

Sinexcel



SEC Series DC Distributed Charger

User Manual

Issue 01

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- Incorrect transportation, removal, storage, installation, or use.
- Unauthorized modifications to the product or software code or removal of the product;
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- 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.

Notice:

Before connecting the power supply, ensure that electrical connections are correct. Do not connect or disconnect power cables with power on.

Personnel who will operate the equipment, including operators, trained personnel, and professionals, should possess the local national required qualifications in special operations such as high-voltage operations, working at heights, and operations of special equipment.

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
	<i>DANGER</i> Dangerous Voltage Dangerous voltages can cause death or injury
	<i>WARNING</i> Hazard Warning May cause equipment damage and personal injury
	<i>WARNING</i> Heat warning May cause scald when touch the special parts
	<i>Attention</i> Cause of Hazard Failure to comply may result in equipment damage or functional failure









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1 Safety Precautions

1.1 Special symbols for warnings and dangers

Symbol	Symbol word	Description
	<i>Danger</i>	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
	<i>Danger</i>	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.
	<i>Danger</i>	It is strictly forbidden to carry out installation and maintenance work during thunderstorms.
	<i>Danger</i>	During operation, it is strictly forbidden to short-circuit the positive and negative pole or any DC distribution pole to Ground. The DC Charger is a high voltage DC power supply, and short circuits may cause damage to the DC Charger and personal safety hazards.
	<i>Warning</i>	Special tools must be used during various operations of high DC and AC voltages.
	<i>Warning</i>	During the handling of equipment by hand, it is necessary to wear protective gloves to prevent injuries caused by sharp objects.
	<i>Warning</i>	Avoid touching specific parts of the charger (E.g., air outlet) to prevent high temperature scald.
	<i>Attention</i>	Make sure that the cable label is correct before the connection of cables.

	Attention	Signal cables shall be kept away from power cables to avoid interference.
	Attention	This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

1.2 Safety instructions for use

- The SEC series DC charger is a distributed charger that you can use to supply electricity to an EV in well ventilated indoor and outdoor areas.
- The SEC is a high power and high voltage electric equipment. Only qualified professionals are allowed to install and maintenance it.
- Follow local laws and regulations when installing, operating, or maintaining the equipment.
- Follow the procedures of installation, operation, and maintenance. And make sure complying with this document and accessories provided by Sinexcel.
- The equipment is design and manufactured following local related safety standards on R&D, production, inspection, certification and record. Therefore, if the instructions and safety technical tips for the specified purpose are followed, the SEC series charger will not cause property damage or personnel injury under normal circumstances.
- The instructions contained in this manual must be strictly followed, otherwise there will be potential safety hazards or failure for the devices. Although this manual describes the relevant safety tips, it is still necessary to pay attention to the safety regulations and accident prevention regulations in accordance with the corresponding use conditions.
- When Sinexcel equipment has encountered any problems or faults during operation, please consult Sinexcel after-service center directly. If unauthorized third party provided maintenance under warranty, Sinexcel should not be liable.
- Installation conditions should be far away from fire hazards or other dangerous environment.

1.3 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.

- Without Sinexcel permission, do not do any unauthorized modification to the product or remove of the components. Sinexcel will not be liable for any consequence caused by these improper operations.
- Do not touch the EV charging connector or vehicle inlet. Keep it dry and clean.
- Do not use this product if the power cord or connector is abraded, has broken insulation, or shows any other signs of damage.
- In case of any abnormal condition, press the emergency button immediately, which will cut all input and output to ensure safety. It is forbidden to use the emergency button in non-emergency situations.
- To make sure that no foreign small object exists in EV charging connector or vehicle inlet.
- Do not connect or disconnect power cables with power on. During maintenance, turn off the superior distributed switch, set up warning board, and check the presence of dangerous voltage to ensure that it has been properly disconnected.
- Pay attention to the copper wire carrying dangerous voltage of equipment, even if all circuit breakers of the charger has been disconnected.
- Before maintenance, prepare for the lumination as there is no light in the interior.
- Connect protective earth wire (PE) well before connecting neutral line and phase line.
- After installation or maintenance, ensure that door has been locked correct.
- 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.
- It is forbidden to use extension cable or adapter for charging connector.

2 Product Overview

2.1 Briefing

SEC series DC charger is a high-power DC distributed charger independently developed by Sinexcel. It supports new 20kW 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 CCS2 and JAP 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

S E C 1000 / 500 U - CJ - P
 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	Output parameter: Be classified as Power Bank and User Terminal Power Bank: 360 and 480 (optional), referring to the output power of the whole charging system User terminal: 200 and 500 (optional), referring to the Max. output current per connector
6	Device type F: Flexible power unit (Power Bank)

	U: User Terminal
7	Charging standard: Only optional for User Terminal. Null for Power Bank. C: CCS, referring to CCS Combo connector J: JAP, referring to Japan standard connector N: Null Can choose C/CC/CJ/N
8	System type, can choose P/D P: Public equipment, normal DC meter D: Dedicated equipment, dedicated DC meter N: Null

2.3 Models description

2.3.1 Description of Power Bank

Specification	Maximum Output Power	Maximum Output Current
SEC1000/360F-N-N	360kW	1206A
SEC1000/480F-N-N	480kW	1608A

2.3.2 Description of User Terminal

Model	Power Distribution		Maximum Output Current	
	Connector A	Connector B	Connector A	Connector B
SEC1000/200U-C-P	CCS2:200kW	/	200A	/
SEC1000/200U-C-D	CCS2:200kW	/	200A	/
SEC1000/200U-CC-P	CCS2:200kW	CCS2:200kW	200A	200A
SEC1000/200U-CC-D	CCS2:200kW	CCS2:200kW	200A	200A
SEC1000/200U-CJ-P	CCS2:200kW	JAP:100kW	200A	200A
SEC1000/200U-CJ-D	CCS2:200kW	JAP:100kW	200A	200A
SEC1000/200U-CJ-P	CCS2:200kW	JAP:62.5kW	200A	125A
SEC1000/200U-CJ-D	CCS2:200kW	JAP:62.5kW	200A	125A
SEC1000/500U-C-P	CCS2:480kW	/	500A	/
SEC1000/500U-C-D	CCS2:480kW	/	500A	/

Model	Power Distribution		Maximum Output Current	
	Connector A	Connector B	Connector A	Connector B
SEC1000/500U-CC-P	CCS2:240kW or 480KW	CCS2:200KW or 0KW	500A	200A
SEC1000/500U-CC-D	CCS2:240kW or 480KW	CCS2:200KW or 0KW	500A	200A
SEC1000/500U-CJ-P	CCS2:240kW or 480KW	JAP:100kW or 0KW	500A	200A
SEC1000/500U-CJ-D	CCS2:240kW or 480kW	JAP:100kW or 0KW	500A	200A
SEC1000/500U-CJ-P	CCS2:240Kw or 480KW	JAP:62.5kW or 0KW	500A	125A
SEC1000/500U-CJ-D	CCS2:240kW or 480kW	JAP:62.5kW or 0KW	500A	125A

2.4 Product technical specifications

Technical Specifications of Power Bank		
Category	Item	Parameter
Input Characteristic	Input	3P+N+PE
	Input Voltage	AC 380~400V
	Frequency	50/60Hz
	Power Factor	0.99
	THDi	<5%
Output Characteristic	Output Voltage	DC 150-1000 Vdc
	Rated Power	360-480kW
	Max current	1206/1608A
	Efficiency	94% @half load
Standard	System Standard	IEC 61851
Others	Dimensions	W1400*D1000*H2100 mm
	Protection Level	IP55

Technical Specifications of Power Bank		
Category	Item	Parameter
	Weight	≤850kg
	Communication Protocol	OCP1.6/2.0(Upgrade)
Environmental Conditions	Cooling Method	Forced air cooling
	Operating Temperature	-25°C~+65 °C (Derating over 50°C)
	Humidity	5%~95%
	Altitude	≤2000m, derating over 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	AC230V
	Input DC Voltage	DC 150-1000V
Output Characteristic	Output Voltage	DC 150-1000 V
	Max Output Power	480kW
	Max Current	500A
	Connector Standard	IEC 62196
Standard	System Standard	IEC 61851

Technical Specification of User Terminal		
Category	Item	Parameter
Others	Energy Meter	DC meter
	Connector Type	1(CCS2) OR 2 (CCS2+JAP or CCS2+CCS2)
	Network Interface	4G/LAN
	Dimensions	W750*D400*H2100 mm
	Protection Level	IP55
	Weight	≤225kg
	Cable Length	5m (Optional for liquid cooling in 3.5m)
	Communication Protocol	OCPP1.6/2.0(Upgrade)
	Screen	7 inches
	Payment	QR code/Swiping card/NFC (Optional)
Environmental Conditions	Cooling Method	Liquid cooling/Air cooling
	Operating Temperature	-25~65 °C(Derating over 50°C)
	Humidity	5%~95%
	Altitude	≤2000m
Protection		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

