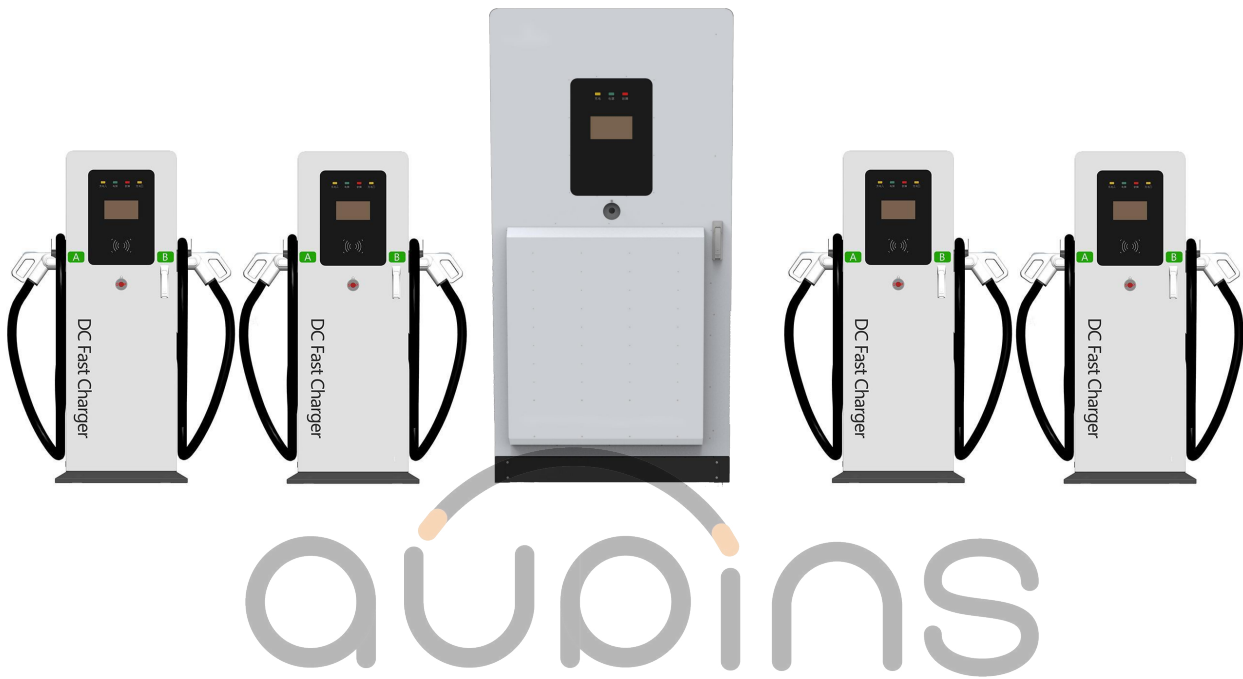




360-480KW fully flexible DC charging pile

User manual

Preface

Symbols are agreed upon

The following marks may appear in this article and their meanings are as follows.

symbol	meaning
 (Black letters on yellow background)	The "warning" sign indicates danger. Pay attention to the operation steps and methods, incorrect execution may lead to personal injury or death, etc. Only after fully understanding and meeting the conditions referred to, can the operation after "warning" marking be carried out.
 (Black letters on yellow background)	The "Caution" sign indicates danger. Note the procedure and method. Incorrect execution may result in product damage or destruction. Only after fully understanding and meeting the conditions referred to can you perform the operation after the "Caution" mark.
 (black character on a white background)	The "hint" sign indicates a skill or useful information. Tips are used to mark useful information and techniques. They do not contain information about dangerous or harmful functions.
	The mark is located on the product, in the instruction manual or on the package, indicating that electrical and electronic equipment and its accessories should be treated separately from ordinary household waste. Materials can be reused according to their markings. Through the reuse of old equipment, material use or other forms By reusing the style, you can make a great contribution to environmental protection.

