

# **EVBOSSCHARGER**

## **User Manual**

Product Type: DC Charger 30KW/40KW (V1)

Product Type: A.81.15.0013



Ver.: **A00**

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# 1 Safety Instruction

## 1.1 Safety Tips

Mark	Meaning
	<p>It will be lead to life danger, injury and equipment damage if you are not observe the safety tips, Our company refuses to assume any claim arising therefrom</p> <ul style="list-style-type: none"> <li>● <b>Electrical Hazard</b> <ul style="list-style-type: none"> <li>▶ Only personnel who have received the training of the charging system and fully mastered the knowledge of the charging system can install the charging system</li> <li>▶ For the first time of installation, always observe the safety precautions mentioned in this document and all relevant National Safety Regulations</li> </ul> </li> <li>● <b>Electrical Hazard/ Fire Hazard</b> <ul style="list-style-type: none"> <li>▶ It is Forbidden that carry out live installation and maintenance work during equipment is with power</li> <li>▶ It is Forbidden that use a damaged, worn, or dirty charging plug</li> </ul> </li> <li>● <b>The owner must be careful to run the equipment in a normal condition</b> <ul style="list-style-type: none"> <li>▶ It is necessary to inspect and maintain the charger regularly</li> <li>▶ If the inspection system has security risks, it must be shut off immediately and eliminated.</li> <li>▶ The charging reactor maintenance operation shall not be carried out without authorization, only by the manufacturer or authorized agency and units.</li> <li>▶ It is forbidden to modify or modify the charging station without authorization</li> <li>▶ Please do not remove safety signs, warnings, nameplates, signs or line markings</li> <li>▶ No extension cables shall be used when connecting the electric vehicle to the ev power supply device</li> <li>▶ Only connect to the electric vehicle or its charging equipment, do not connect to other loads (power tools, etc.).</li> <li>▶ Hold the plug when pulling the charging gun. Do not pull the cable.</li> <li>▶ Do not bend, squeeze, or roll the charging gun for mechanical damage.</li> <li>▶ Never contact with heat sources, dirt or water sources</li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>● Damage danger</li> <li>● Do not use spray water (garden watering hose, high-pressure cleaning machine, etc.) to clean the charging station.</li> </ul>



- When the charging operation is not performed, the charging gun should be inserted back into the charging gun seat.
- If the gun lock fails, please use the emergency unlock.

## 1.2 Instructions for Use of Equipment

- This type charger is an integrated charger for European standard/Japanese Standard/GBT Standard/ U.S. Standard electric vehicles in both indoor and outdoor areas
- The product is high-power high-voltage power equipment, construction and maintenance personnel should with electrician certificate and network access certificate to work.
- During installation and construction, the relevant construction standards and safety regulations implemented by various regions and countries shall be strictly observed
- Please properly use and keep the product data documents well.
- This product is developed, produced, inspected and filed according to relevant safety standards. Therefore, if the instructions and safety technical tips for the specified use are observed, the products will not cause property loss or endanger the health of personnel.
- The instructions contained in this manual must be strictly followed, otherwise potential safety hazards may occur or cause failure of the safety device. Although this manual explains the relevant safety tips, attention should still be paid to the safety regulations and accident prevention regulations that meet the corresponding application conditions.
- If user has any problem or error question during usage, please consult the equipment supplier directly . If you seek a third party or non-professional without permission for maintenance, any security consequences caused shall be borne by the user.
- When you start the first usage, you need to change the user password, and prevent the password leakage.
- The installation environment of the charging equipment should be far away from the fire sources and other hazard sources.

## 1.3 Safety Operation Instructions

- Please read the product instructions carefully before use, and follow the steps in the product instructions strictly
- Please read the product instructions carefully before use, and follow the steps in the product instructions strictly
- Please do not touch the charging plug or the charging socket of an electric vehicle. Keep the charging plug in a dry state. Do not touch the charging plug with water on your hands.
- It is strictly prohibited to continue to use the charger when the charging gun cable leaks or the insulation skin is damaged
- If there is any electricity leakage during product is running, please press the emergency stop button immediately.
- Make sure that there is no foreign matter left in the charging plug and the charging socket at the vehicle end.

- It is strictly prohibited to maintain the incoming line under incomplete power failure. When repairing the equipment, the superior switch of the charging reactor must be cut off and the maintenance sign must be hung.

Do not use the emergency stop button in non-emergency situations, otherwise you shall bear the consequence

## **2.2.Product Overview**

Electric Vehicle charger is a necessary part of large-scale industrialization of New Energy electric Vehicle service infrastructure, in order to adapt to the demands of the development of new energy electric vehicles, accelerate the construction of new energy electric vehicle charging infrastructure, our company developed a new generation independently of all standards 20kW, 30kW, 40kW, series outdoor machine.

This product adopts modular design, has multiple protection functions, charging control system, with the characteristics of high conversion efficiency, stable output current and high reliability, and high-power charging of vehicles through the control charging terminal with reliable CAN communication.