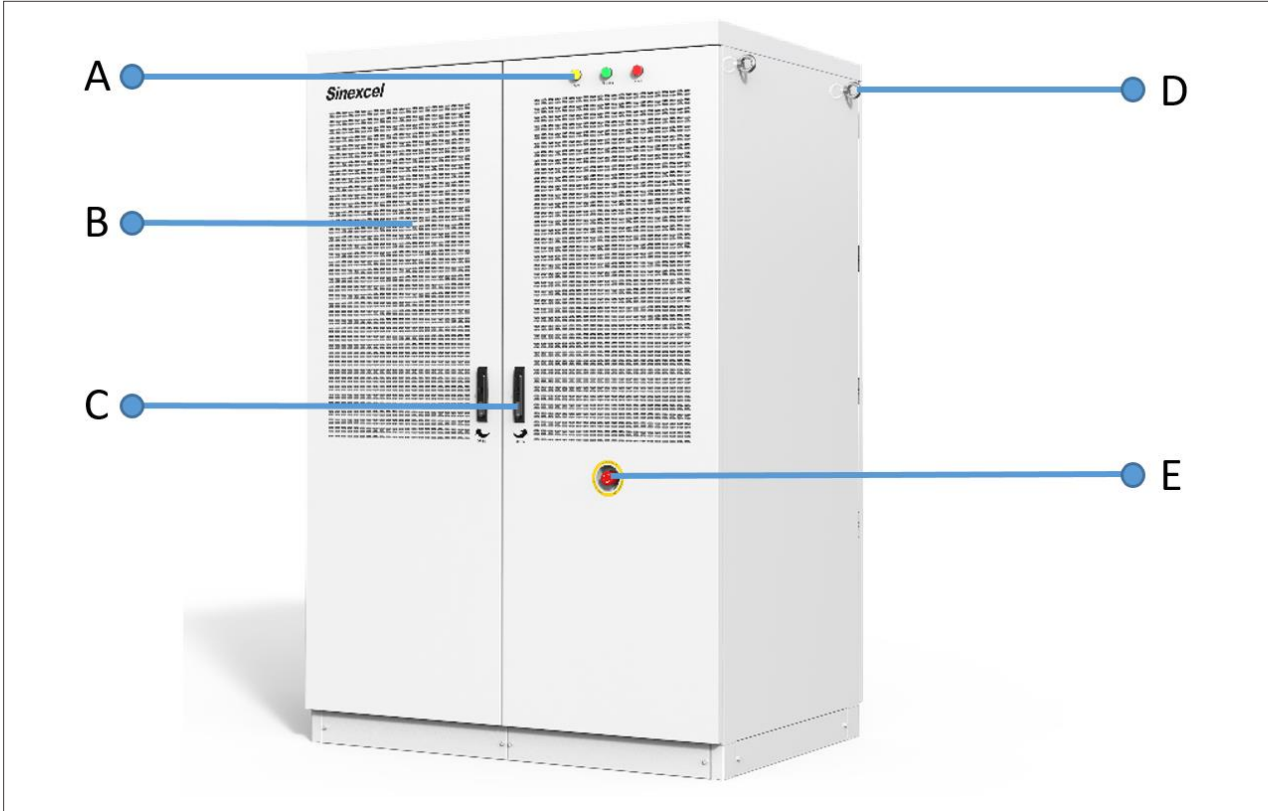


Figure 2.6.A SEC Series Power Bank

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

2. SEC Series User Terminal

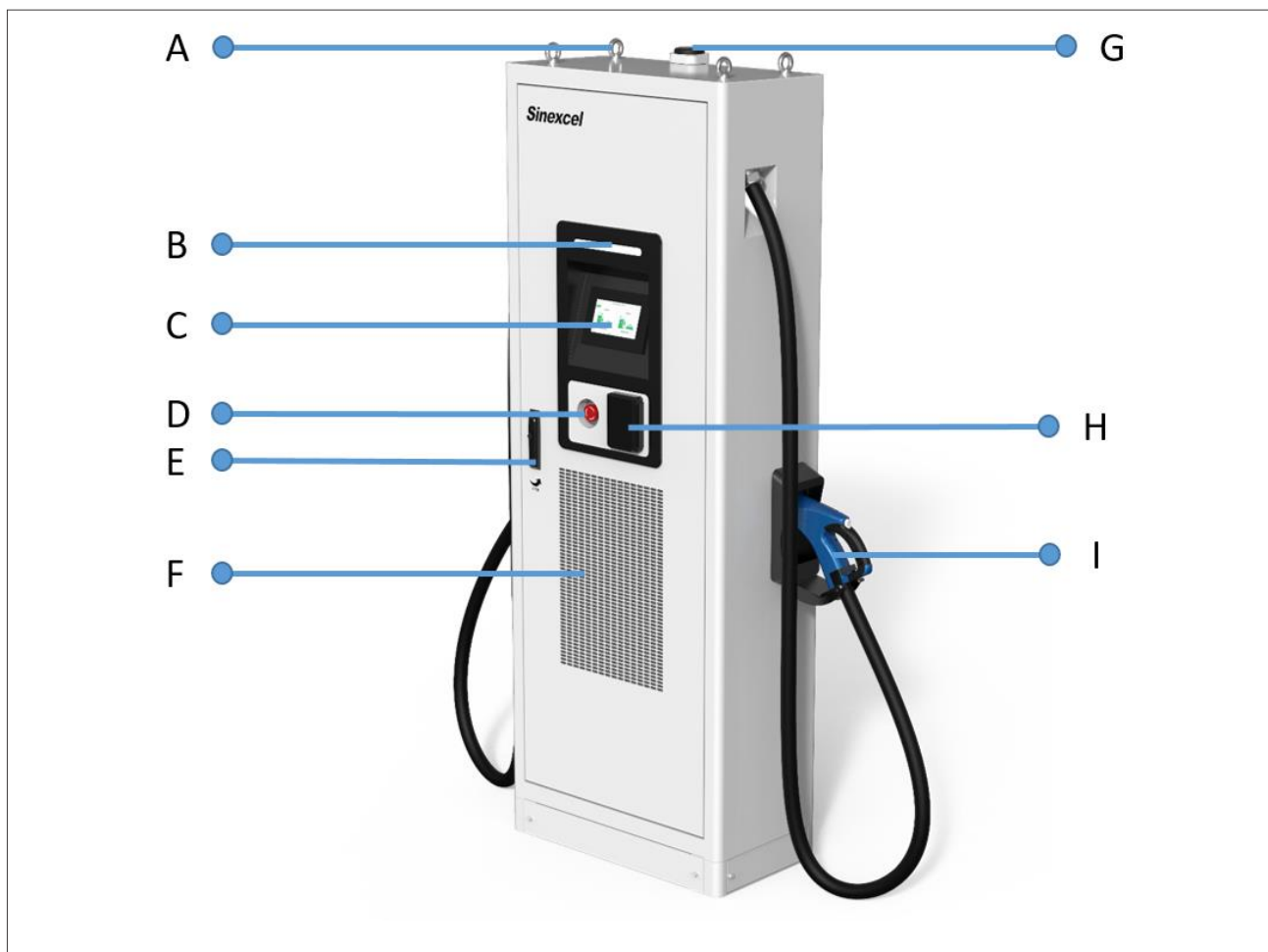


Figure 2.6.B EC Series User Manual

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

3 Installation Instruction

3.1 Dimensions

3.1.1 Power Bank

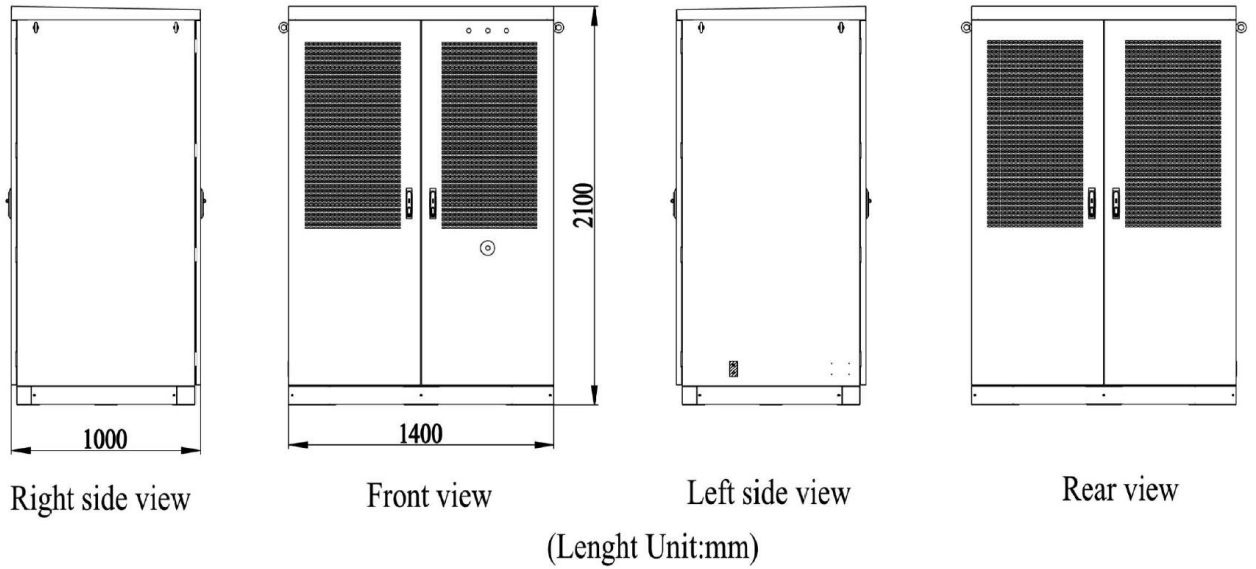


Figure 3.1.1-A Views and dimensions of SEC Series Power Bank

3.1.2 User Terminal

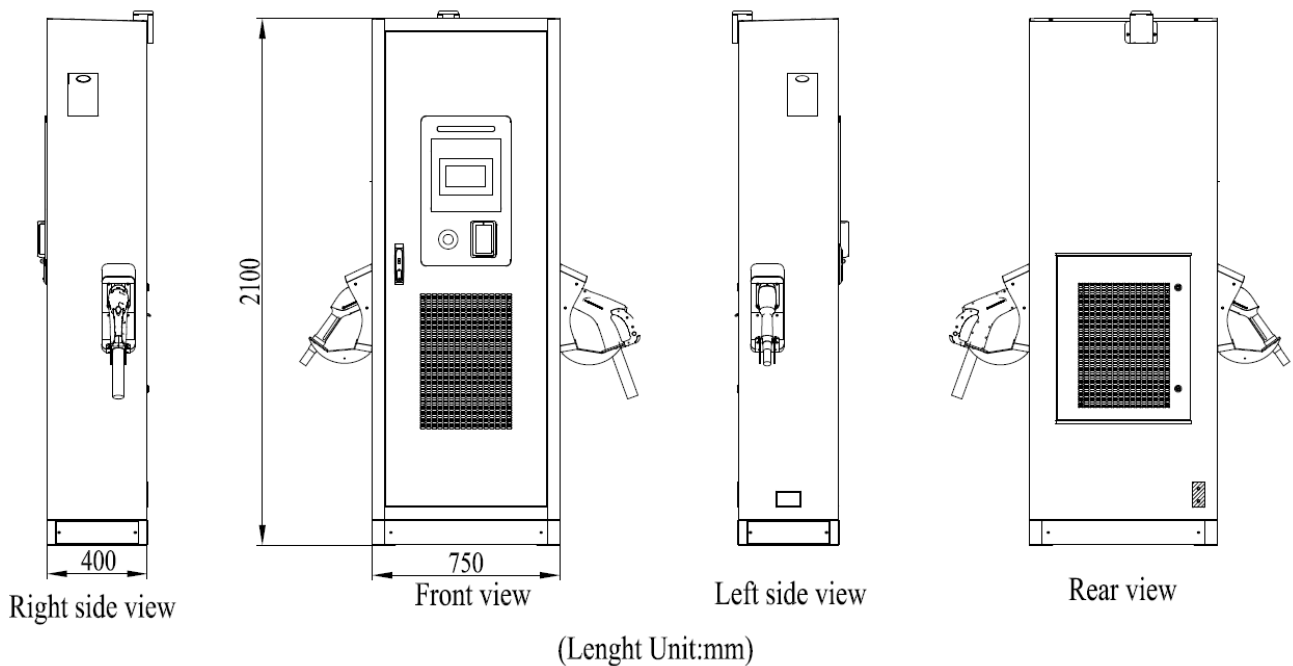


Figure 3.1.2-A Views and dimensions of SEC Series User Terminal

3.2 Installation Requirement

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 $200\text{mm}\pm 20\text{mm}$, and the vertical inclination of the installation should not exceed $\angle 5^\circ$. 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 600mm. The reserved length of signal cables and auxiliary power cables should not be less than 1000mm. Refer to Figure 3.2.1-D for details;
- 6) Install 4 M12*80mm stainless steel expansion bolts between the foundation and the Power Bank cabinet.

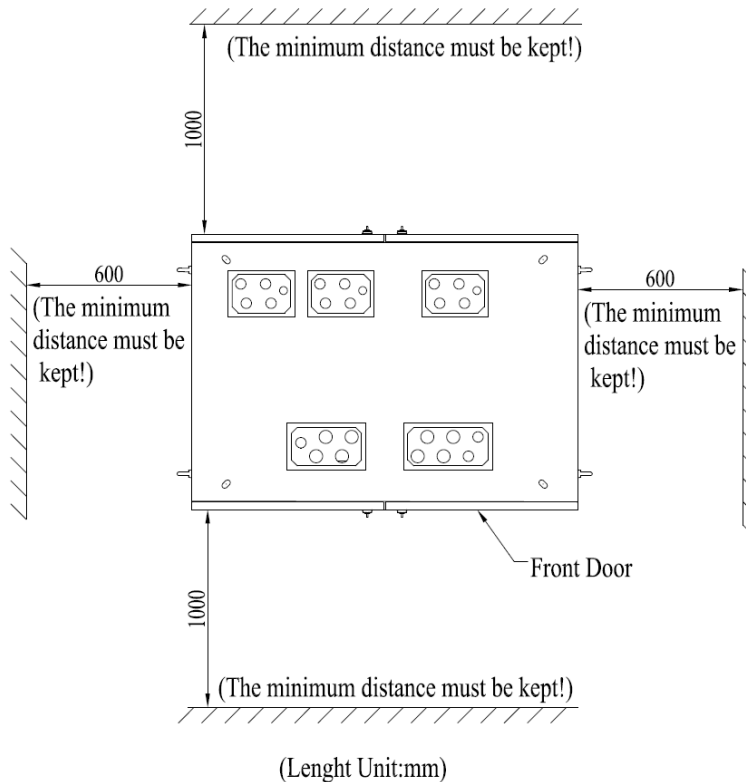


Figure 3.2.1-A Power cabinet placement requirements

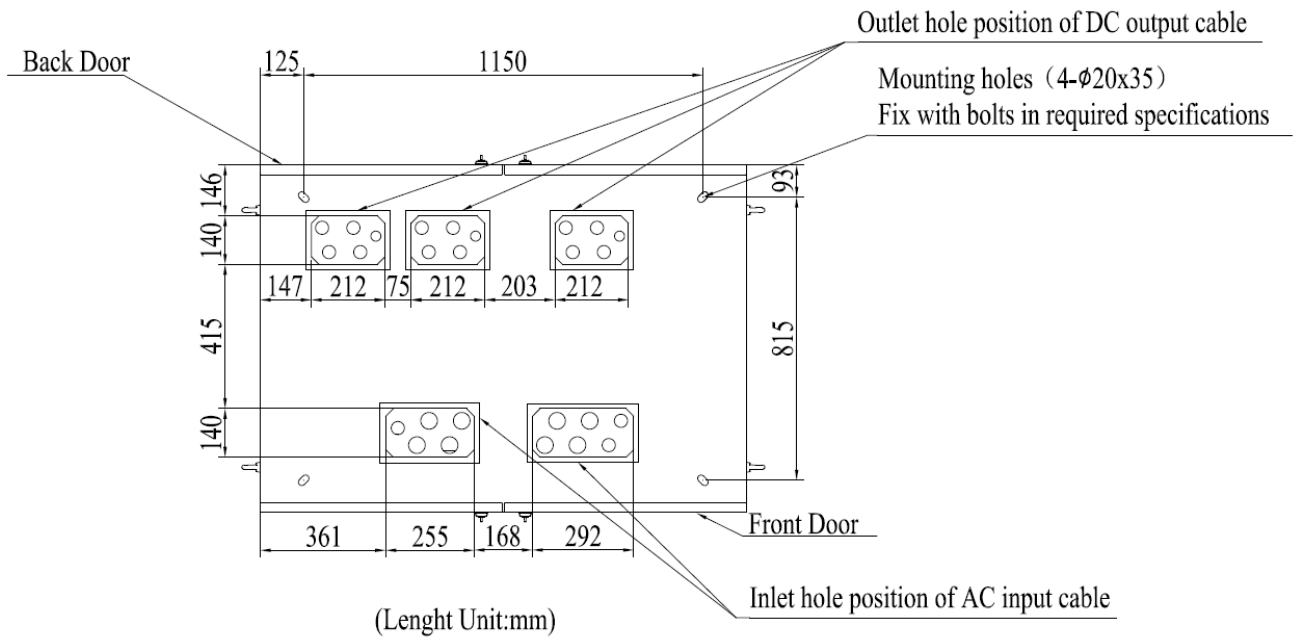


Figure 3.2.1-B hole positions and dimensions at the bottom of Power Bank

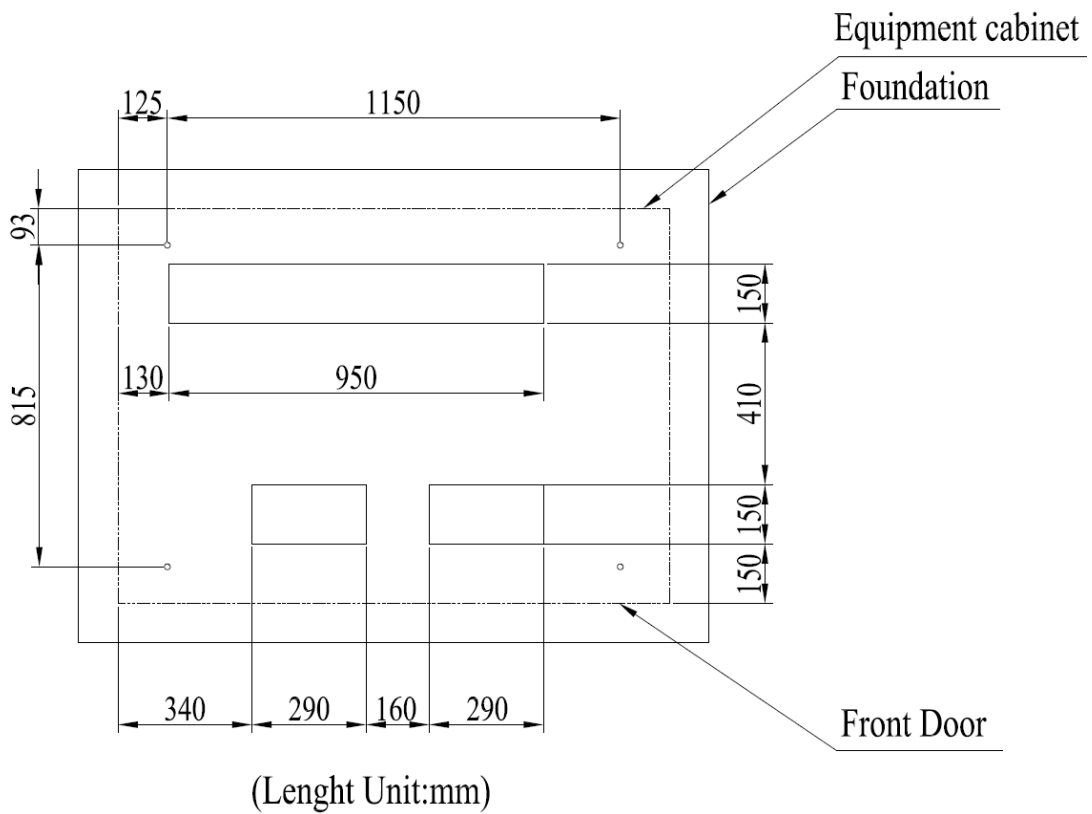


Figure 3.2.1-C Hole positions and dimensions of the Power Bank concrete foundation

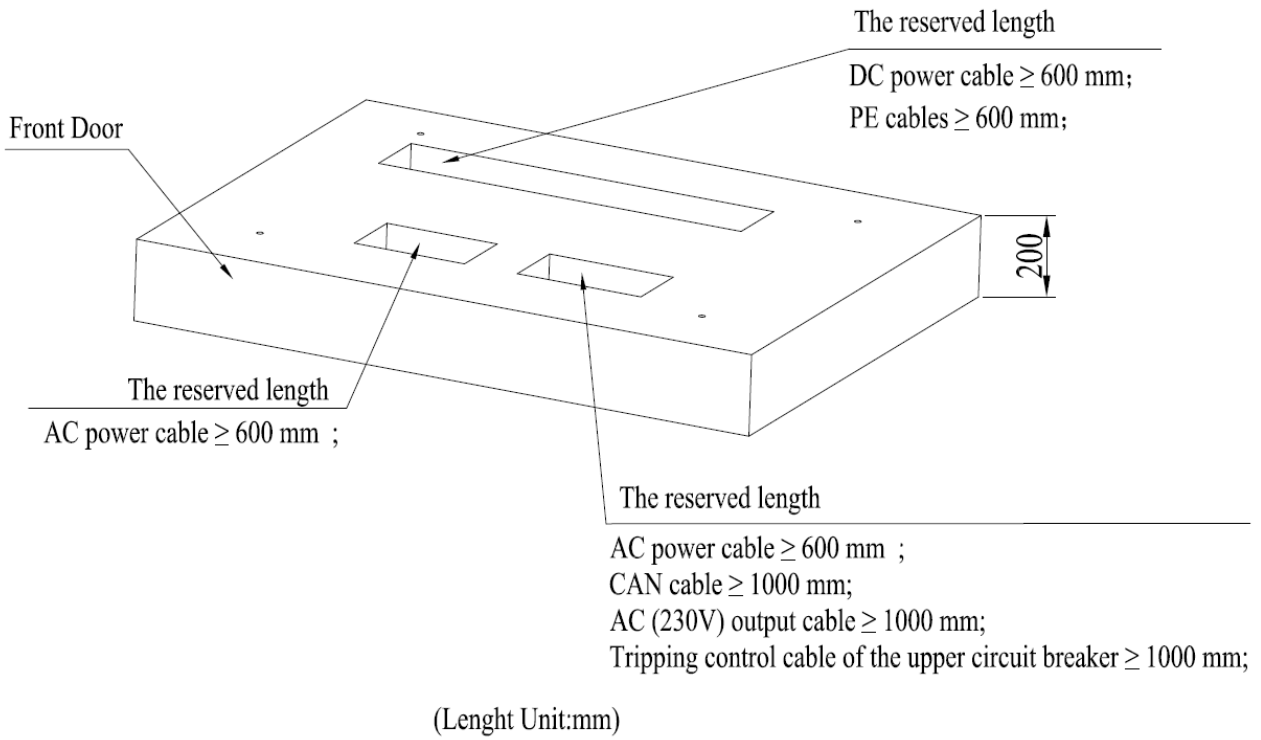


Figure 3.2.1-D Power bank concrete foundation height and the reserved length of the input and output cables

3.2.2 User Terminal

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 700mm; The reserved length of network cables should not be less than 4000mm; The reserved length is not less than 700mm. Refer to Figure 3.2.2-D for details;
5. The height of the foundation installation is recommended to be $200\text{mm} \pm 20\text{mm}$, and the vertical inclination of the installation should not exceed $\angle 5^\circ$. Refer to Figure 3.2.2-D for details. ;
6. Install 4 M12*80mm stainless steel expansion bolts between the foundation and the User Terminal.