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1 safety instruction

symbol	meaning
 (Black letters on yellow background)	Failure to comply with safety instructions may result in life-threatening, injury and equipment damage. The Company shall not be liable for any claims arising therefrom. ● electrical hazard ➤ Only qualified and authorized electrical professionals who have received relevant training are allowed to install. ➤ Initial commissioning and maintenance of this product shall comply with existing standards and installation regulations when performing the foregoing operations. ● Electrical hazard/fire hazard ➤ Do not perform maintenance while the equipment is powered on. ➤ Do not use damaged, worn or dirty charging guns. ● The owner (end customer) must pay attention to the fact that the equipment must be operated in normal condition ➤ The product must be inspected and maintained on a regular basis. ➤ If the system is found to have security risks, it must be shut down immediately and the risks eliminated. ➤ The maintenance operation of the charging pile shall not be carried out without authorization, and the operation shall only be carried out by the manufacturer or authorized units and institutions. ➤ Do not modify or transform the charging pile without authorization. ➤ Do not remove safety symbols, warning signs, nameplates, signs or pipeline markings. ➤ No extension cable shall be used when connecting an electric vehicle to the electric vehicle power supply device. ➤ Only connect electric vehicles or their charging equipment, do not connect other loads (electric tools, etc.). ➤ When pulling the charging gun, please hold the plug and do not pull the cable. ➤ Do not bend, squeeze or roll the charging gun so as to cause mechanical damage. ➤ Do not touch the contact surface with heat source, dirt or water source.
 (Black letters on yellow background)	● Dangerous to health. ● Do not use spray water (soft hose, high pressure washer, etc.) to clean the charging pile.



(black character on a white background)

- When the charging operation is not performed, the charging gun should be plugged back into the charging gun socket.
- If the gun lock is faulty, use emergency unlocking.

2 Product overview

The 240KW fully flexible DC charging stack is centered around a modular design concept, integrating functions such as charging modules, energy distribution units PDU, charging controllers, and communication systems. It employs a new generation of AC relay control solutions for flexible full-flexible power allocation, capable of meeting the power output requirements of either single or dual charging guns. The device boasts high utilization rates, minimal footprint, flexible application, and low investment costs, making it suitable for widespread use in large charging stations like bus depots and social operations, offering a fresh approach to the development of charging infrastructure.

2.1 essential parameter

Basic model parameters	
product name	Fully flexible DC charging stack
AC input	380 Vac $\pm$ 15%
DC output voltage (V)	200~1000Vdc
Constant power voltage range (V)	300~1000Vdc
Overall output power (KW)	360-480KW
Maximum current of a single path (A)	250A
Power distribution mode	250kW from any gun Multiple guns are charged on demand
levels of protection	IP54, can be installed outdoors
Charging Interface	CCS2
Communication Protocol	OCPP1.6

2.2 performance parameter

Detailed performance parameters of the product		
Cass	Project	Parameter
AC input	Input format	Three-phase five-wire (A+B+C+N+PE)
	input voltage range	380 Vac $\pm$ 15%
	incoming frequency	50Hz
DC output	Stabilization accuracy	$\leq \pm 0.5\%$
	Steady flow accuracy	$\leq \pm 1\%$
	Output voltage ripple	$\leq \pm 1\%$;
Performance & features	power factor	≥ 0.99
	productiveness	$\geq 95\%$
	Standby power consumption	No more than 0.05% rated output power
	Uniform current imbalance	$\leq \pm 3\%$
	protect	Input over voltage protection, output over voltage protection, short circuit protection, over current protection, etc Temperature protection, lightning protection
ambient condition	operating ambient temperature	-20°C~+65°C, 50°C above reduced working
	relative humidity	5% to 95% (no condensation)
	above sea level	No more than 2000m, altitude reduction for use between 2000 and 3000m, high altitude above 3000m Prohibited in the region

2.3 Function description

- Energy allocation uses the full matrix mode, and any module can be allocated to any charging gun
- Energy distribution strategy supports on-demand distribution, priority distribution, and automatic distribution according to Soc, high and low
- Support single and dual terminal charging
- Supports high power dual guns charging at the same time, and supports cross-stake charging of any 2 guns
- Support single gun liquid cooling supercharging
- Users can develop the system by themselves according to the system configuration. In the same power cabinet, the charging interface supports 1-12 guns and can be freely configured with the number of charging guns
- Using CAN networking mode, the control real-time is high and the communication is reliable, which is especially suitable for medium and large station networking communication
- The fault location function is powerful, and the system component status monitoring covers more than 95%. The component fault prompt information is clear and accurate, which facilitates after-sales service and maintenance;