### **2.1 Basic Parameters**

### Basic Parameters

Product Name	20KW DC Charger	30KW DC Charger	40KW DC Charger
Number of Plug(PCS)	Single Plug		
AC Input Voltage(V)	AC380V±15%		
Output Power(KW)	20k W	30 k W	40 k W
DC Output Voltage (V)	DC1 50- 750 V	DC 150-1000V	
Constant power output voltage range(V)	300-1000V		
Max.Output Current(A)	50A	10 0A	12 5A
Weight(KG)	52	60	64
Protection Grade	IP54		
Dimension(W*D*H)	Wall Mounted:500x260x700mm, Floor Mounted:500x365x1600mm		



## 2.2 Performance Parameters

Detailed performance parameters		
Category	Item	Parameter
AC Input	Input Type	Three Phases Five Wires (A+B+C+N+PE)
	Input Voltage Range	AC380±15%
	Input Frequency	50Hz±5%
DC Output	Stable pressure accuracy	≤±0.5%
	Stable Current accuracy	≤±1%
	Output voltage ripple	Peak coefficient≤0.5%
Performance &Function	Power Factor	≥0.99
	Efficiency	≥95%
	Standby power consumption	≤0.1% output rating
	Equal Current imbalance	≤±3%
	Equal Current imbalance	Input/output over/under voltage protection;Over current and short circuit protection;Over temperature protection;lightning protection
Environmental conditions	Working Temperature	-20°C~+60°C, Derating above 50°C
	Humidity	5%~95% (non-condensing)
	Altitude	≤2000,Derating above 2000m

## 2.2 Function Profile

- 1) The single-gun charging method can achieve the purpose of high-power charging according to the actual charging demand of the vehicle sent by the vehicle BMS
- 2) The charger exchanges data with the vehicle through CAN bus to achieve the purpose of intelligent charging.
- 3) The charger uses 7-inch LCD touch screen, display bright color, can realize the display of outdoor

high brightness environment, normal use in high and low temperature environment, convenient for users to operate




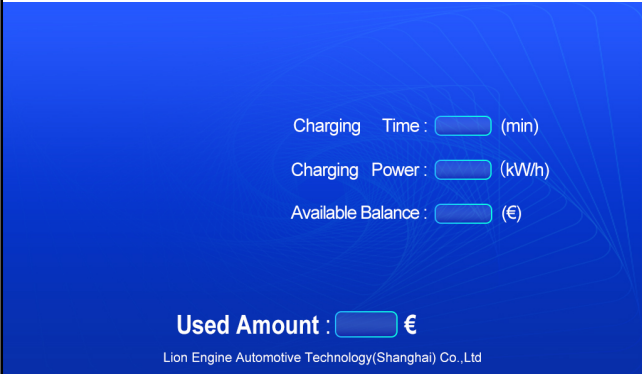
- 4) The charger exchanges data with the vehicle through CAN bus to achieve the purpose of intelligent charging.
- 5) The BMS power supply has 12V to meet the charging needs of the vehicle.
- 6) It has local Ethernet, communication interface, 4G wireless communication and real-time communication with the background monitoring platform, report the operation status of the equipment in time, and ensure that the monitoring
- 7) The charging system has remote and local upgrade functions, and the software can be upgraded remotely when needed.

### 3. Operation Instruction

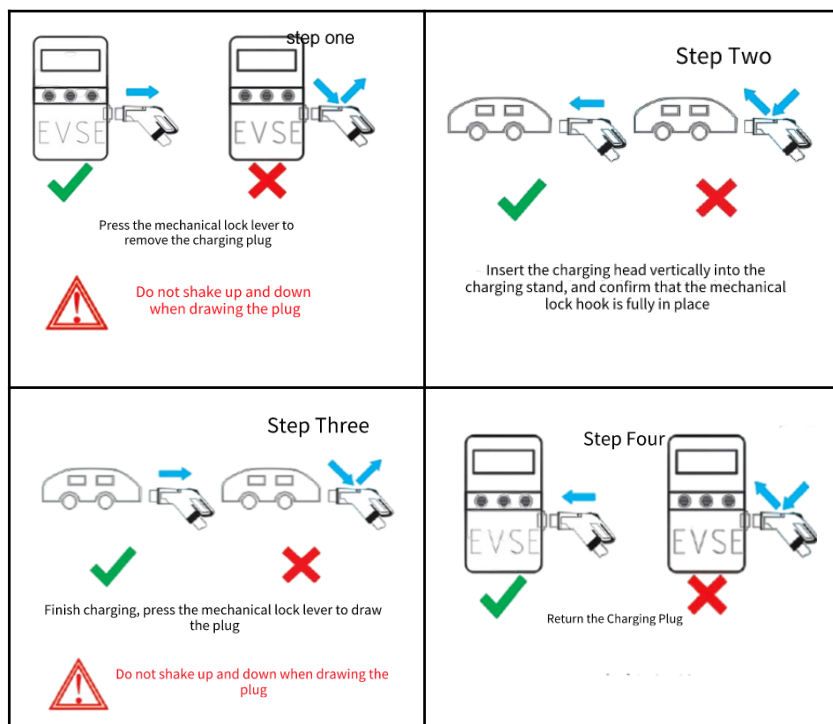
#### 3.1 Charging Instruction

- 1) Make sure that the charger system is in a normal state before charging.
- 2) Before charging, ensure that the charging gun line is not damaged, and the charging gun head is not flooded. If the gun head is flooded, do not charge directly.
- 3) Before charging, users should read the user manual fully, and be familiar with the safe operation instructions to prevent dangerous operation.
- 4) Before charging, the user should be familiar with the charging operation steps to prevent improper operation.