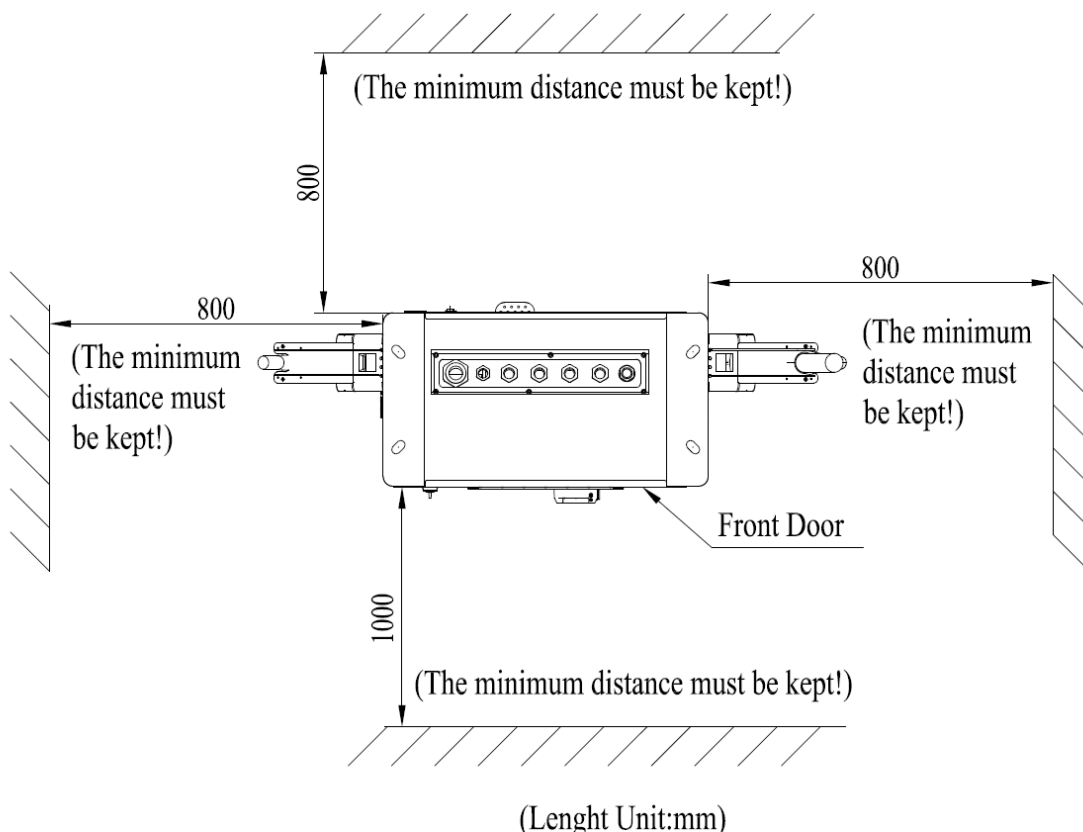


Figure 3.2.2-A User Terminal placement requirements

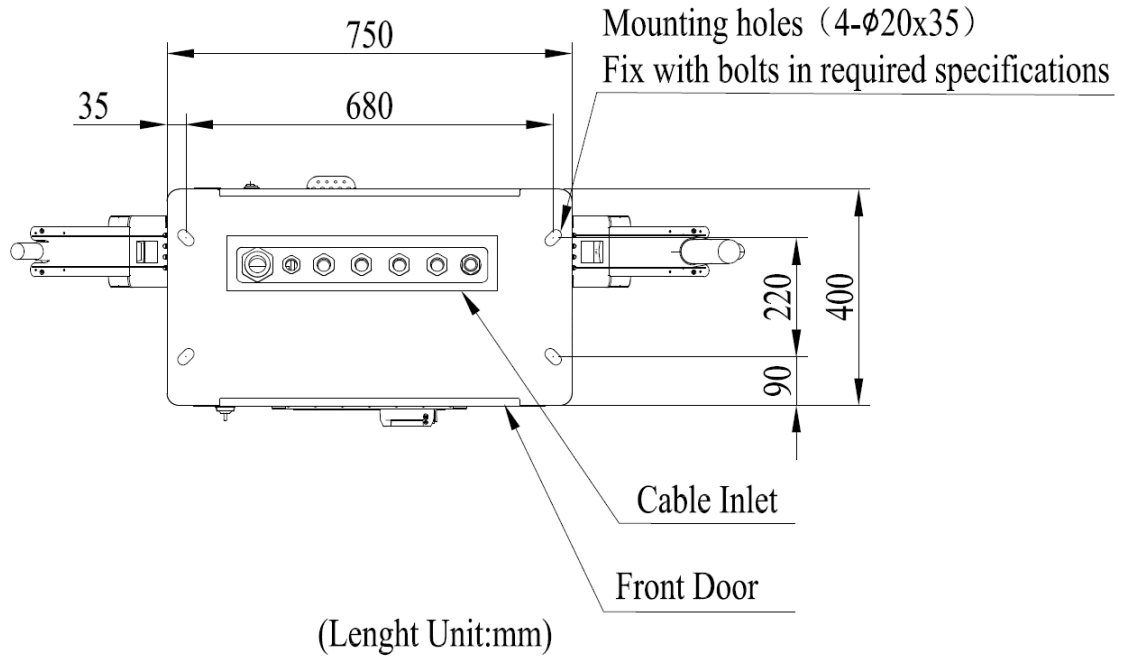


Figure 3.2-2-B Hole positions and dimensions at the bottom of User Terminal

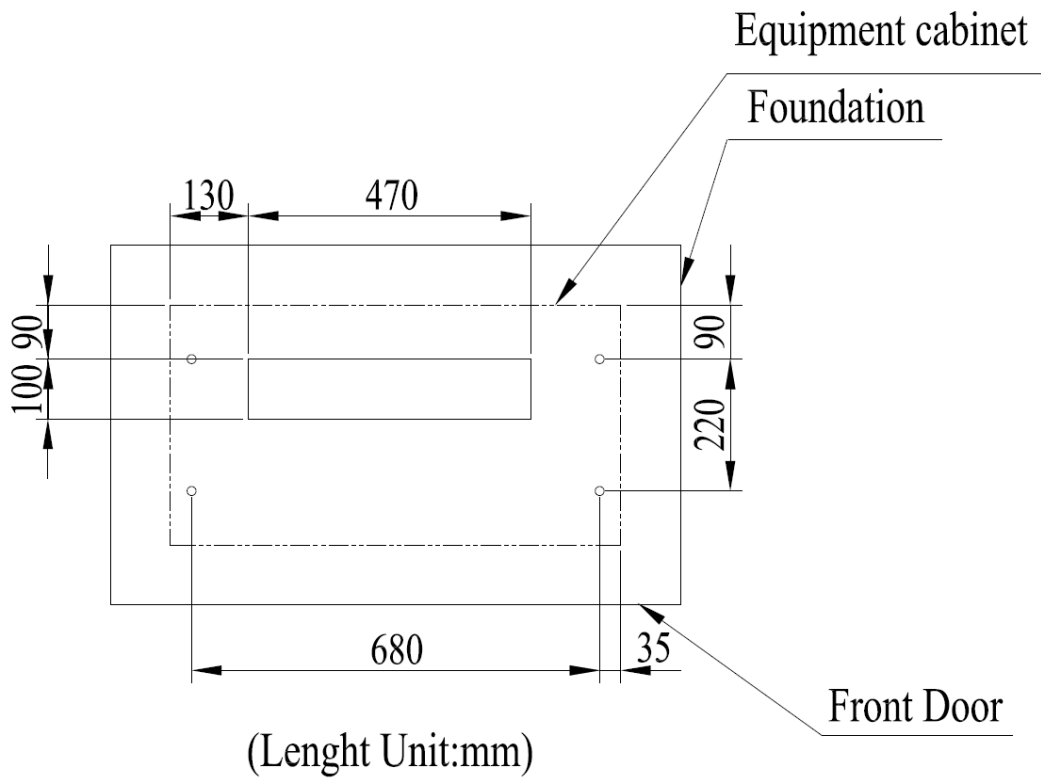


Figure 3.2.2-C Hole positions and dimensions of the User Terminal concrete foundation

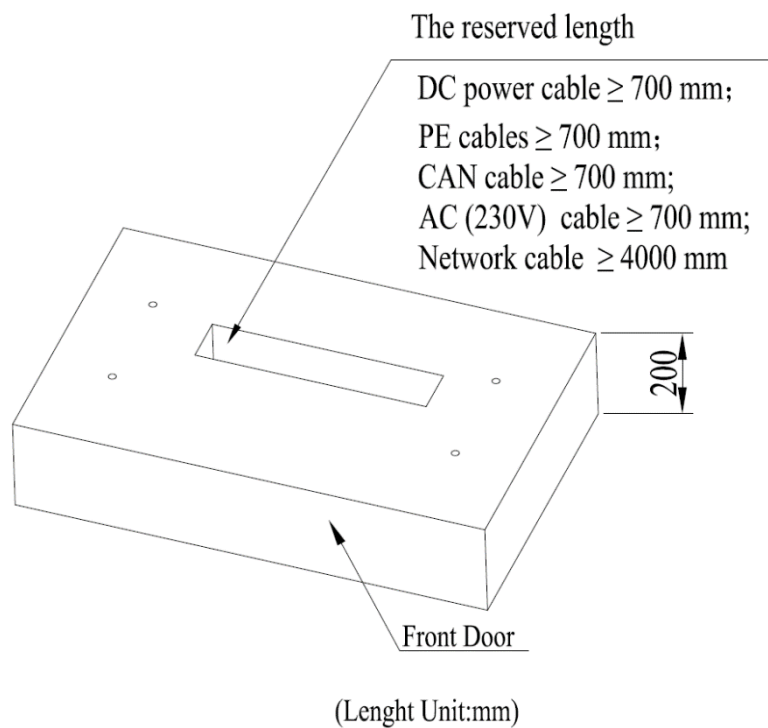
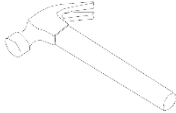

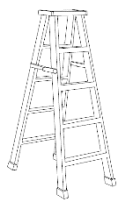
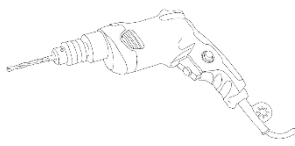
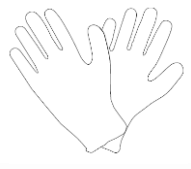
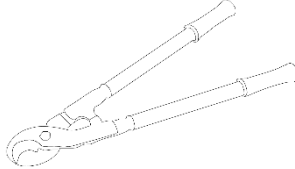
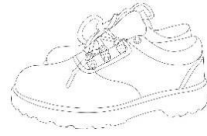
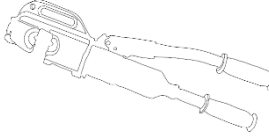
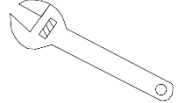
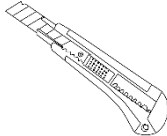


Figure 3.2.2-D User Terminal concrete foundation height and the reserved length of the input and output cables

3.3 Installation Steps

Tools required:

S/N	Tools	No.	Drawing	S/N	Tools	No.	Drawing
1	Claw hammer	1		6	Cross screwdriver	1	
2	Herringbone ladder	1		7	Electric drill Equipped with \varnothing 16mm drill bit	1	
3	Insulating gloves	1		8	Cable clipper	1	
4	Insulation shoes			9	Hydraulic clamp	1	
5	Adjustable wrench	1		10	Art knife	1	

3.4 Installation Process

3.4.1 Power Bank

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.

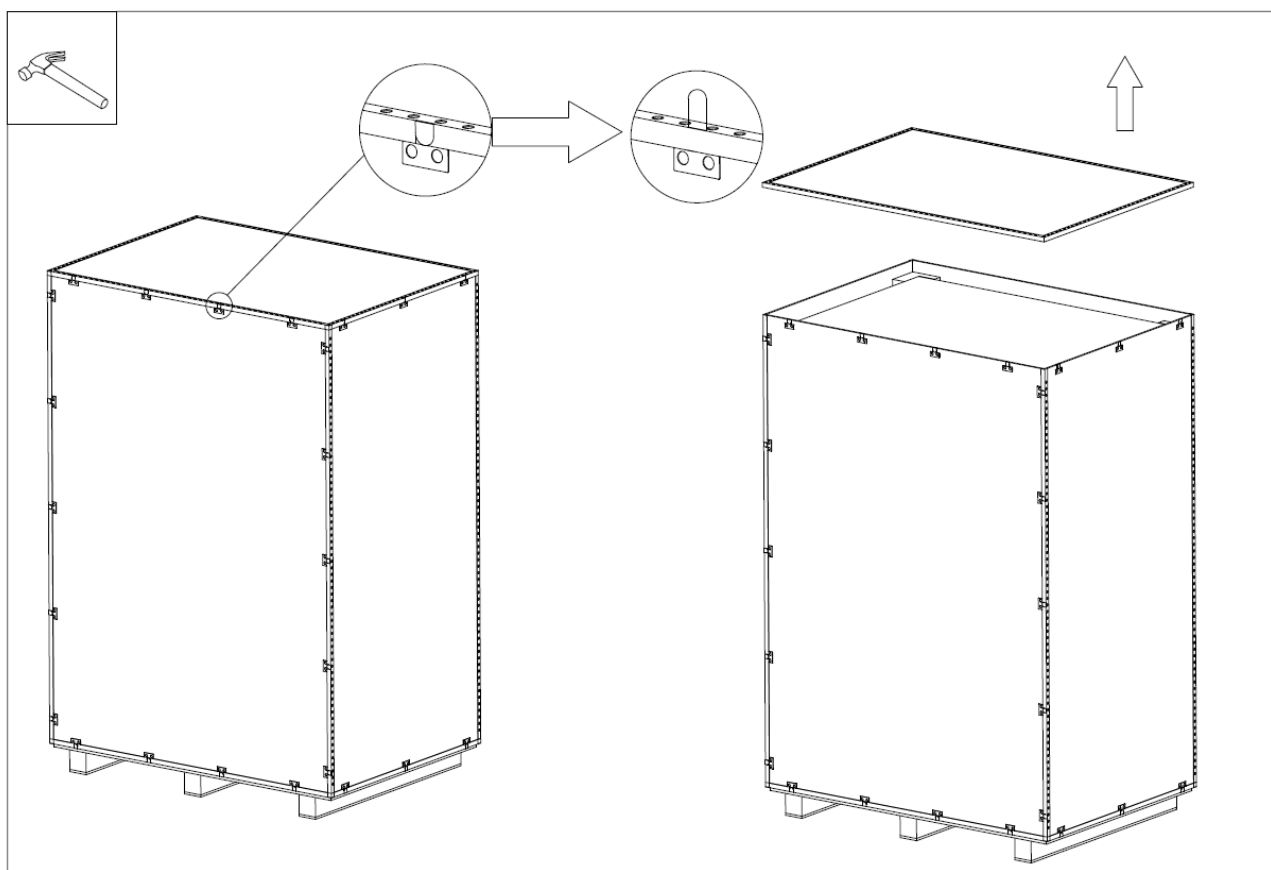


Figure 3.4.1-A

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.