3 operation declaration

3.1 Charging precautions

- 1) Ensure that the charger system is in normal condition before charging.
- 2) Before charging, ensure that the charging gun wire is not damaged and the charging gun head is not water in. If the charging gun head is water in, do not charge directly.
- 3) Before charging, users should fully read the user manual and be familiar with the safety operation instructions to prevent dangerous operations.
- 4) Before charging, users should be familiar with the charging operation steps to prevent improper operation.

3.2 Charging procedure

Scan the code to charge

The charging can be started directly by scanning the code with the mobile phone. During the whole charging process, it only needs to plug in the gun and start the charging with the mobile APP, wait for automatic full charge or use the mobile APP to terminate the charging in advance, and end the whole process after unplugging the gun. The whole process does not need to operate the screen, as shown in Figure 1.



Figure 1 Scan to charge

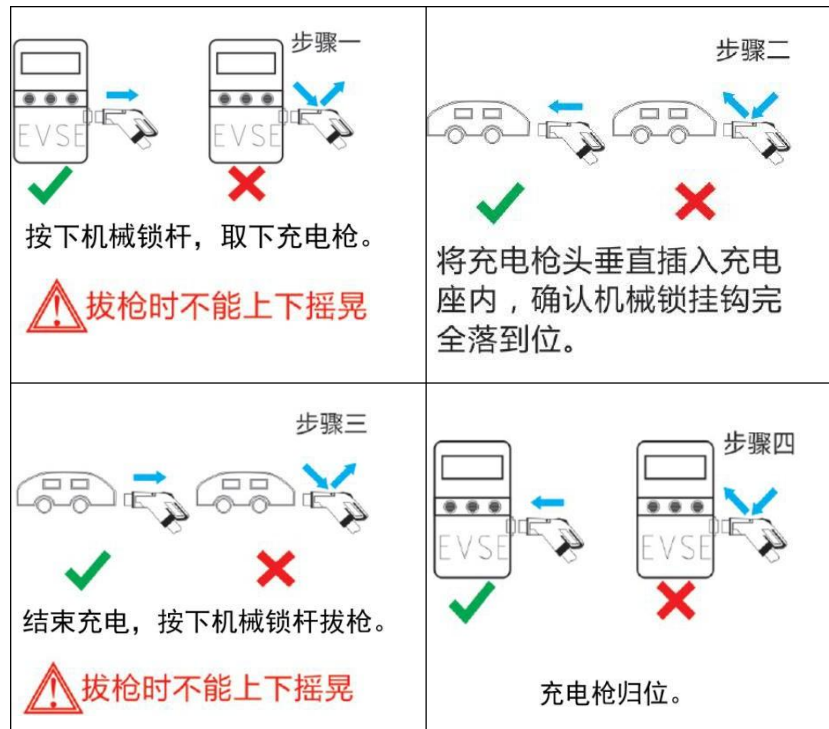
3.3 Charging operation

250A terminal charging indicator (indicator light color)

- A. The standby indicator of the charging terminal is always on in green
- b. The charging gun is indicated with a red flashing light
- c. After the user scans the code to start charging, the red light flashes
- D. The indicator of the charger stopping charging is green flashing

E. Fault indicator, yellow always on

3.4 Charging gun operation guide



Note: ⚠️ der normal circumstances, emergency unlocking is not allowed!

3.5 Emergency unlocking method for charging gun

By scanning the QR code of the charging gun head to watch the unlocking video, you can learn the operation steps of unlocking the charging gun.