#### 3.2 Charging Operation Interface

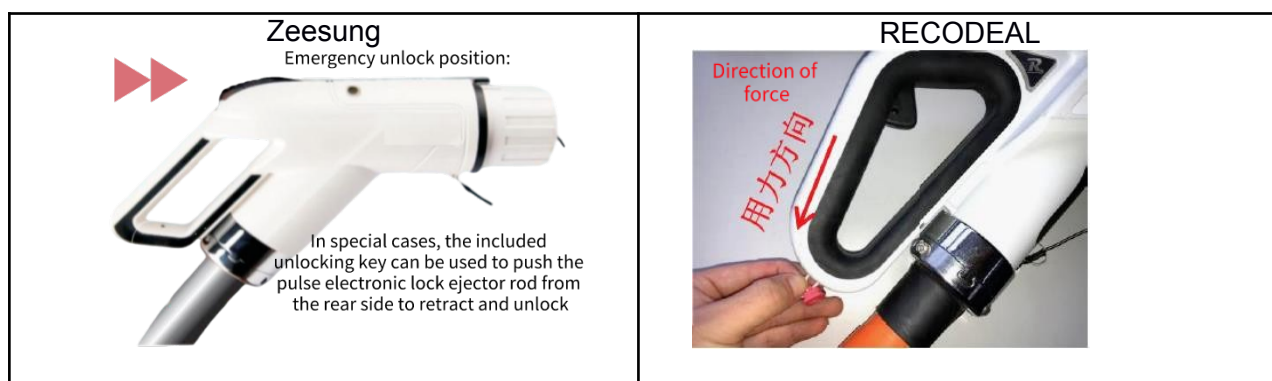
<p>a、Charging machine standby</p>  <p>€/kWh</p> <p>Lion Engine Automotive Technology(Shanghai) Co.,Ltd</p>	<p>b、Swipe the card and select the charging type</p>  <p>Countdown (sec)</p> <p>User ID</p> <p>Card Balance</p> <p> <input type="radio"/> Fully Smart Charged  <input type="radio"/> Charge by Amount €  <input type="radio"/> Charge by Battery  <input type="radio"/> Charge by Time         </p> <p>Confirm Cancel</p>
<p>c、State in charging</p>  <p>         Available Balance : (€)          Remain Time : (min)          Charging Power : (kW/h)          Charging Time : (min)          Demand Current : (A)          Demand Voltage : (V)          Charging Current : (A)          Charging Voltage : (V)       </p> <p>Used Amount : €</p> <p>Lion Engine Automotive Technology(Shanghai) Co.,Ltd</p>	<p>d、Swipe your card and stop charging</p>  <p>Charging Time : (min)</p> <p>Charging Power : (kW/h)</p> <p>Available Balance : (€)</p> <p>Used Amount : €</p> <p>Lion Engine Automotive Technology(Shanghai) Co.,Ltd</p>

### 3.3 Charging Plug Instruction



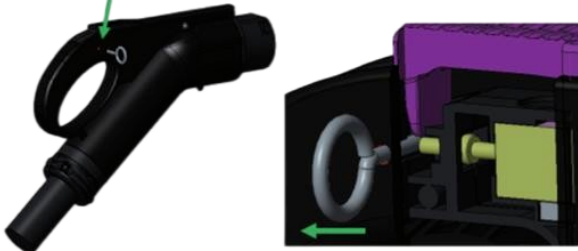
### 3.4 Charging Plug Emergency Unlock method

 **Notice!** Only use when the charging station is unlocked abnormally! For the emergency unlocking method of other brands of charging plugs, please refer to the shipping information or consult the manufacturer



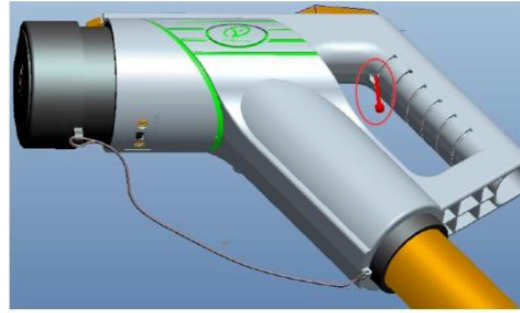
### WOER

Emergency Unlock Position



Gently move the lock lever in the direction of the arrow

### YONGGUI



1. Insert the unlocking lever into the hole circled in red
2. After inserting, gently push the lock lever to the left

### 3.5 Charging Plug Instruction

- 1) Check whether the charging socket at the car end is normal, whether there is foreign matter or dust in the socket or socket, if yes, please clean it up
- 2) Clean is allowed only if the charging gun is not connected to the vehicle.
- 3) Clean is allowed only if the charging gun is not connected to the vehicle.
- 4) Do not immerse the head of the charging gun in the liquid.

## 4.Troubleshooting

### 4.1 Error Analysis and possible solutions.

Item	Name of the alarm or Error	Solution
1	Arrester Error	Check the status of the lightning protection device, if the lightning protection device can show a red window, it means damage, please replace.。
2	Emergency push-button Error	Please check whether the product is not stopped immediately. If the error has been solved, please pull up Emergency Stop button, and cover the emergency stop protection cover.
3	The DC output contactor adhesion Error	<ol style="list-style-type: none"> <li>1. Supply power to the contactor directly, measure whether the contactor closing and feedback nodes are normal.</li> <li>2. When the DC contactor is closed, the DC control dry contact is closed and the detection signal of the plate is normal.</li> </ol>
4	Charger access control Error	Please check whether the cabinet door of this product is completely closed; confirm that the door is closed but still displayed Police, please check the status of the micro-switch, if damaged, please replace.
5	Charger overtemperature Error	<ol style="list-style-type: none"> <li>1. Please check whether the system air duct is blocked and whether the dust filter has too much ash.</li> <li>2. Please check whether the fan outlet of the charger works normally. If the fan error, please replace the fan.</li> </ol>
6	AC input contactor rejection	<ol style="list-style-type: none"> <li>1. Whether the AC contactor is damaged (the closure cannot be closed properly, and the feedback node is wrong)</li> <li>2. The control dry contact and the feedback dry contact on the monitoring board are abnormal.</li> </ol>



**Warning:** To prevent personal electric shock, disconnect the equipment and the power supply at the front of the equipment during fault detection and handling, and take protective measures, otherwise you will be responsible for the consequences.