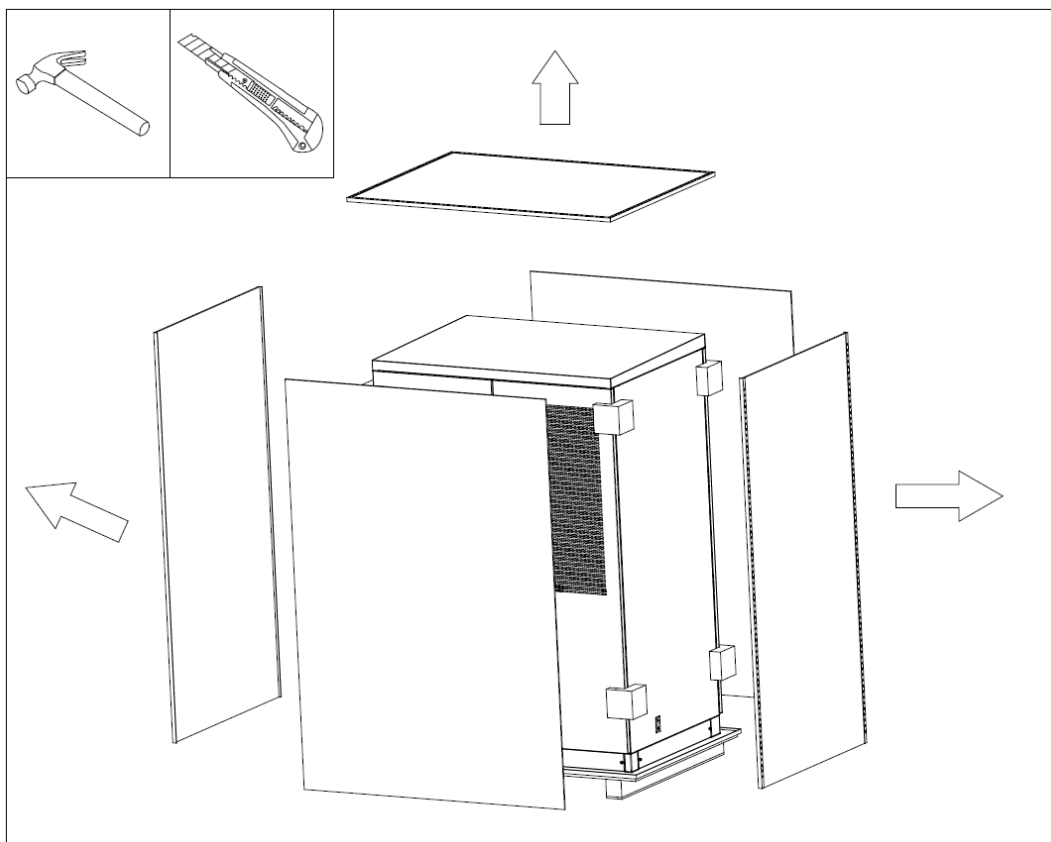


Figure 3.4.1-B

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

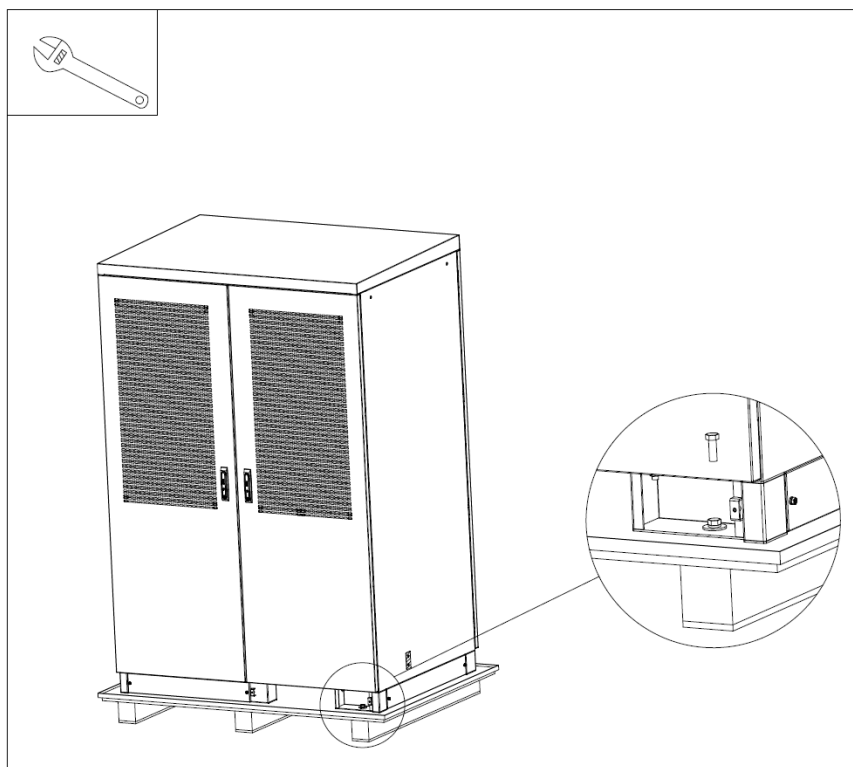


Figure 3.4.1-C

2. Foundation drilling

Tools required: electric drill, $\varnothing 16\text{mm}$ 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 $\varnothing 16\text{mm}$ installation holes with a depth of 80~85mm on the cement installation foundation.

3) Use a claw hammer to knock 4 M12*80 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.

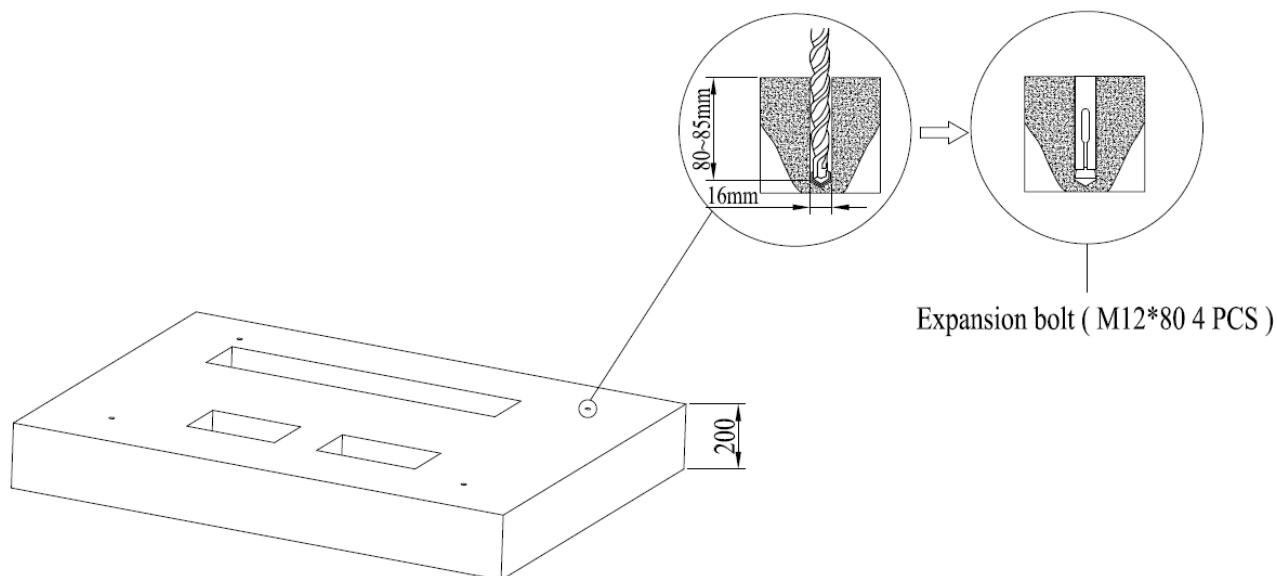


Figure 3.4.1-E

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.

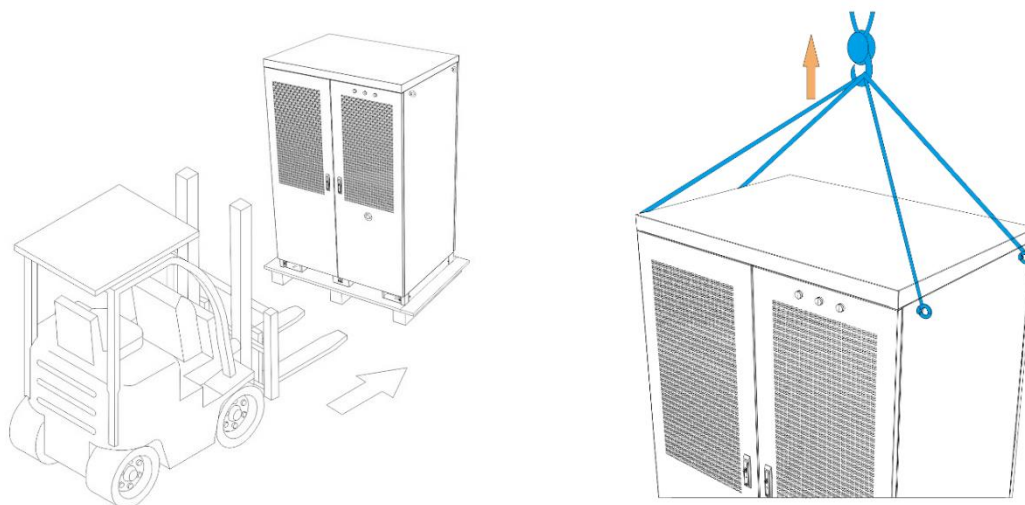


Figure 3.4.1-F

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 M12*80 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

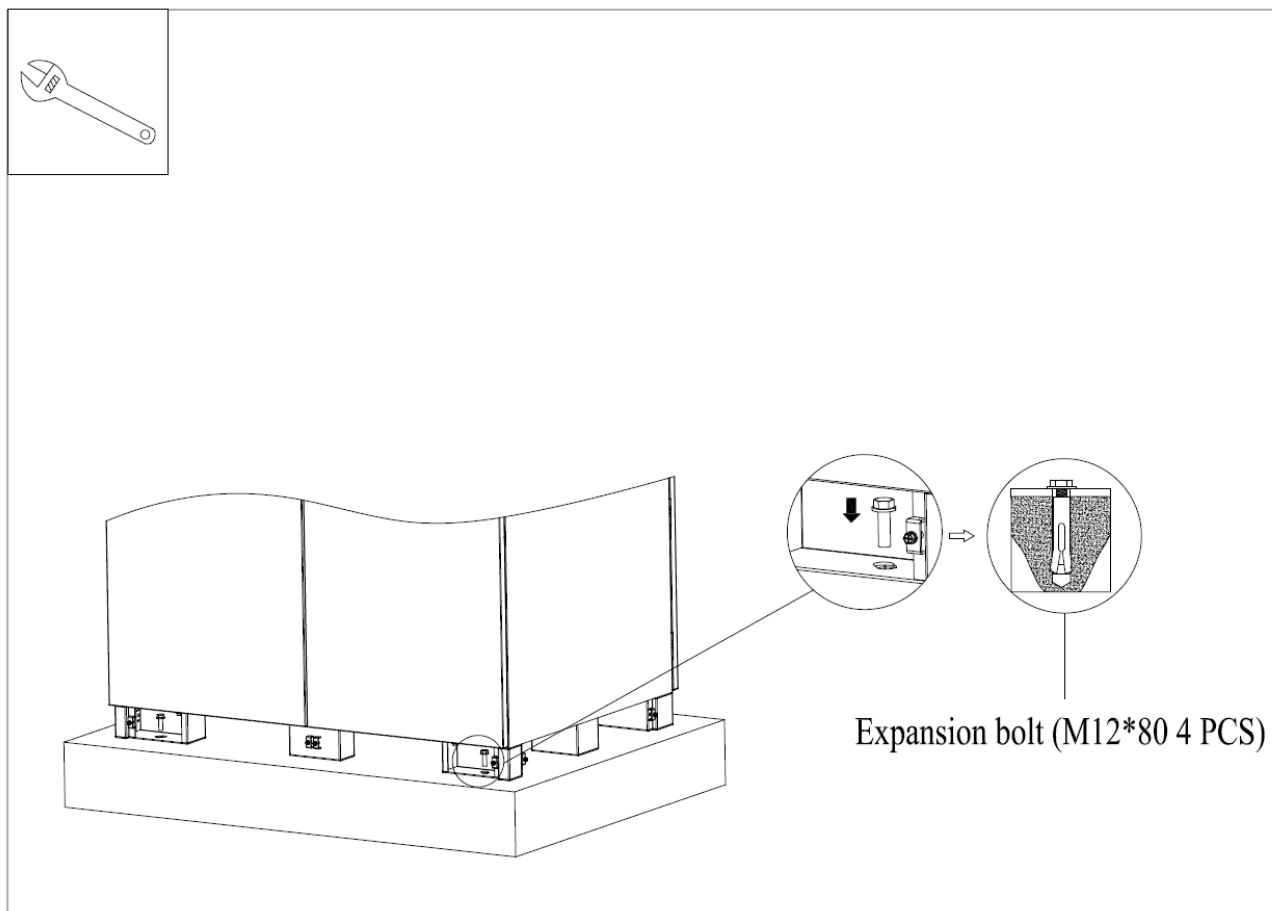


Figure 3.4.1-G

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

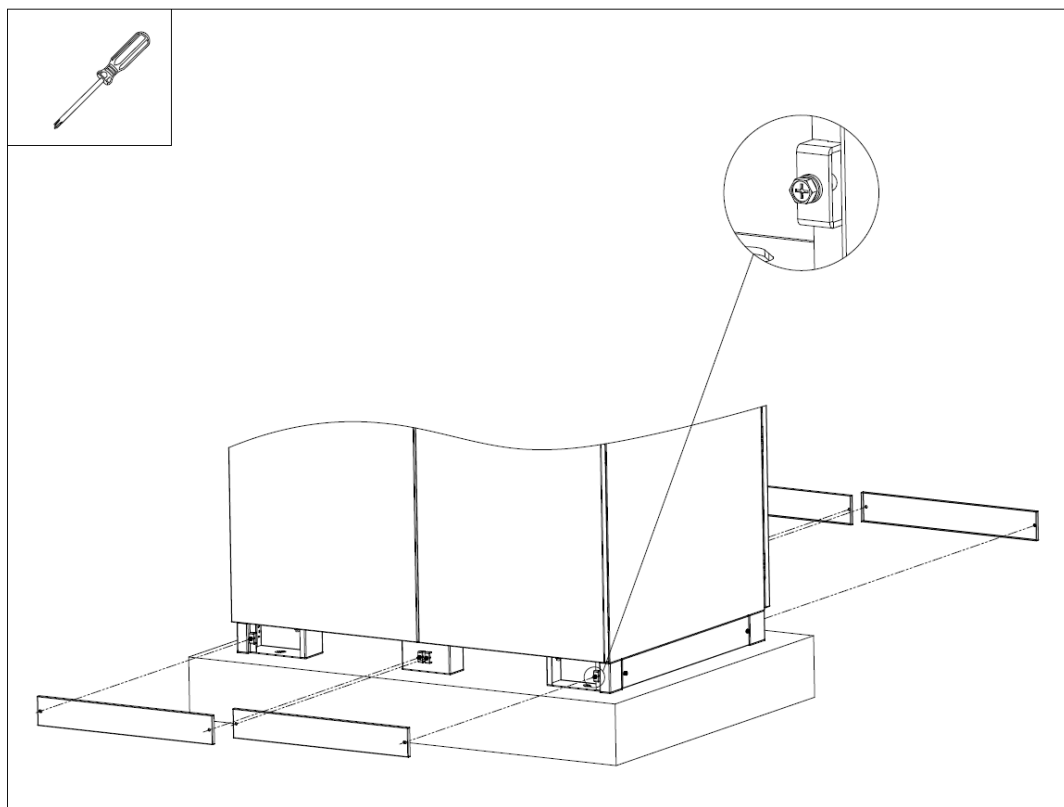


Figure 3.4.1-H

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

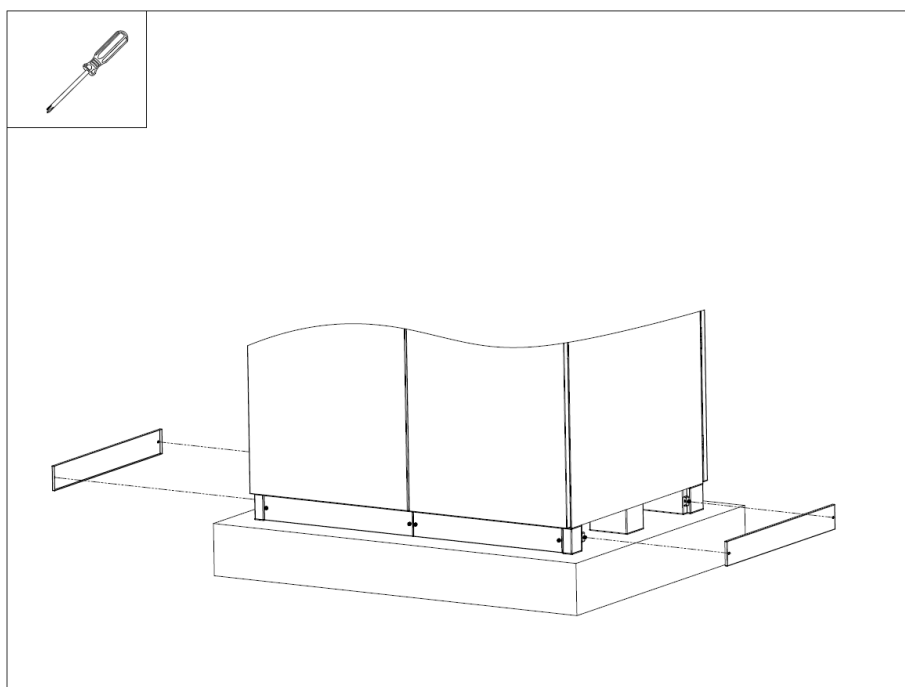


Figure 3.4.1-I

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.