3.6 Charging gun usage precautions

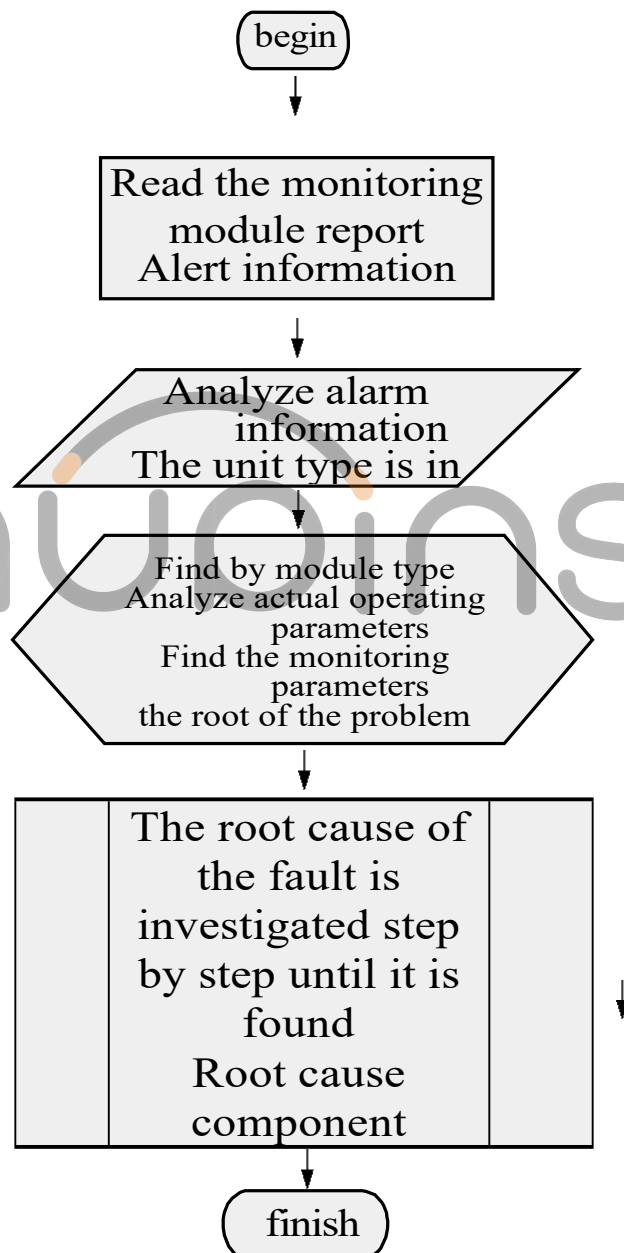
- 1) Check whether the charging socket at the end of the car is normal, and whether there are foreign objects or dust in the socket or plug hole. If so, clean it up.
- 2) Cleaning is only allowed when the charging gun is not connected to the vehicle.
- 3) Clean the charging gun wire and dirty contacts with dry cloth. Do not use corrosive cleaning agent, water spray or steam spray cleaner.
- 4) Do not immerse the charging gun head in the liquid.



4 Simple troubleshooting

During the installation and debugging process, the occurrence of alarm in the charging pile is a normal phenomenon in this process. By mastering the general troubleshooting process, we can find out the root cause of the fault according to the fault phenomenon, analyze it, and then eliminate the fault.

The usual troubleshooting process is as follows:



Common fault analysis and troubleshooting methods

order number	Name of the alert or fault	processing method
1	Lightning arrester failure	Check the status of the lightning arrester. If the visible window of the lightning arrester shows red, it indicates damage and should be replaced.
2	Emergency shutdown fault	Please check whether the emergency stop button of this product is in the state of not being pulled out. If the fault is solved, please pull out the emergency stop button and cover the emergency stop protection cover.
3	Control guidance faults	1. Reconfirm whether the gun is correctly inserted and that the mechanical rod of the charging gun is normally depressed. 2. Confirm that the SW3 dialing code inside the cabinet is normal.
4	Locking the gun failed. Please re-align the gun	Please plug the gun in the correct way.
5	Access control protection	Please check whether the cabinet door of this product is completely closed; confirm that the door has been closed, but still shows an alarm. Please check the status of the microswitch. If damaged, please replace it.
6	Overtemperature protection of outlet	1. Please check whether the system air duct is blocked and whether the dust filter is too dusty. 2. Please check whether the charging pile fan is working normally. If the fan fails, please replace the fan.
7	The incoming line voltage is abnormal	When the charging is started, it detects that there is voltage from the host to the gun, and there is relay sticking in the shared module of the host. After all guns stop charging, run the tooling in the host to check the items that do not pass, and replace the corresponding shared module.
8	Module communication failure	After the contactor is engaged, the three-phase power supply module is energized; the module lights up the fault light (refer to the physical specification book), check whether the module communication line is connected in series to the GC communication port, and check whether the module address is set correctly (A compartment module address: 0x20-0x27; B compartment module address: 0x2c-0x33)
9	PDU, ECU communication fault	The communication line of the PDU board inside the host is not connected to the GC communication terminal in series with the ECU communication line. It is necessary to check whether the communication line from ECU to PDU to GC is connected correctly; and whether the address of PDU is set correctly (the first block of PDU does not need to be set, and the address of the second block of PDU will be set to 1).
10	CCU and GC communication failure	The host and terminal communication is abnormal, the CCU address settings are incorrect; (for example, the CCU addresses for four dual guns are set to 0-3, meaning the first CCU does not need to be set, the second CCU is set to 1, the third CCU is set to 2, and the fourth CCU is set to 3) Check if the CCU communication lines are connected in series to the GC communication port and troubleshoot the communication lines; verify if parameters have been configured as EMS-GC on the TCU display interface.

5 tending

5.1 power distribution system

The steps for power on and off of the distribution box are as follows:

1. Check whether the power supply voltage is normal.
2. Closing: First close the main switch of the distribution box, and then close the switches of each branch circuit in turn.
3. Pull the switch: pull the branch circuit switches first, and then pull the main switch of the distribution box.

5.2 Maintain the project

inspection item	Inspection cycle	Methods of inspection	method of disposition
electric fan	semiannually	Whether the fan is operating normally.	examine and repair
pilot lamp	semiannually	Check whether the indicator light is burned, whether the fixing is firm, and whether the display state is normal.	examine and repair
component	semiannually	Whether the circuit components are fixed firmly, whether there is burning damage at the connection of components, find abnormalities and replace parts in time.	examine and repair
Dust cotton	Every 1 month	Check if there is dust accumulation on the dustproof cotton.	cleaning
Charging gun	semiannually	Check whether the charging gun fixing clip is damaged, whether the charging gun pin is oxidized and discolored, obviously worn and deformed, and whether any foreign matter has entered into the gun head socket.	Clean, inspect and embellish
Module communication	semiannually	Check whether the module communication of the charging pile is normal.	examine and repair
display screen	semiannually	Check that the display is functioning properly.	examine and repair
Jerk stop function	semiannually	Check whether the emergency stop button works normally. After pressing the emergency stop button, confirm that the control circuit is disconnected.	examine and repair
equipment ground	semiannually	Check whether the grounding of the equipment is loose, loose or changed.	examine and repair
system earth	semiannually	Check whether the crimping of the electrical grounding system is corroded, whether the grounding mark is complete and obvious, and whether there is any loss or damage.	examine and repair
The motherboard is dusty	semiannually	Check for dust accumulation on the motherboard.	cleaning
Equipment appearance	semiannually	Whether there is dirt on the cabinet appearance, whether the cabinet sheet metal is deformed and rusted, whether the paint is damaged.	Clean and repaint
wire casing	annually	Check whether the fixing of the cable trough is firm, whether the cover plate is complete and tight, and whether the joint is loose Move, whether there is distortion and deformation, whether the fasteners are loose, corrosion, rust.	examine and repair
Switch protection	annually	Press the TEST button of the circuit breaker to see whether the circuit breaker can be tripped normally.	examine and repair
cable	annually	Check whether the connection between the cable and the switch is tight, whether the grounding is reliable, whether there is any heating or damage to the power cable (for example: color change or adhesion of the cable surface, hardening of the cable), whether the insulation resistance of the cable meets the regulations, whether the sealing measures of the cable into the box are intact, and whether the hole is tightly sealed.	Repair, replace cable

landing	annually	Check all the grounding of electrical equipment, check the grounding wire and grounding terminal point Check whether the grounding resistance exceeds the standard and meets the grounding requirements.	examine and repair
Unforeseeable Force factors	immediately	In case of flood, earthquake, impact, switch trip and other events, the whole machine should be checked immediately.	examine and repair