## 5. Maintenance

### 5.1 Maintenance Period

Item	Maintenance Period	Solution	Item	Maintenance Period	Solution
Electric Fan	Weekly	Overhaul	Display screen inspection	Weekly	Overhaul
Dust cotton	Monthly	Clean	Secondary line inspection	Weekly	Fastening
Plug	Weekly	Clean	Switch	Weekly	Overhaul

		maintenanc e	protection		
Module communi cation	Weekly	Overhaul	Emergency stop function inspection	Weekly	Test

## 5.2 Heat dissipation system maintenance method

In order to avoid dust and willow catkins blocking the dust filter, it is recommended to clean the dust filter at least once a month, and the specific cleaning time can be determined according to the site environment. The cleaning method is as follows

(1) With a vacuum cleaner to the dust net, will be attached to the dust net dust, catkins for cleaning. If the willow catkins cannot be removed from the cabinet, the dust filter should be removed from the cabinet, and then clean up with a vacuum cleaner.

(2) After cleaning, check whether there are gaps around the dust cotton. If there is a gap, the dust net should be reinstalled again. Press it through the pressure strip to avoid a large amount of dust and catkins entering the cabinet.

## 5.3 Distribution system

The Steps of Power on/off of Distribution Box

- 1、 Check whether the power supply voltage is normal
- 2、 Close: firstly, close the main switch of the distribution box, and then close the branch loop switch in turn.
- 3、 Pull the switch: firstly, pull each branch loop switch, and then pull the distribution box main switch.

## 5.4 Line System

1、 Wire Trunking

- Weekly routine inspection: check whether the wire groove is fixed, whether the cover plate is complete, and whether the wire in the groove is exposed
- Monthly routine inspection: check whether the wire groove is firmly fixed, whether the cover plate is complete and tight, and whether there is any subsidence and deformation phenomenon.
- Annual routine inspection: check whether the wire groove is fixed firmly, whether the cover plate is complete and tight; whether the joints are loose, whether the distortion and deformation



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phenomenon, whether the fasteners are loose, corrosion and rust phenomenon.

## 2、Cable

- Weekly routine inspection: check whether the cable is hot and damaged.
- check whether the cable is hot and damaged, whether the cable is stressed by the external tension, and whether the fixation is firm
- Annual routine inspection: check whether the connection between the cable and the switch is close, whether the grounding is reliable, whether the cable is hot or damaged, whether the insulation resistance of the cable meets the provisions, whether the sealing measures of the cable into the box are intact, and whether the hole sealing is tight.

## 5.5 Circuit components

- Weekly routine check: whether the emergency stop button is working normally; after the emergency stop is pressed, confirm the control circuit is disconnected; whether all operation indicators are working normally; whether the charging gun fixed buckle is damaged and whether the connection is abnormal.
- Quarterly routine inspection: whether the circuit components are fixed firmly, whether there is a fire burning phenomenon at the connection of the components, found abnormal, replace the parts in time.
- Annual routine inspection: use a brush and a vacuum cleaner to remove the dust on the box, and do not blow the dust into the components when cleaning, resulting in a short circuit. Check all the components of the box comprehensively, and replace the abnormal parts in time.

## 5.6 Auxiliary System

### Indicator Light

- Monthly routine inspection: check whether the indicator lamp is burned out and whether the fixation is firm.

Annual routine inspection: whether the connection between the wire and the indicator is fastened, the indicator has no corrosion phenomenon. Whether the accessories of the indicator lamp are complete and intact, whether the fixation is firm, whether it is burned out, and whether the insulation of the incoming line meets the regulations

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## 5.7 Electrical grounding system

Electrical grounding is very important in electrical operation. The safety of people and equipment mostly depends on the integrity and safety of the grounding equipment. If the grounding equipment is not strong, unreliable, does not meet the requirements of the specification, will inevitably cause safety risks, there is the possibility of personal crisis and equipment safety. Therefore, it must be carefully inspected and timely maintained, so that the grounding system is always maintained in a safe state.

- Weekly routine inspection: check whether the grounding of the equipment is loose, loose or changed. Carefully observe whether the equipment grounding is intact, whether the anti-loosening device is complete, and whether it has been damaged or removed.
- Monthly routine inspection: whether the compression joint of the electrical grounding system is corroded, oxidized and causes poor contact, resulting in the increase of the grounding resistance phenomenon. Whether the grounding mark is complete and obvious, and whether there is no loss or damage phenomenon.
- Annual routine inspection: the grounding of electrical equipment should be checked every year to check whether the grounding wire and grounding terminal are in good condition. Use a multimeter to test whether the grounding resistance exceeds the standard and whether it meets the grounding requirements.

## 5.8 Appearance

Monthly routine inspection, whether the appearance of the cabinet is stains, the overall cleaning of the cabinet, whether the sheet metal of the cabinet is deformed and rusted, whether the paint is damaged, timely paint repair and antirust treatment to modify the appearance.

## 5.9 Emergency Handling

In order to maintain the DC power supply of the split charger system, some emergency measures are needed to treat the faults threatening the DC power supply.

The possible faults in the power system mainly include: AC distribution circuit unrecoverable damage, DC load or Short circuit in DC power distribution, monitoring module damage, DC output overvoltage, module blockade, etc.

- 1、 AC power distribution emergency treatment

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When the AC power distribution fault causes the interruption of the module AC power supply, the AC mains can be directly introduced into the input switch of the charging module.