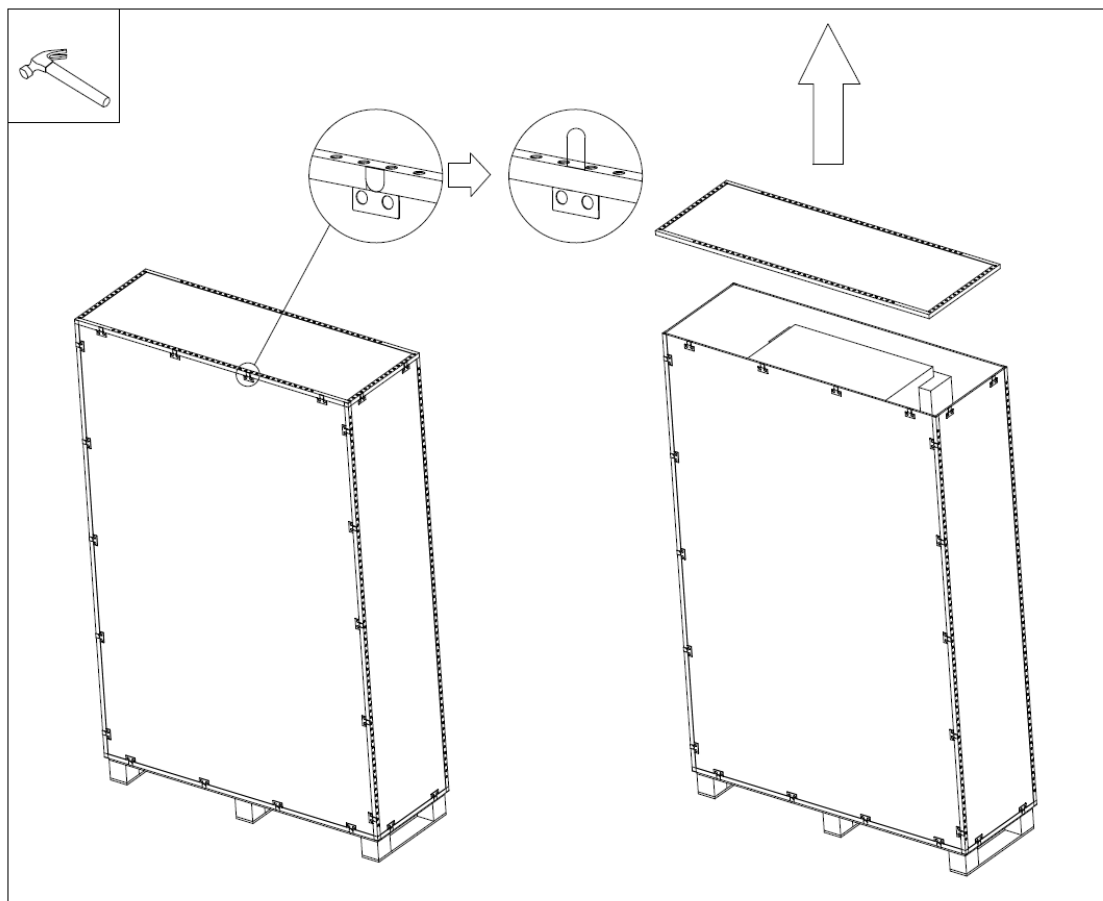


Figure 3.4.2-A

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.

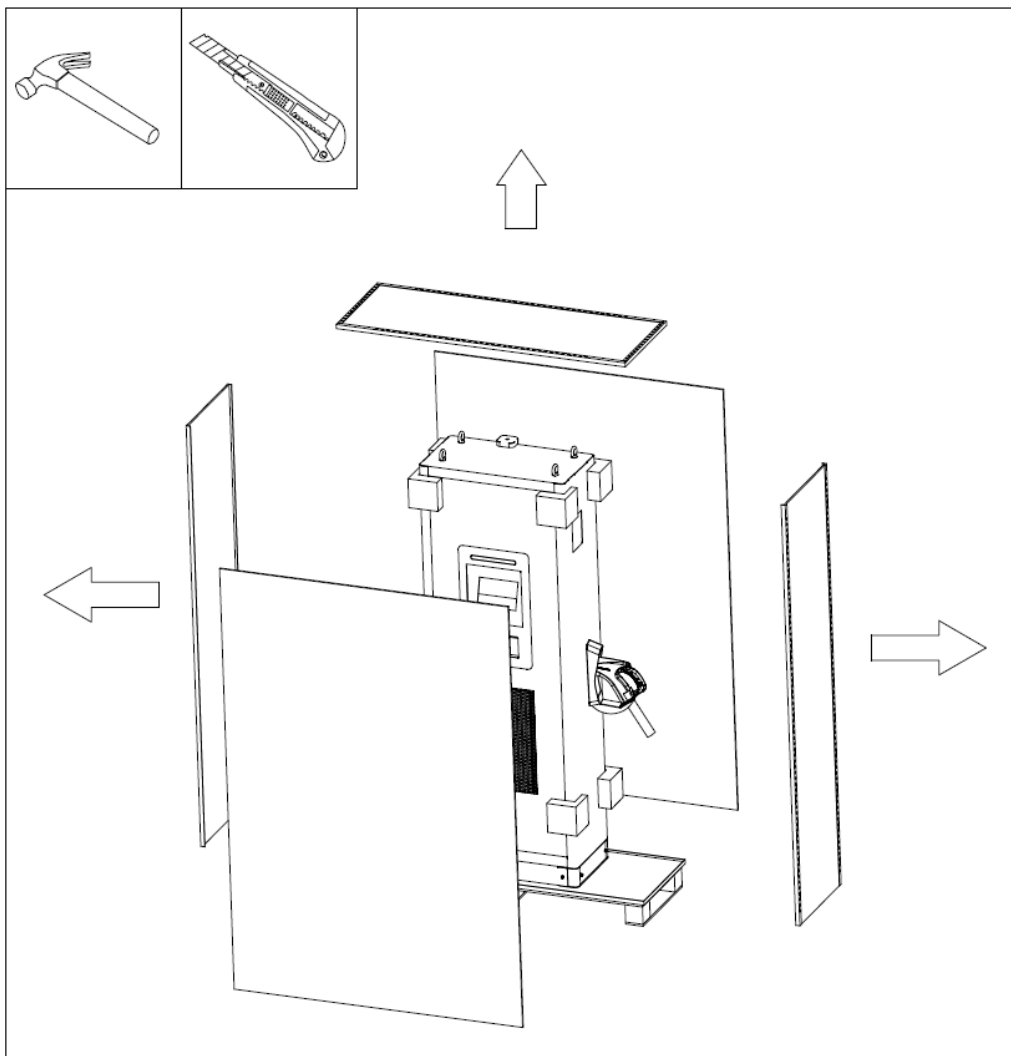


Figure 3.4.2-B

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

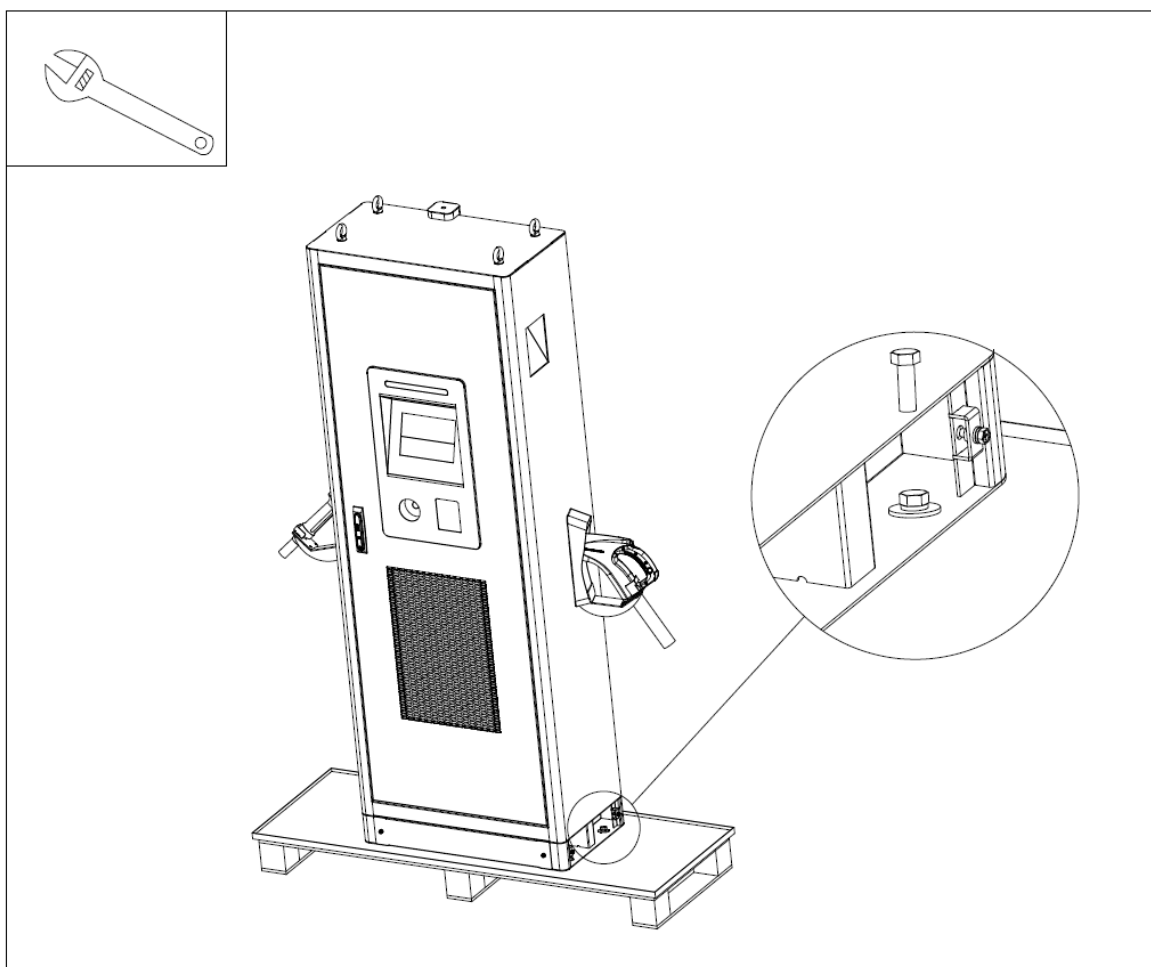


Figure 3.4.2-C

2. Foundation drilling

Tools required: electric drill, $\phi 16\text{mm}$ 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 $\phi 16\text{mm}$ installation holes with a depth of 80~85mm on the cement installation foundation.

3) Use a claw hammer to knock 4 M12*80 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.

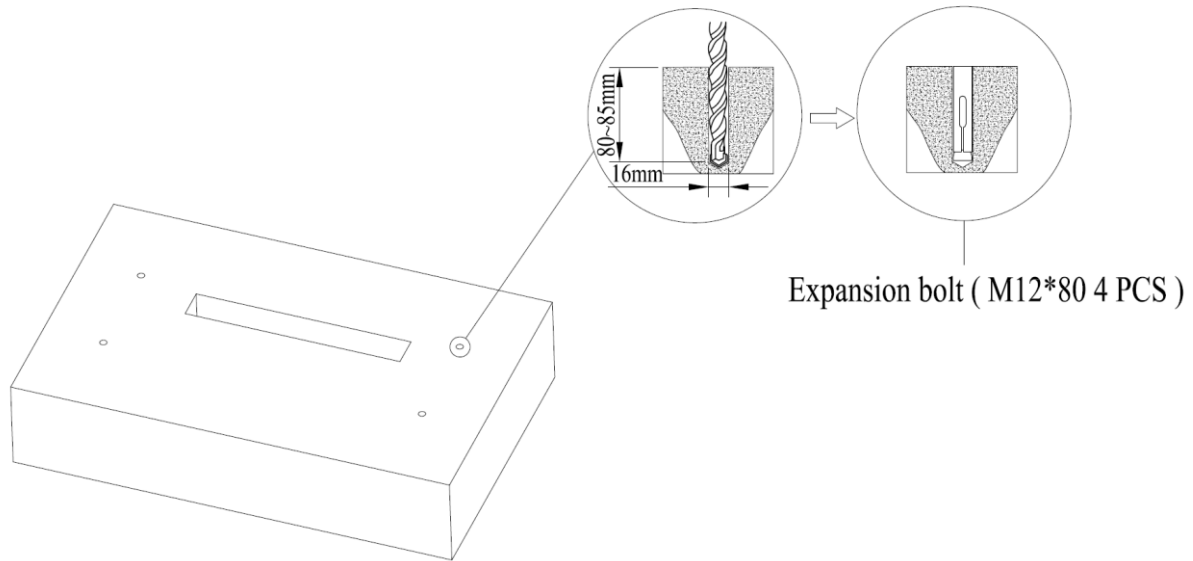


Figure 3.4.2-D

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.

