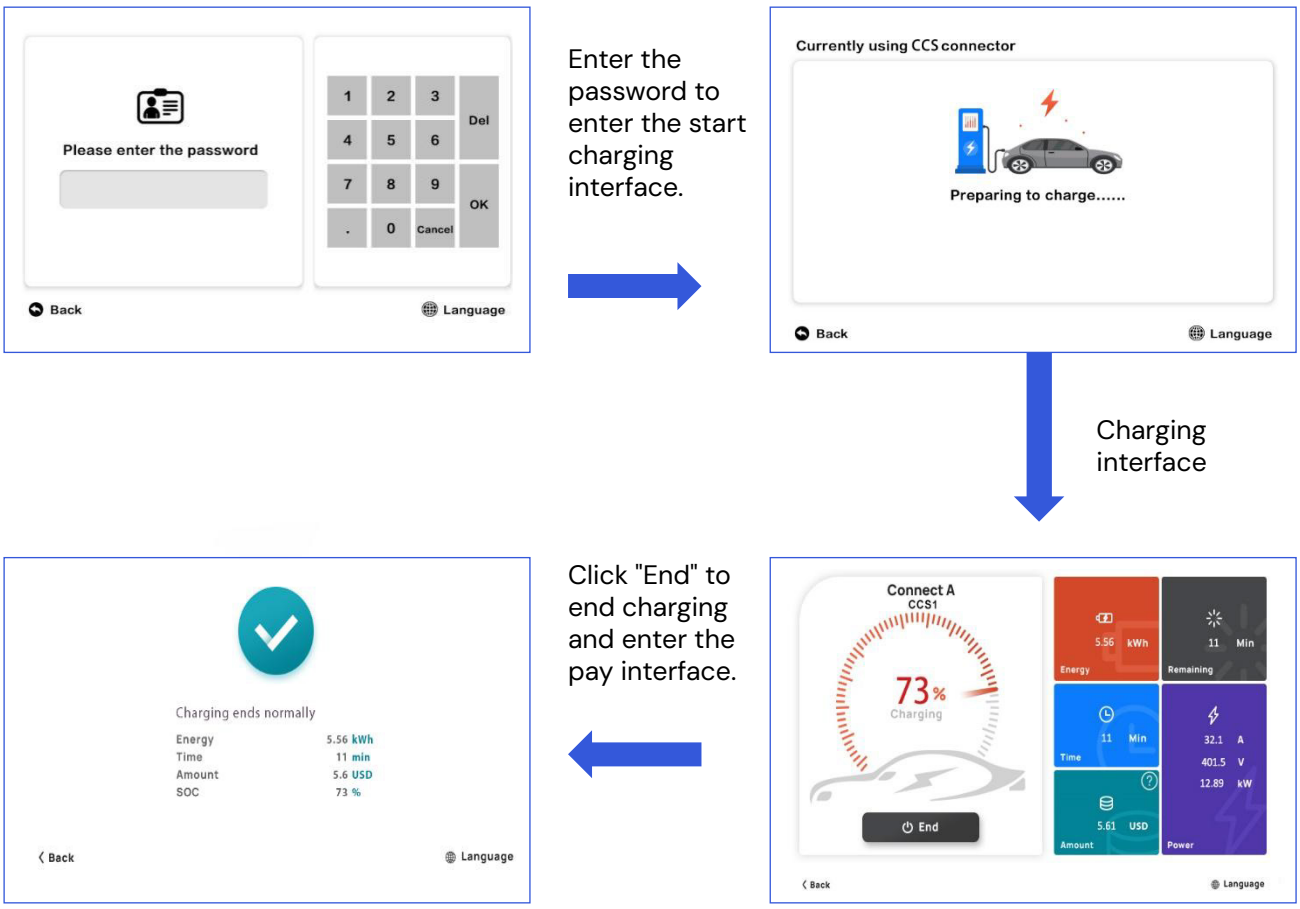
Click "End" to end charging and enter the pay by card interface.



Enter the settlement interface after paying by card according to the interface



4.1.7 Password charging interface process



Tip: click the input box to pop up a small keyboard. Enter the complete password through the keyboard and click OK to verify the password. After passing the verification, it will jump to the password start charging interface (password setting: administrator > Settings > MCU > function > offline charging password).

5 Simple troubleshooting

Analysis and treatment of common faults
Refer to the maintenance manual for detailed treatment

S/N	Alarm or fault	Processing method
1	Lightning protection failure	Check the status of lightning arrested. If the visual window of lightning protection is red, it means it is damaged. Please replace it.
2	Emergency stop fault	Please check whether the emergency stop button is pressed and not reset. If the fault has been solved, please reset the emergency stop button. (Only the station operation and maintenance personnel and professional operators can operate)
3	Over temperature protection of air outlet	Please check whether the air duct of the system is blocked and whether there is too much dust on the dust screen. Please check whether the air outlet fan of charger works normally. If the fan fails, please replace it.
4	Access protection	Please check whether the cabinet door is completely closed; Confirmed that the door is closed, but the alarm still exists. Please check the status of the door access switch. If it is damaged, please replace it.
5	Charging module failure	Check the module fault code, confirm the fault type and find the cause. Pull out the fault module and replace with a new one.
6	RCD triggered	Check whether it is a leakage trip. If so, the following methods should be used: • Check whether there is insulation fault in the circuit at the back end of RCD. • Check whether the casing is reliably grounded.
7	PCU reset	If the PCU board restarts automatically, the auxiliary power source may be abnormal, or the power supply circuit may be faulty. Check the auxiliary power source and check
8	PDU reset	If the PDU board restarts automatically, the auxiliary power source may be abnormal, or the power supply circuit is faulty. Check the auxiliary power source and check whether the power supply circuit is normal.

WARNING:
In order to prevent personal electric shock accidents, it is necessary to disconnect all switches of the equipment and the superior power distribution switch during fault detection and resolving. Protective measures and tools should be used.

6 After-sales service

If you have any questions or questions, please contact the equipment supplier.
Before contacting the equipment supplier:

- Please check the troubleshooting measures in the chapter 5" Simple troubleshooting".
- Please record the model and serial number of the equipment (name plate of the equipment) and the failure time.

Appendix A---Module Group Number Setting Guide

If you have any questions or questions, please contact the equipment supplier.
Before contacting the equipment supplier:

- Please check the troubleshooting measures in the chapter 5" Simple troubleshooting".
- Please record the model and serial number of the equipment (name plate of the equipment) and the failure time.

480 kW Front View

Left side modules	Right side modules
M12 (G0 A12)	M6 (G0 A6)
M11 (G0 A11)	M5 (G0 A5)
M10 (G0 A10)	M4 (G0 A4)
M9 (G0 A9)	M3 (G0 A3)
M8 (G0 A8)	M2 (G0 A2)
M7 (G0 A7)	M1 (G0 A1)

360 kW Front View

Left side modules	Right side modules
M12 (预留)	M6 (预留)
M11 (G0 A11)	M5 (G0 A5)
M10 (预留)	M4 (G0 A4)
M9 (G0 A9)	M3 (G0 A3)
M8 (G0 A8)	M2 (G0 A2)
M7 (G0 A7)	M1 (G0 A1)