## 2、Disaster accident

Disaster accidents include charging equipment failure caused by lightning strike, water flooding, earthquake, fire and other disasters. Prevention should be given to disasters that may seriously affect safety. At the same time, the charging station should have countermeasures to deal with these disasters and corresponding manpower and material resources, and should have emergency management regulations and emergency repair regulations for major accidents.

## 6. Disclaimer

Product damages, failures or defects caused by the following reasons are not responsible for free repairs:

- Beyond the scope of the warranty period;
- Failure to install in accordance with the requirements of the user manual, or improper operation or failure to comply with relevant local standards, resulting in product damage or failure;
- Damage to the equipment casing during transportation and handling;
- Natural wear or electrochemical corrosion caused by equipment operation;
- Changing the original design of the product without authorization, resulting in product damage or failure; intentional or negligent product damage or failure;
- Product damage or failure due to force majeure (lightning strikes, bad weather, natural disasters, etc.);
- Product damage or failure due to failure to comply with Party B's user manual;
- Any product serial number has been altered, altered or damaged;
- Product damage or failure caused by improper mobile device location;
- After receiving the contract equipment, the customer shall ensure that it is placed reasonably, safely, and without damage, and that the location, environment, temperature, etc. meet the installation and storage conditions of the contract equipment. Return to factory for aging detection;
- Poor heat dissipation of equipment caused by customer reasons (such as customer design cabinet problems, improper installation location, failure to remove dust in time, etc.),

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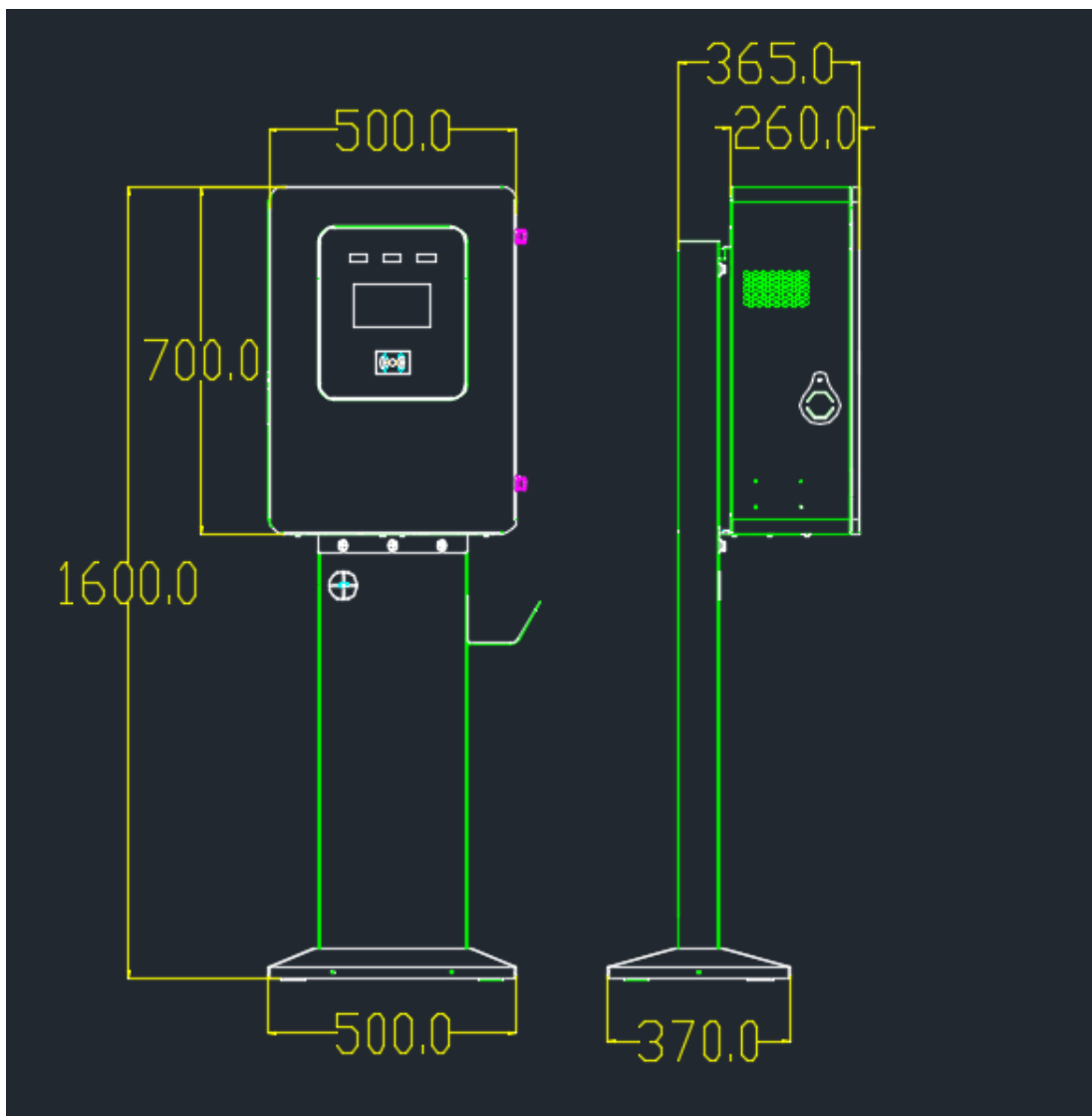
equipment damage is not within the scope of our warranty;

- For charging or metering problems caused by the customer's background system, the customer should contact the manufacturer to deal with it.