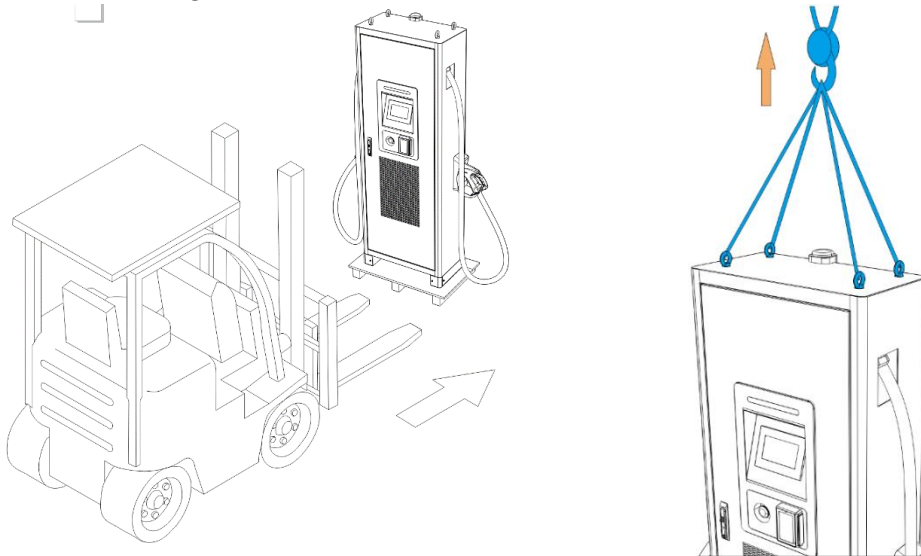


Figure 3.4.2-E

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

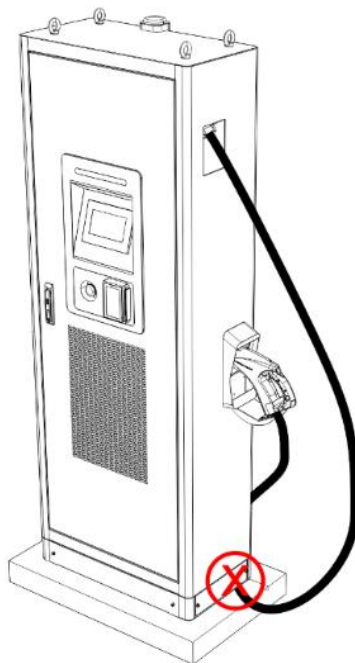


Figure 3.4.2-F

3) Install 4 M12*80 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

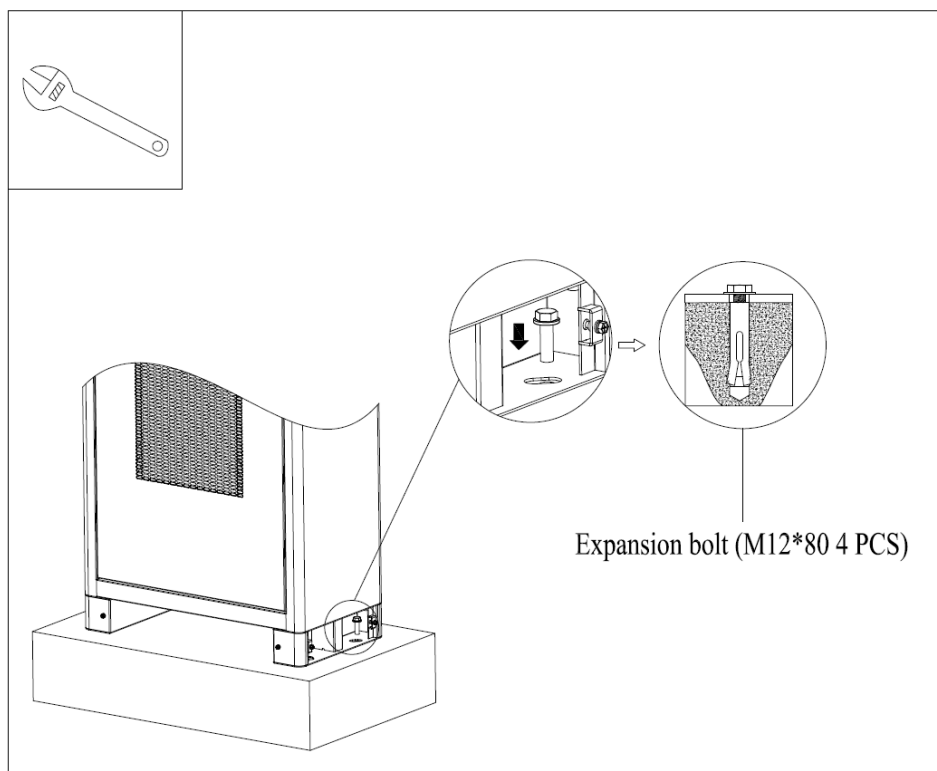


Figure 3.4.2-G

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

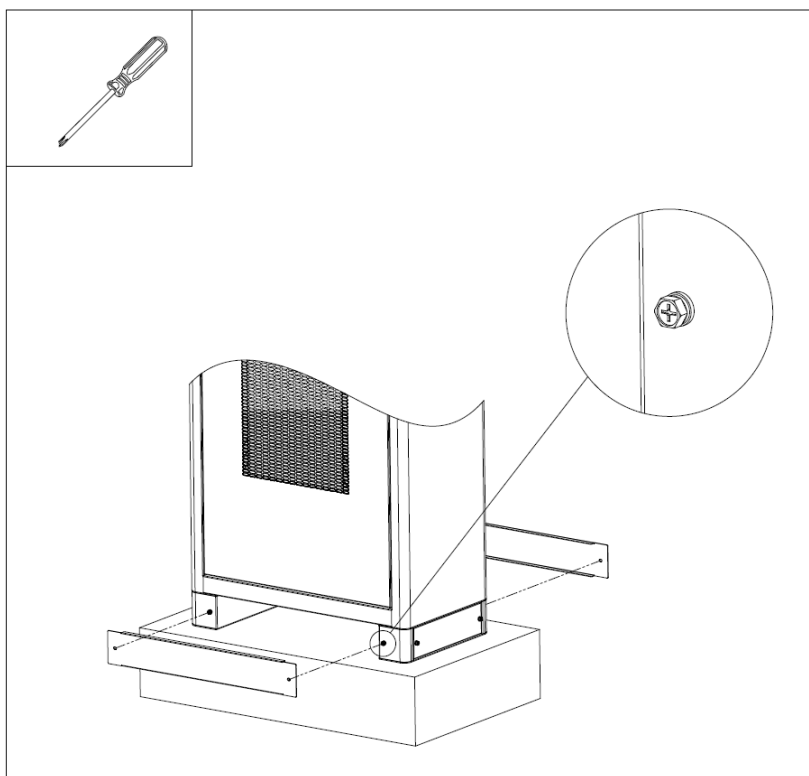


Figure 3.4.2-H

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

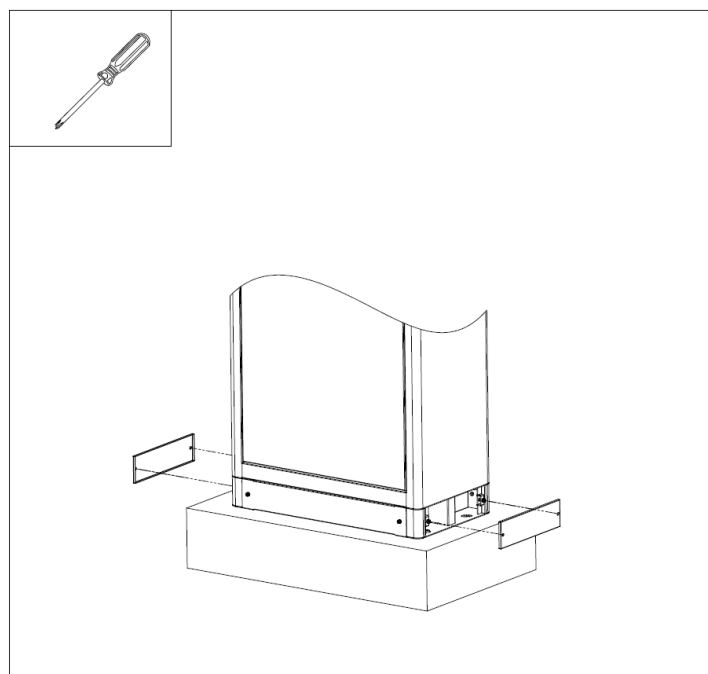


Figure 3.4.2-I

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 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 termination 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	Capacity of superior distribution switch	Screw specification (diameter: mm)	Cable Termination specification
				Single hole
360kW	2*(4*185mm ² +1*95mm ²)	1000A	L1/L2/L3/ N: M16 PE:M10	(DT185-16)*8+(DT95-10)*2
480kW	2*(4*240mm ² +1*120mm ²)	1250A	L1/L2/L3/ N: M16 PE:M12	(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 (single core copper wire)	Screw specification (diameter: mm)	Cable Termination specification
			Single hole
DC power cable	4*95mm ² +50mm ²	DC1+/DC1-/DC2+/ DC2-:M12 PE: M8	(DT95-12)*8+(DT50-8)*2
AC secondary cable	2*4mm ²	/	tubular termination E4010
Communication cable	shielded twisted pair 2*1.0 (grounding shield)	/	tubular termination E1010

3.5.4 Connection diagram of whole device

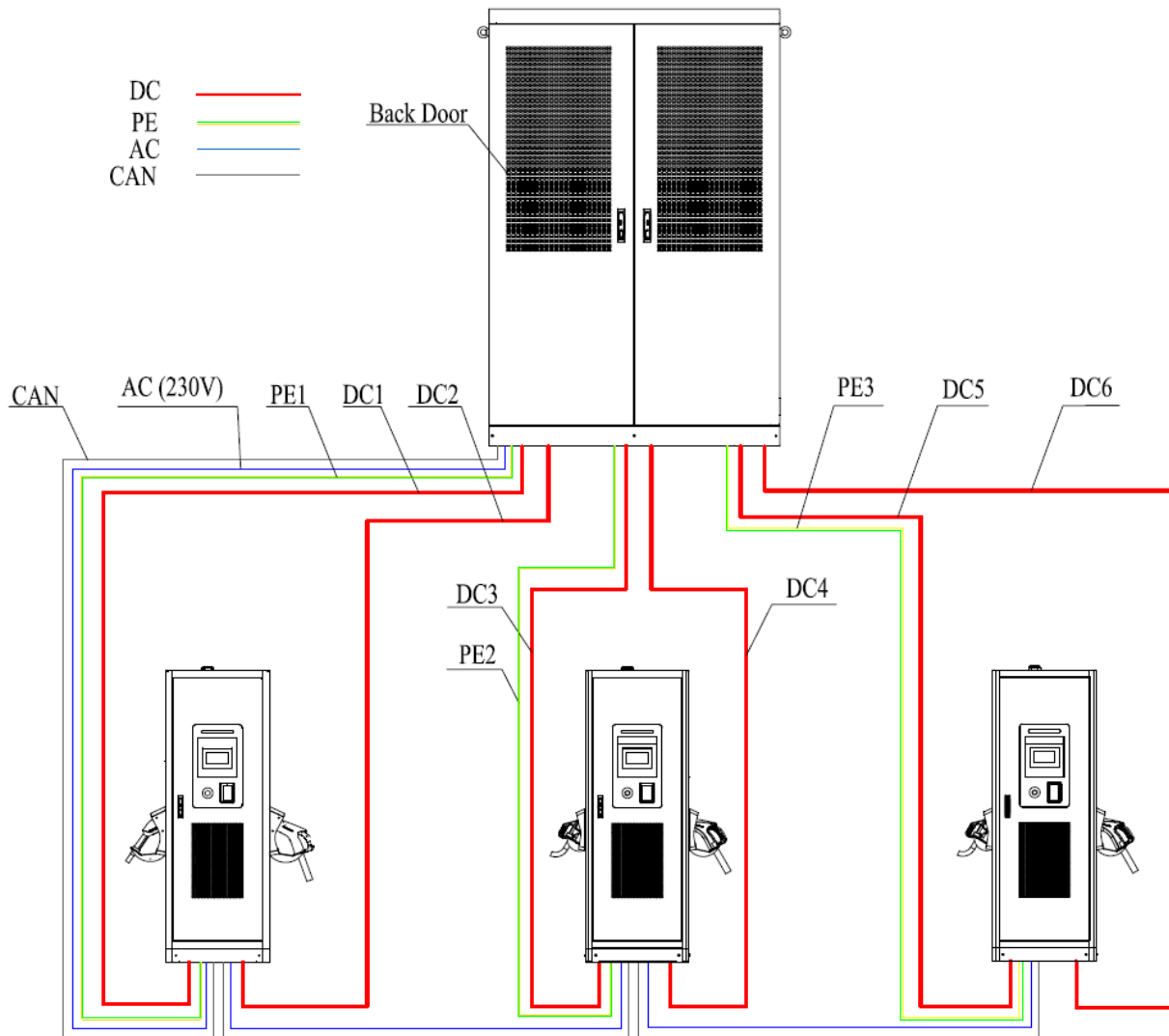


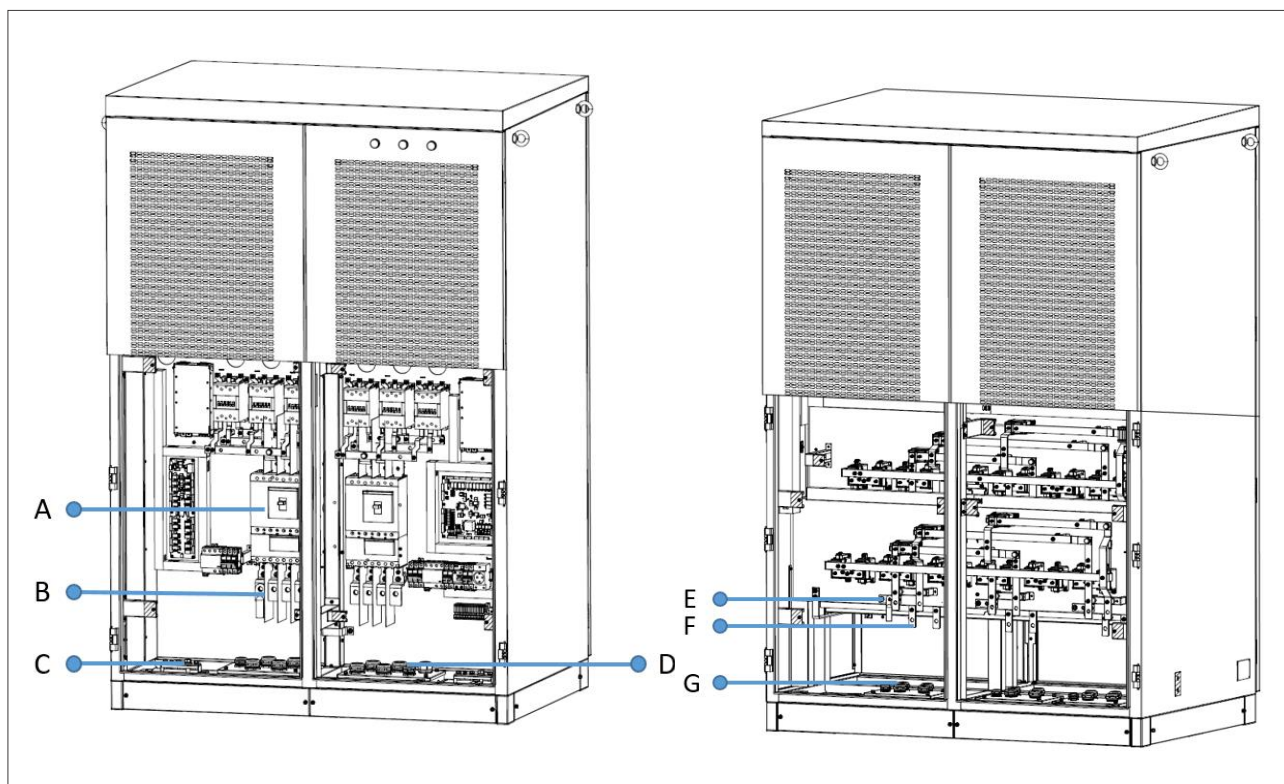
Figure 3.5.4-A Power Bank wiring diagram

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.