## 7. Installation Notes

### 7.1 Equipment Dimensions

- 1、Charger Size: 500mm (W) x 260mm (D) x 700mm (H) (wall Mounted), 500mm (W) x 365mm (D) x 1600mm (H) (Floor Mounted),



## 7.2 Installation Notes

### 7.2.1 Installation Requests

- 1) The charger has a front door, and an operating space needs to be reserved around it. See Figure 7.2.1-A below for the reserved dimensions
- 2) Cabinet recommended to be installed on the basis of concrete or groove steel;
- 3) pre-bury the cable in advance, the cable reserved length is detailed in Figure 7.2.1-B below;
- 4) installation base height recommended 200mm (too high not easy to operate and maintain), installation vertical inclination not more than 5%;
- 5) mounting surface pre-buried 4 M12 stainless steel bolts, bolt thread exposed ground  $30 \pm 3\text{mm}$  or mounting surface pre-buried 4 M12 (GB/T 22795- 2008) casing reinforced expansion bolt;

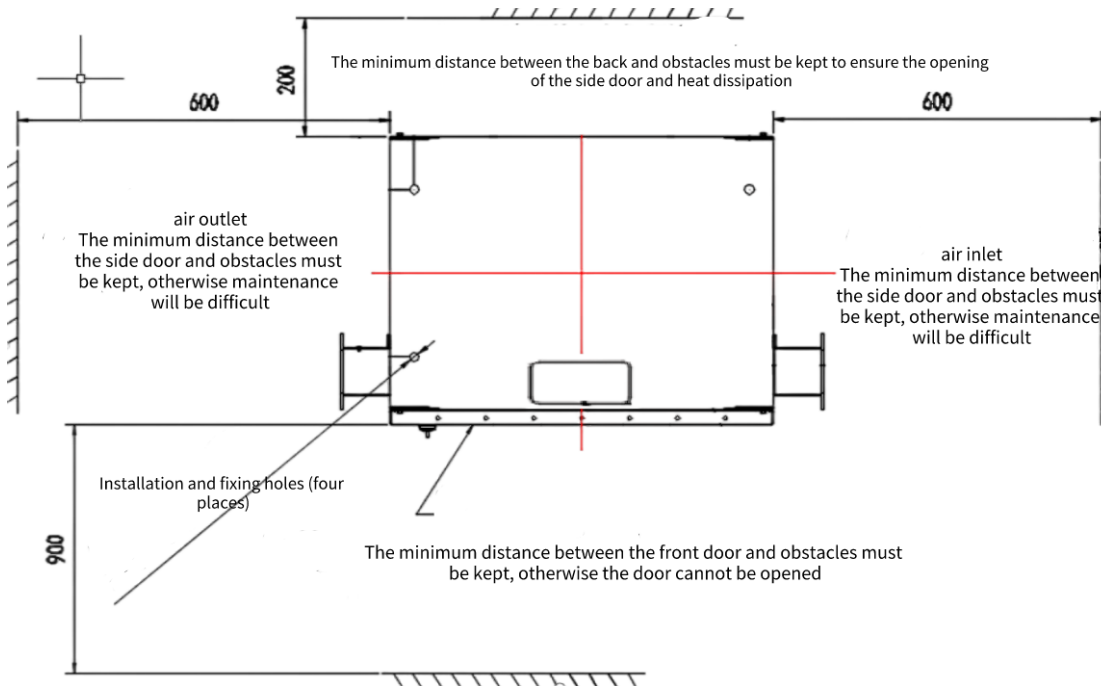