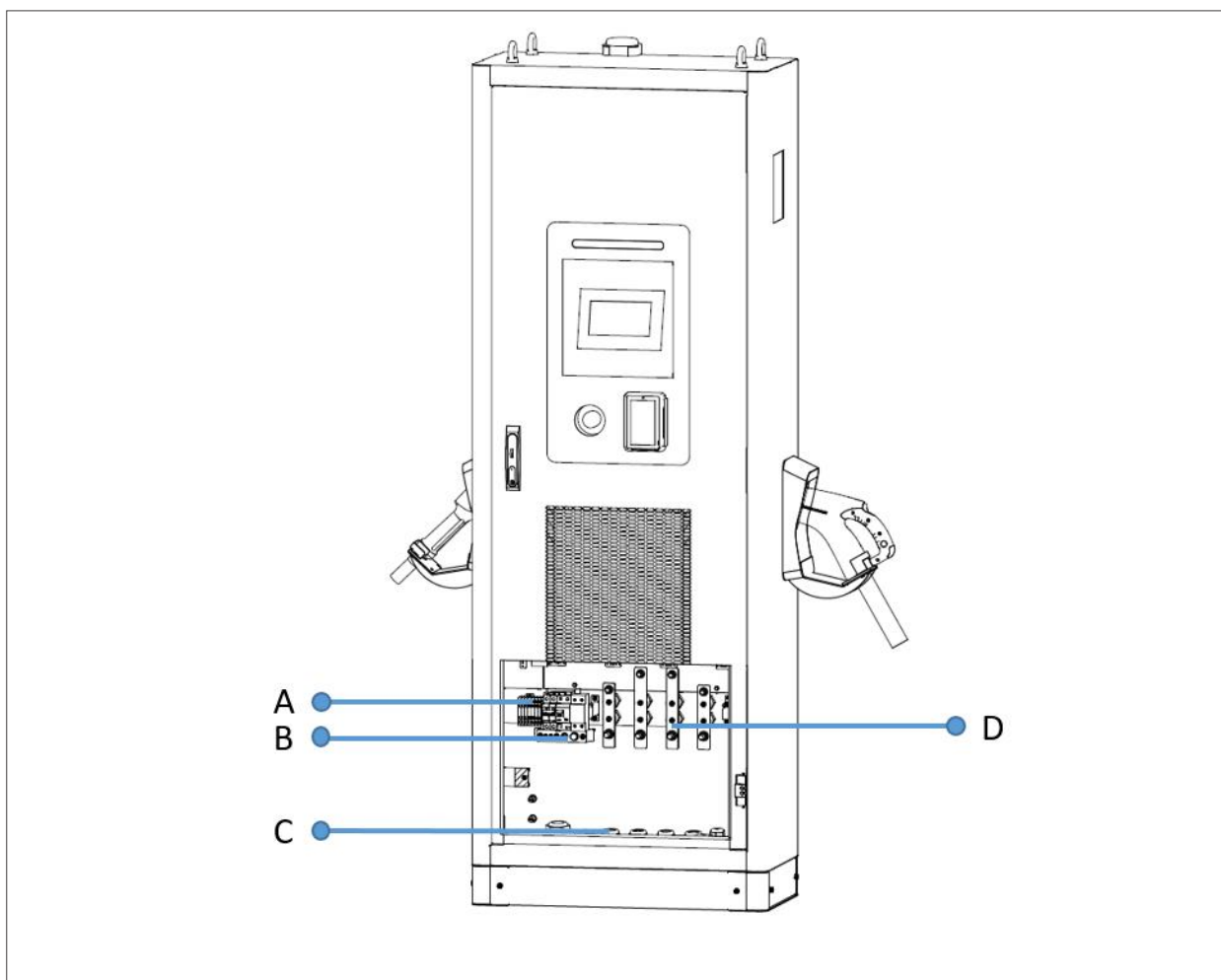
3.5.5 Internal wiring diagram

1、Internal wiring diagram of Power Bank



A	main circuit breaker	E	grounding copper bar to User Terminal
B	copper bar of AC input cable	F	copper bar of DC output cable
C	grounding copper bar	G	DC output hole
D	AC Input hole		

2、Internal wiring diagram of User Terminal



A auxiliary power source and CAN cable transfer terminal	C Input hole
B grounding copper bar	D DC input copper bar

3.5.6 Internal wiring details

1、 Internal wiring details of Power Bank

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.

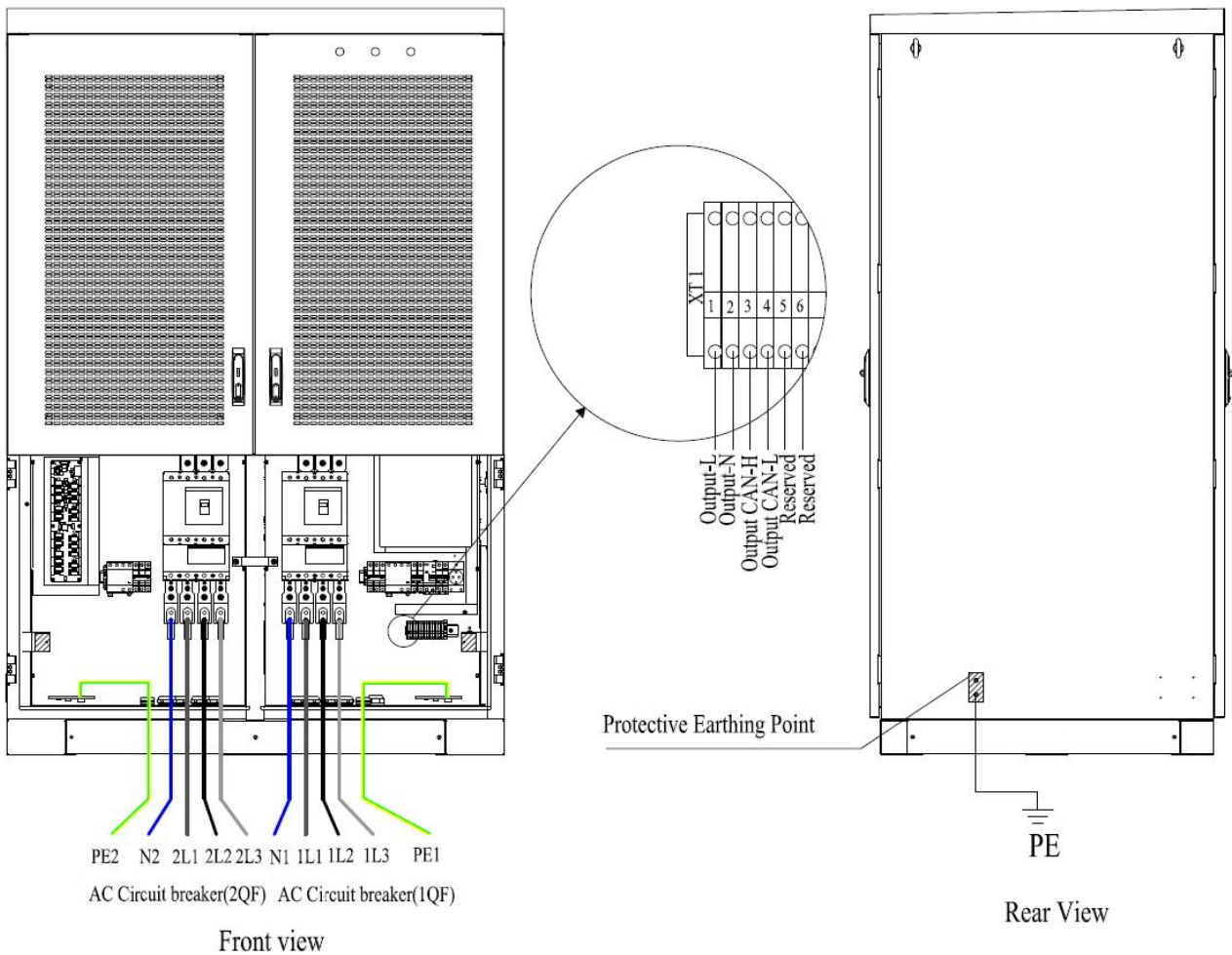


Figure 3.5.6-A Front view of internal wiring diagram of Power Bank

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.

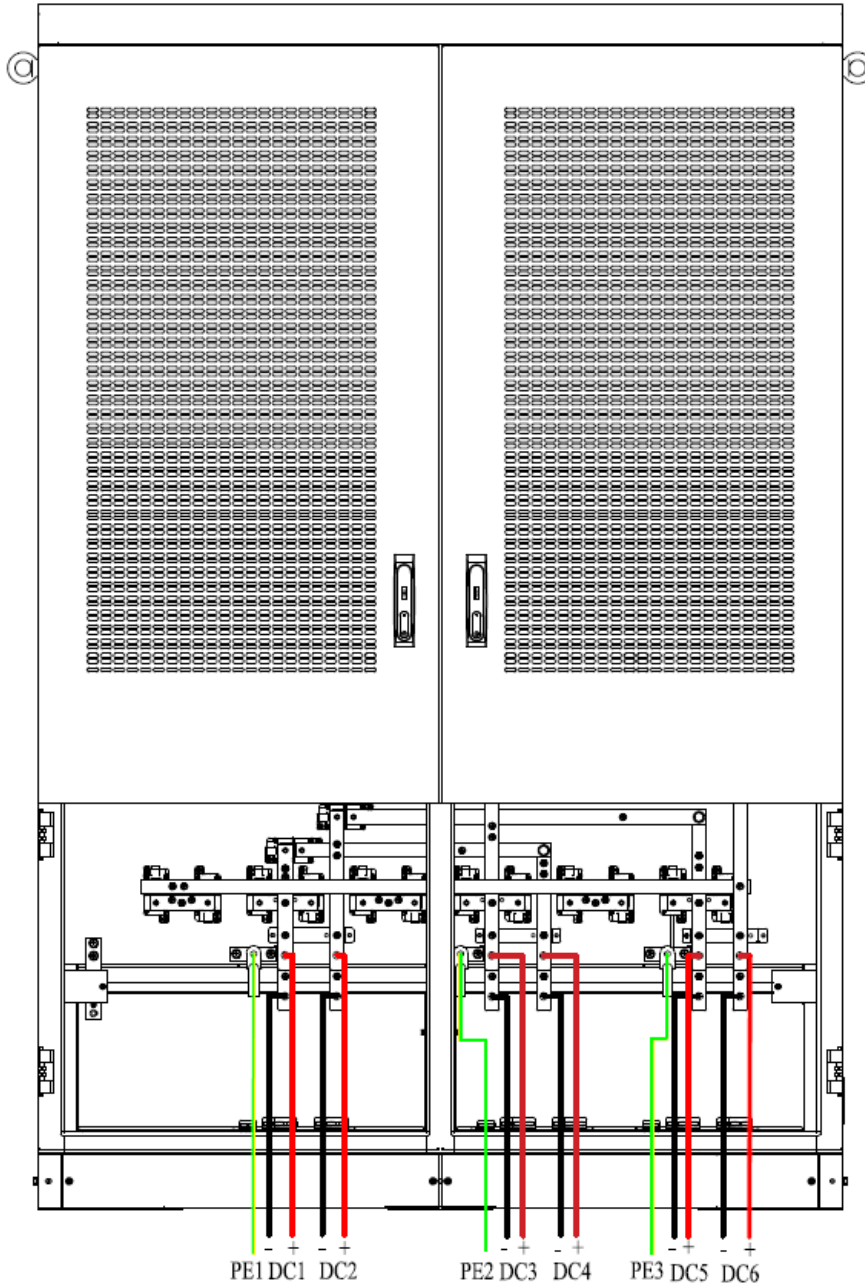


Figure 3.5.6-B Back view of internal wiring diagram of Power Bank

Power Bank	DC1	DC2	DC3	DC4	DC5	DC6
User Terminal	#1 User TerminalDC1	#1 User TerminalDC2	#2 User TerminalDC1	#2 User TerminalDC2	#3 User TerminalDC1	#3 User TerminalDC2

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 :

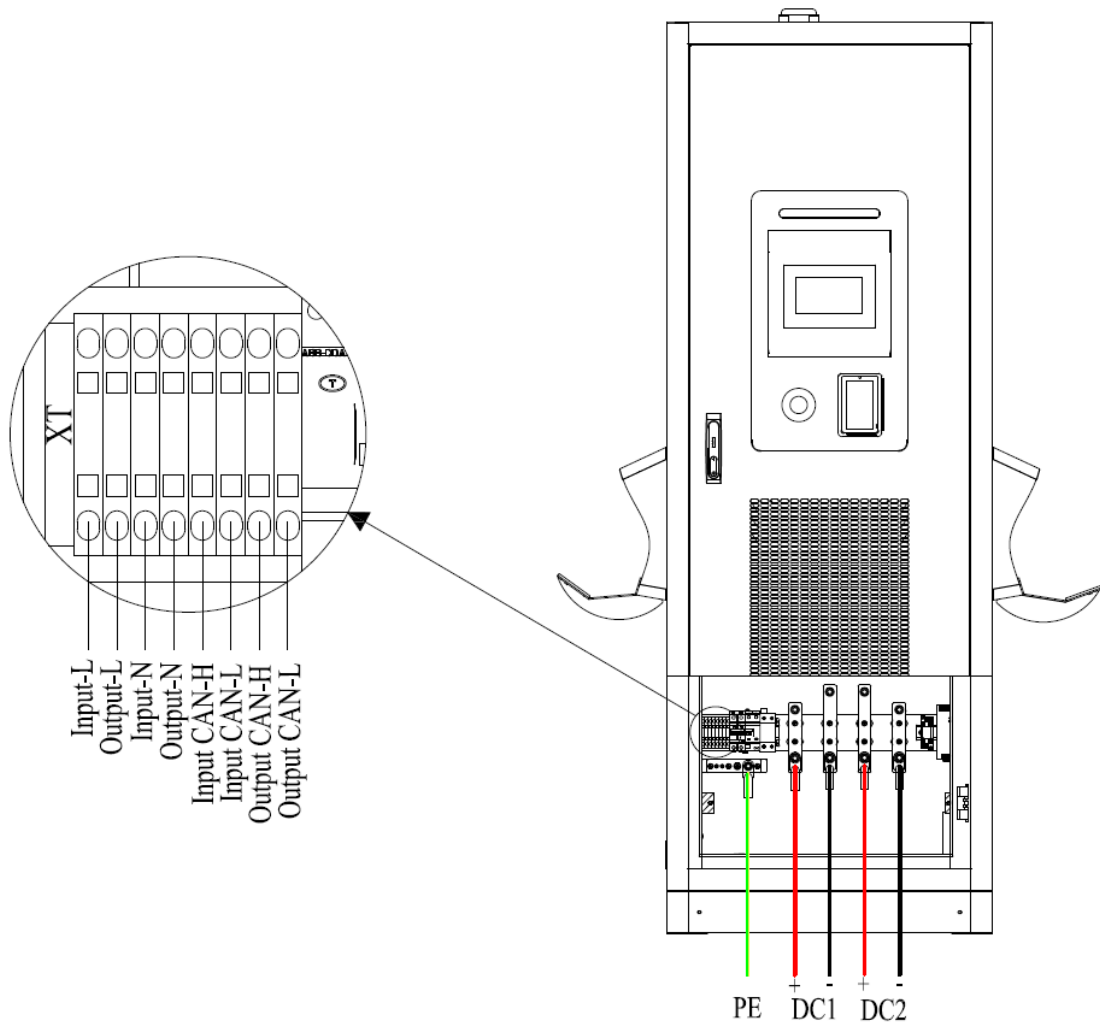


Figure 3.5.6-B Front view of internal wiring diagram of User Terminal

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

4.1 Notes before charging

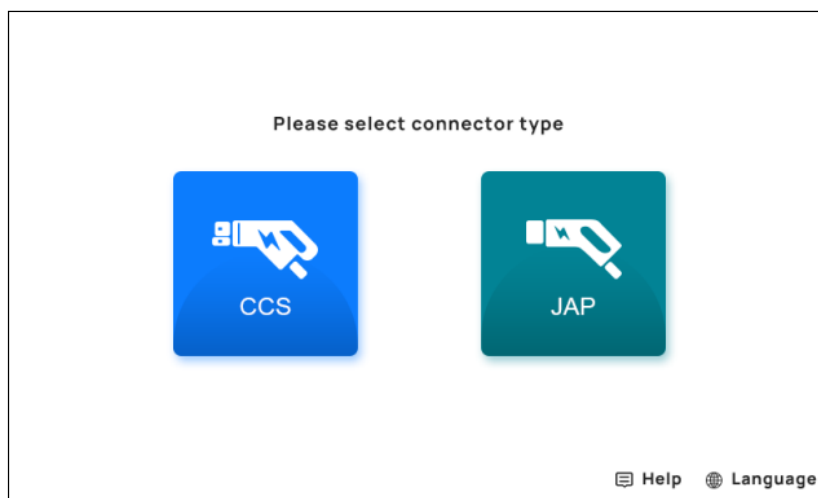
- 1) Before charging, make sure that the charger system is in a normal state.
- 2) Before charging, make sure that the charging cable is not damaged, and the charging connector is free of water. If the charging connector gets water, do not charge directly.
- 3) Before charging, the user should fully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

4.2 Charging process



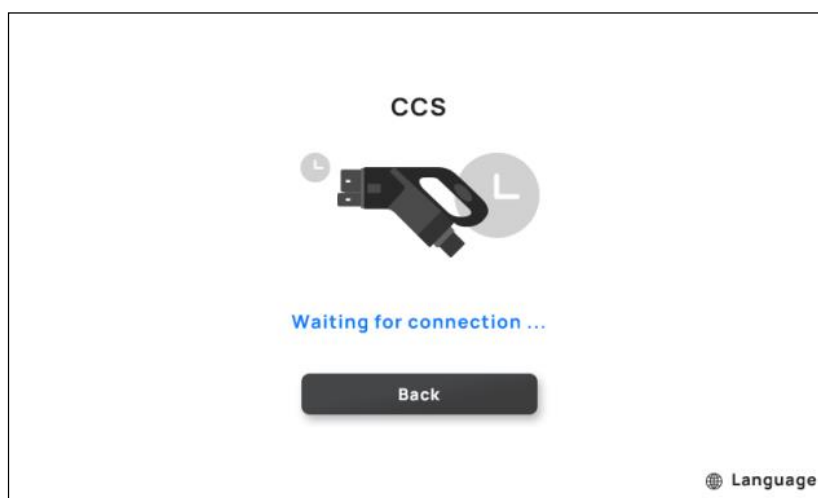
Note: When the charger is in the standby state, the screen is in the screen-off sleep mode. Before operation, you need to touch the screen with your finger to wake up the screen.