Figure 7.2.1-A Charger Placement Requirements

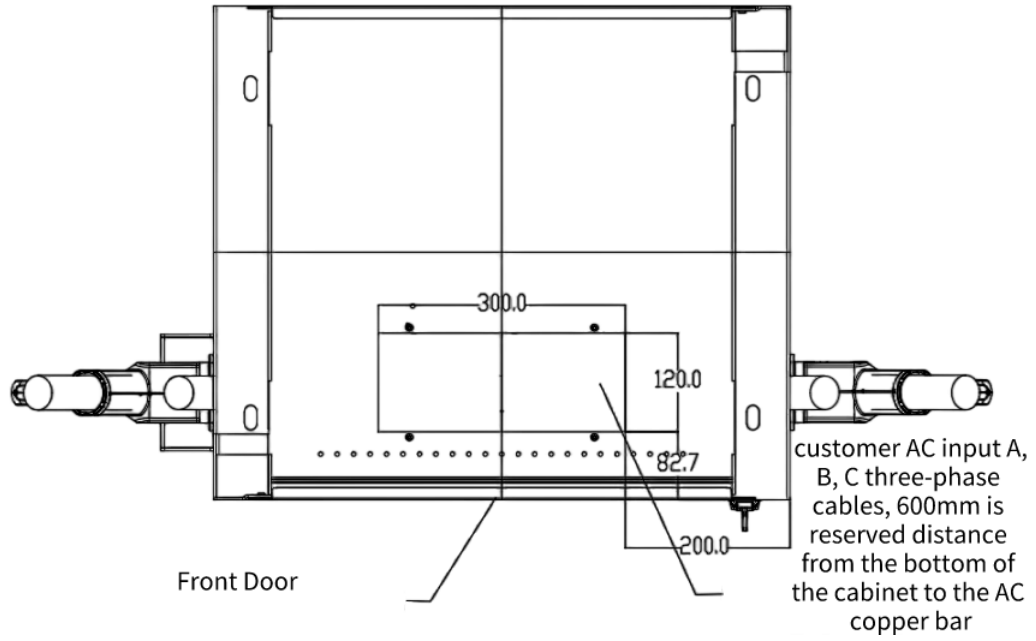
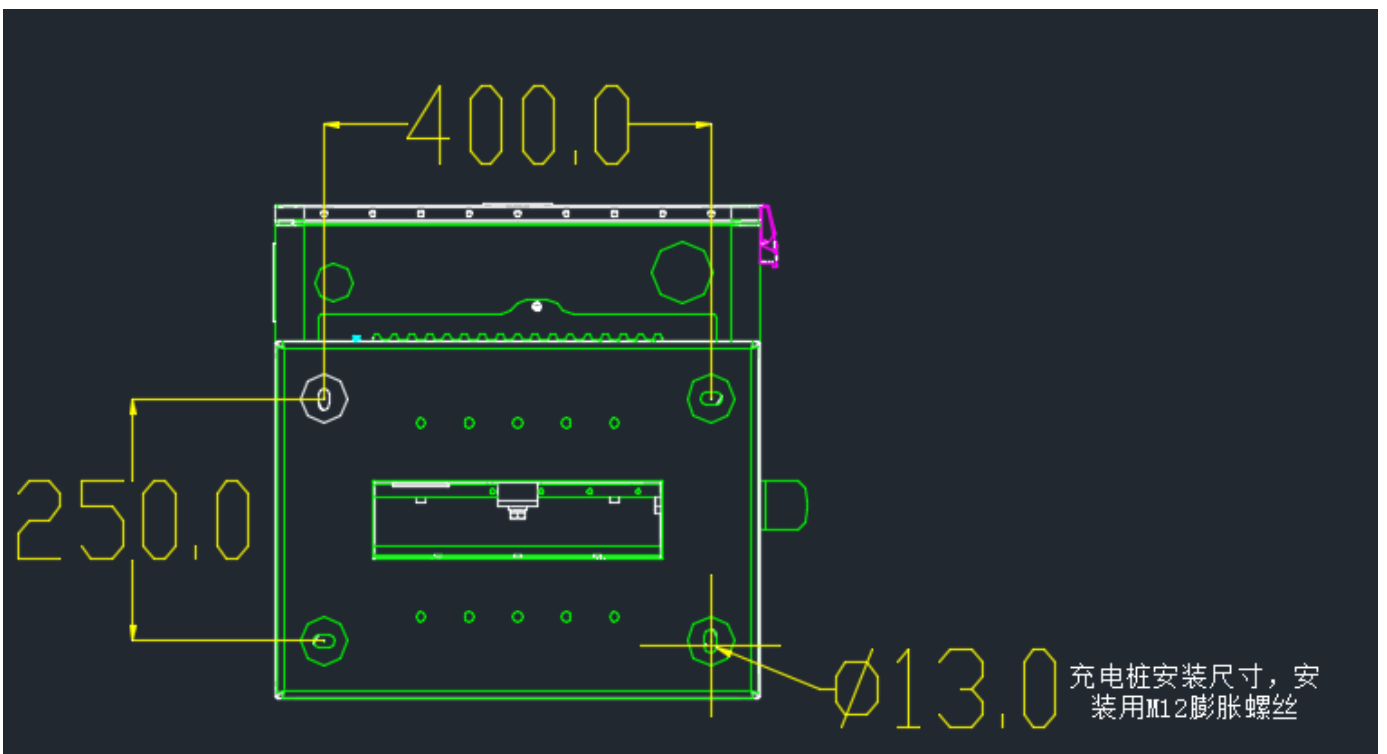


Figure 7.2.B-A Input cable reserved length requirements



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## 7.2.2 Charging Equipment Installation Steps

- 1) Prepare the corresponding tools
- 2) Drill 4 holes with a diameter of 16mm and a depth of about 100mm on the cement base, and then insert the expansion bolts through the expansion part of the wall into the drilled holes.(If the bolts have been pre-embedded on the installation foundation surface in advance, this step is ignored)
- 3) Remove the outer packaging
- 4) Align the holes of the device, place it on the cement base, and lock it tightly with M12 nuts (elastic flat washers)
- 5) Connect the power distribution cable, see Figure 7.2.2-A below for details
- 6) Seal the cable inlet hole with sealing mud, see Figure 7.2.2-A below for details