4.2.1 Main interface



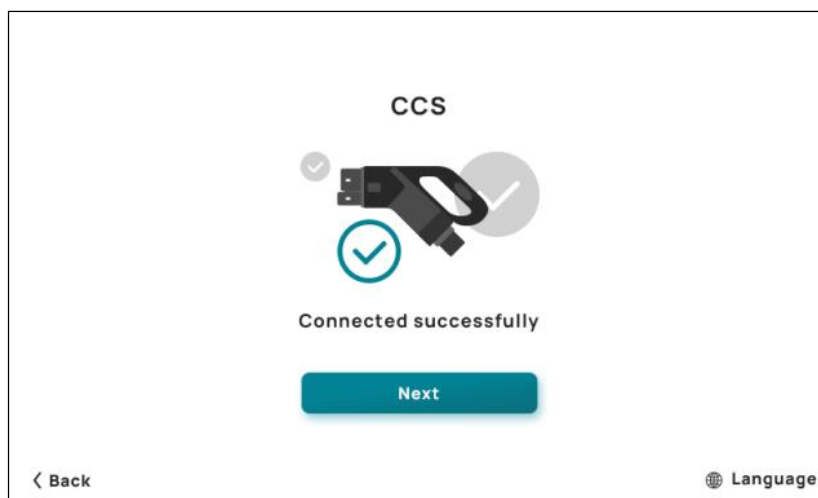
Tip: Select CCS connector or JAP connector according to the socket type of the car. Following is the process of selecting CCS, to which the JAP' s is similar.

4.2.2 Waiting for connector insertion interface



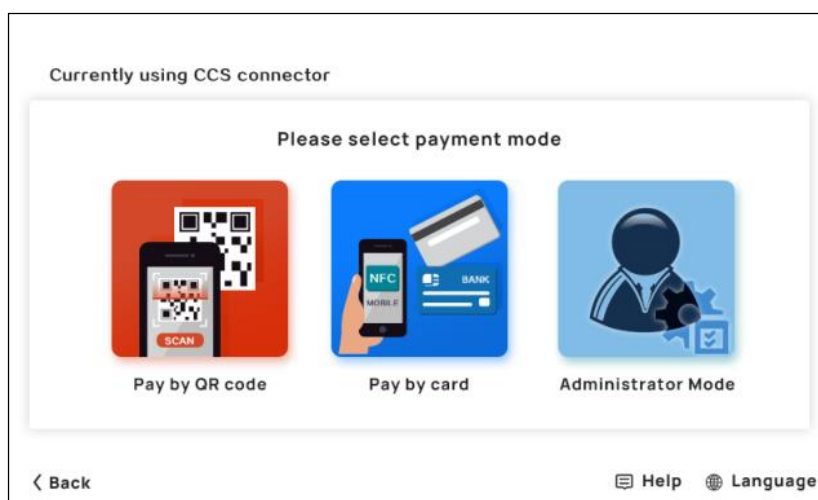
Tip: Connecting the connector to the car will jump to the connector insertion interface.

4.2.3 Connecting interface



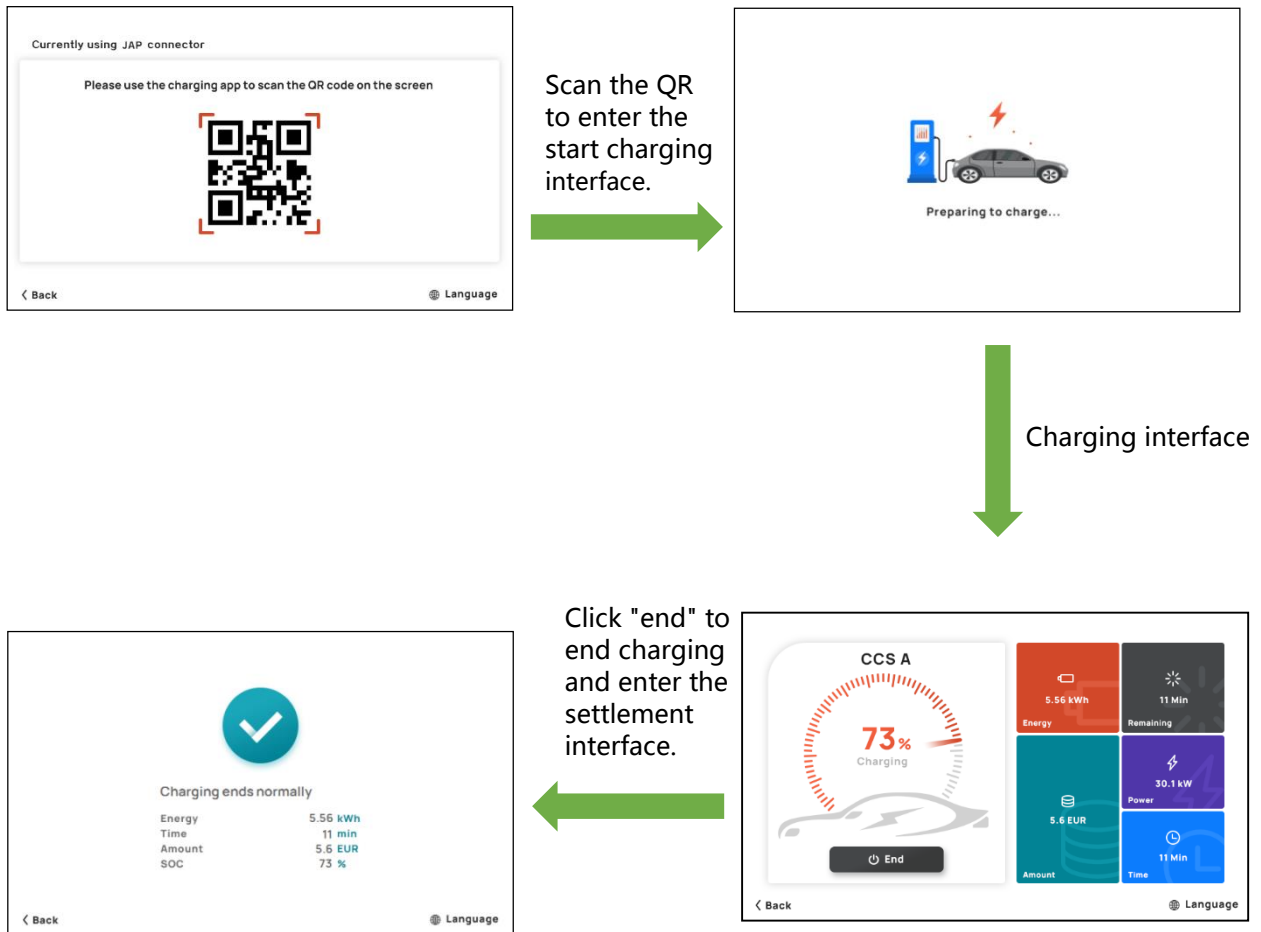
Tip: Click next button to jump to charging mode selection interface.

4.2.4 Select charging mode interface



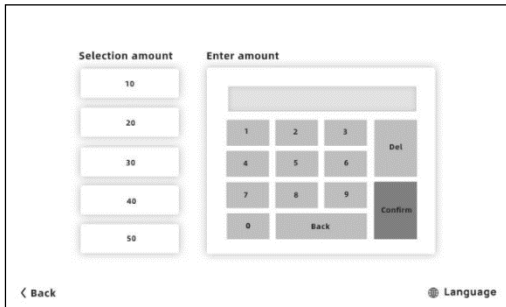
Tip: Click the button to choose the payment method you want for next charging operation.

1 Code scanning charging interface process

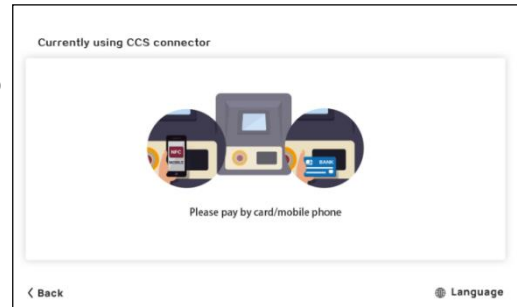


Tip: After charging, click Back button. If the other charging connector is in charging state, it will jump to the charging interface of that connector, otherwise it will jump to the main interface.

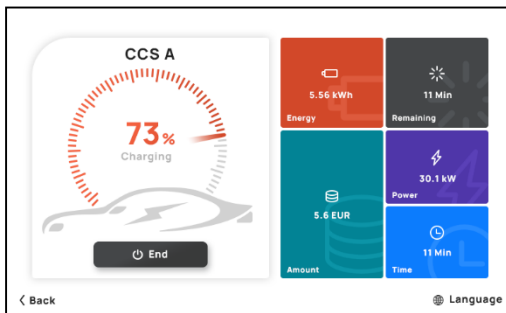
2 Pay by card charging interface process



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



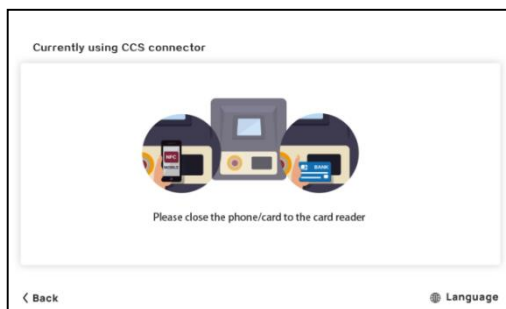
Swipe the card following the interface prompts to jump to the charging start interface



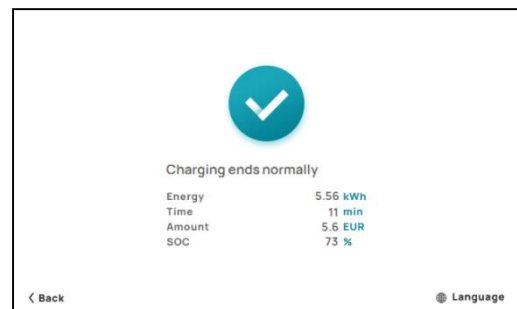
Charging interface



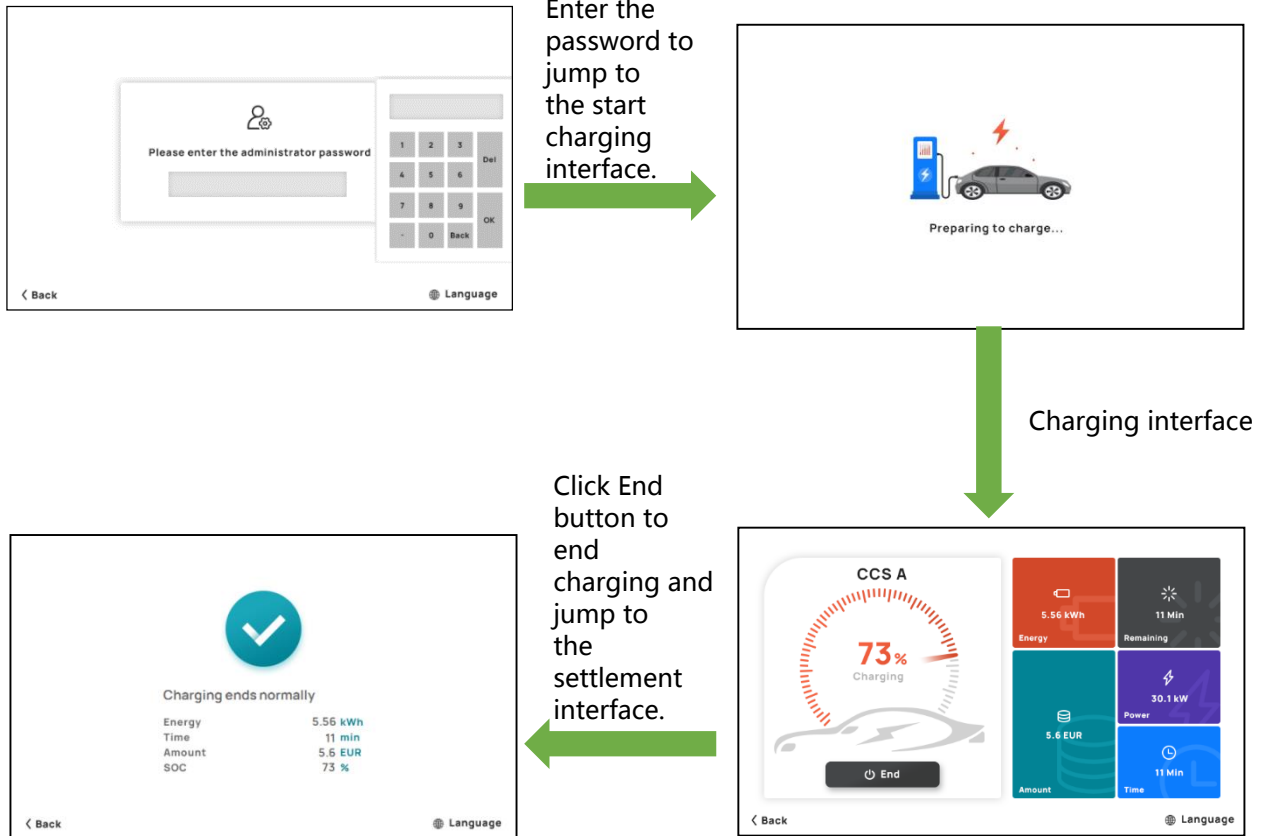
Click "End" to end charging and jump to the pay by card interface.



Jump to the settlement interface after paying by card.



3 Password charging interface process



Tip: Click the password blank and a small keyboard will show up. Enter the password through the keyboard and click the OK button. After the verification, it will jump to the password-initiating 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: <ul style="list-style-type: none"> ● 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 whether the power supply circuit is normal.
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

480 kW Front View

Left side modules		Right side modules	
M24(G0 A24)	M23(G0 A23)	M12(G0 A12)	M11(G0 A11)
M22(G0 A22)	M21(G0 A21)	M10(G0 A10)	M9(G0 A9)
M20(G0 A20)	M19(G0 A19)	M8(G0 A8)	M7(G0 A7)
M18(G0 A18)	M17(G0 A17)	M6(G0 A6)	M5(G0 A5)
M16(G0 A16)	M15(G0 A15)	M4(G0 A4)	M3(G0 A3)
M14(G0 A14)	M13(G0 A13)	M2(G0 A2)	M1(G0 A1)

360 kW Front View

Left side modules		Right side modules	
M24(G0 A24)	M23(G0 A23)	M12(Reserved)	M11(G0 A11)
M22(G0 A22)	M21(Reserved)	M10(G0 A10)	M9(G0 A9)
M20(G0 A20)	M19(Reserved)	M8(G0 A8)	M7(G0 A7)
M18(G0 A18)	M17(G0 A17)	M6(Reserved)	M5(G0 A5)
M16(G0 A16)	M15(G0 A15)	M4((Reserved)	M3(G0 A3)
M14(G0 A14)	M13((Reserved)	M2(G0 A2)	M1(G0 A1)