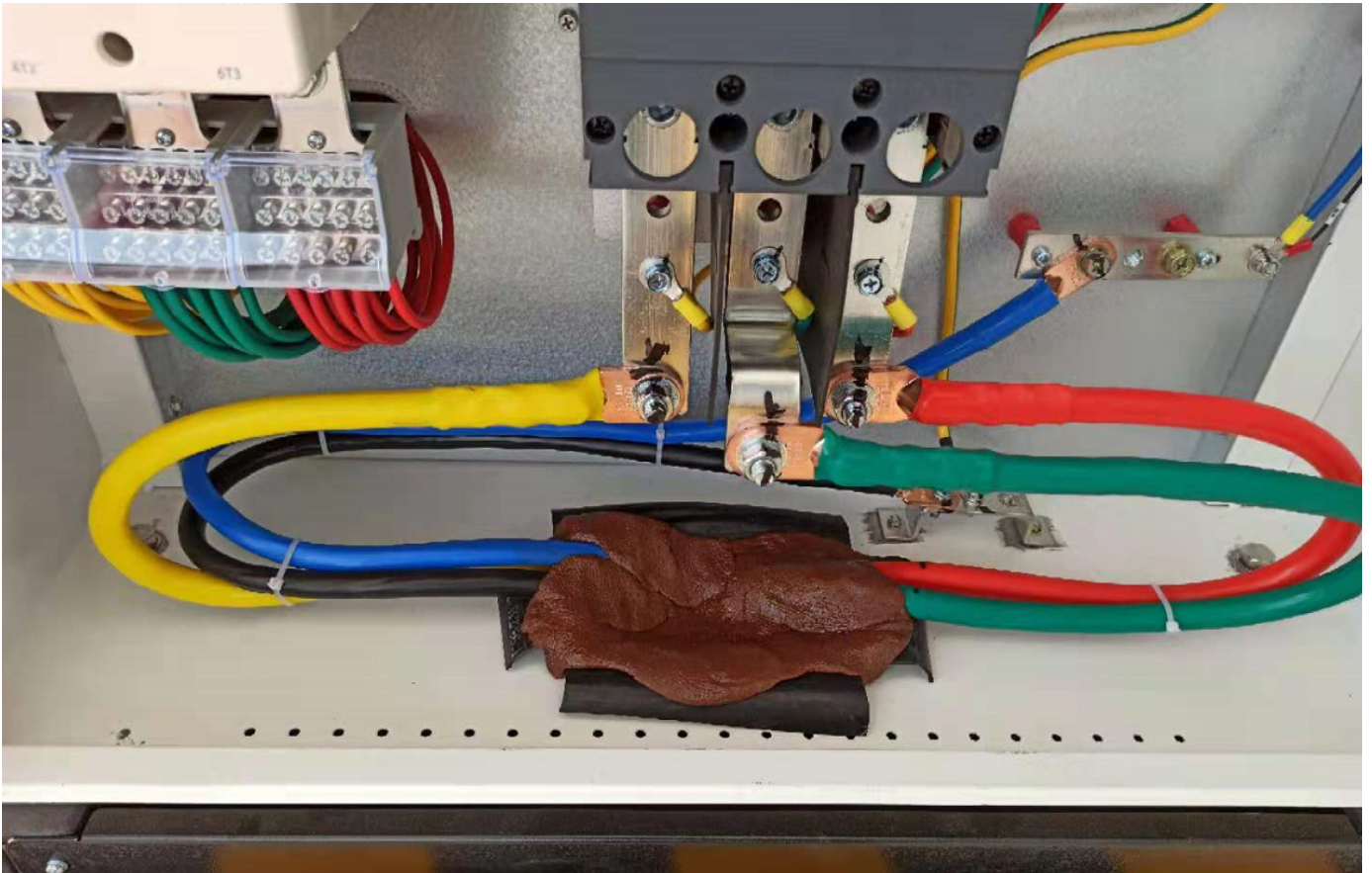


Figure 7.2.2-A Requirements for access cables and sealing mud

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## 7.3 Construction of distribution cables

### 7.3.1 Distribution cable layout requirements

- 1) The input power line of the system is introduced from the bottom of the charger, the power cable should be laid through the cable channel.
- 2) The charger AC power supply should be used as the main power supply, AC power supply system adopts three-phase five-wire system.
- 3) AC power line should adopt copper core wire, power line sectional area should be appropriate with the load.
- 4) Outdoor power line according to the power specification laid, power line routing must be separate from the signal line.
- 5) The AC lead-in line is routed from the user's power distribution switch, and connected to the incoming copper bar of the charger's incoming line switch. The user's power distribution point should have protection devices such as overcurrent, short circuit, and lightning. Outdoor power line according to the power specification laid, power line routing must be separate from the signal line.
- 6) The colors of AC power lines yellow, green, red, light blue, and yellow-green correspond to AC A, B, C, N, and PE respectively. If the power line has only one color, the line number identification (or a set with the logo) needs to be pasted. Tube)
- 7) Do not allow power lines to have broken heads, broken and scratched.

### 7.3.2 AC input cable specifications recommended (Copper wires)

Terminal Type	Cable specification ( mm <sup>2</sup> )	Screw Specifications(Diameter: mm)	Terminal Type
30kW	3*25mm <sup>2</sup> +2*16mm <sup>2</sup>	<b>A\B\C\N To fit C45N 25, PE use M6</b>	Must fit cables and screws
40kW	3*25mm <sup>2</sup> +2*16mm <sup>2</sup>	<b>A\B\C\N To fit C45N 25, PE use M6</b>	Must fit cables and screws



### 7.3.3 Post-installation inspection

#### 1. Sealing

According to the design and protection level requirements, the bottom of the cabinet and the base of the junction must be sealed with fire-proof mud to prevent insects or dirt from entering the cabinet.

#### 2. Stability

After the installation of the charger, from different directions to shake the cabinet, should not feel obvious loosening and shaking

#### 3. Cleanup

- All transport and packaging materials are properly handled in accordance with local regulations.
- Clean the cabinet and surrounding debris, such as small cables, straps, screws/mother, etc., do not leave behind installation tools on site or charger in vivo (to record the type and quantity of tools in case of omission).
- Clean the cabinet and surrounding debris, such as small cables, straps, screws/mother, etc., do not leave behind installation tools on site or charger in vivo (to record the type and quantity of tools in case of omission).

#### 4. Inspection

- Check if the base is secured and sealed.
- Check that the internal device is secure and reliable
- Check that electrical connections and wiring are correct and complete, that connections are secure, and that grounding is reliable
- Check if the equipment protection level meets the requirements, especially at the bottom of the charger cable inlet.
- Check the appearance, marking, integrity, and cleanliness
- Check the equipment installation comprehensively according to the basic installation drawing.

## 8. Module address setting

30KW Single Gun		40KW Single Gun	
M1 (G0 A98)		M1 (G0 A98)	
Notice: G is the module group number. A is module address. Set the module address in order from bottom to top			