5.3 emergency handling

In order to maintain the uninterrupted DC power supply of the split charger system, some emergency measures should be taken for the faults that threaten the DC power supply. The faults that may cause the interruption of DC output in the power system mainly include: irrecoverable damage of the AC distribution circuit, DC load or direct Short circuit of power distribution, shutdown caused by damage of monitoring module, and blockage caused by overvoltage of DC output.

1. Emergency handling of AC distribution

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

2. Catastrophic accidents

Disaster accidents include malfunctions of charging equipment caused by lightning strikes, water immersion, earthquakes, fires, and other disasters. Prevention should be the priority for potential hazards that could severely impact safety. At the same time, charging stations should have strategies to deal with these disasters and corresponding human and material resources. They should also have emergency management regulations and major accident repair procedures.

6 After-sales service

If you have any questions or problems,
please contact the equipment
manufacturer. Before contacting the
customer service department:

- Please check the troubleshooting measures in the "4. Simple Troubleshooting" section.
- Please check the troubleshooting measures in the vehicle manufacturer's manual.
- Please record the model and serial number of the equipment (nameplate of the equipment).

6.1 Disclaimer

Disclaimer: The product design, interface design, process and content display are subject to the physical object.
Copyright belongs to our company and all rights reserved. Any changes in content will not be notified separately.



7 installation instructions

7.1 contour size of the unit

1. Charging pile size:



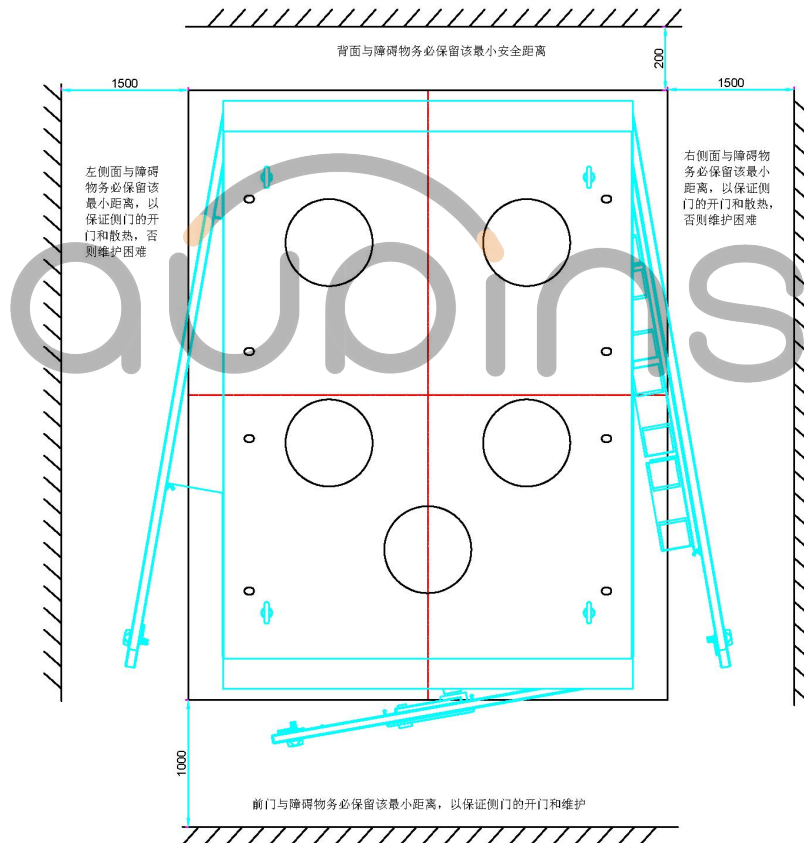
2. 250A terminal size: 150* wide 50* thick 20cm



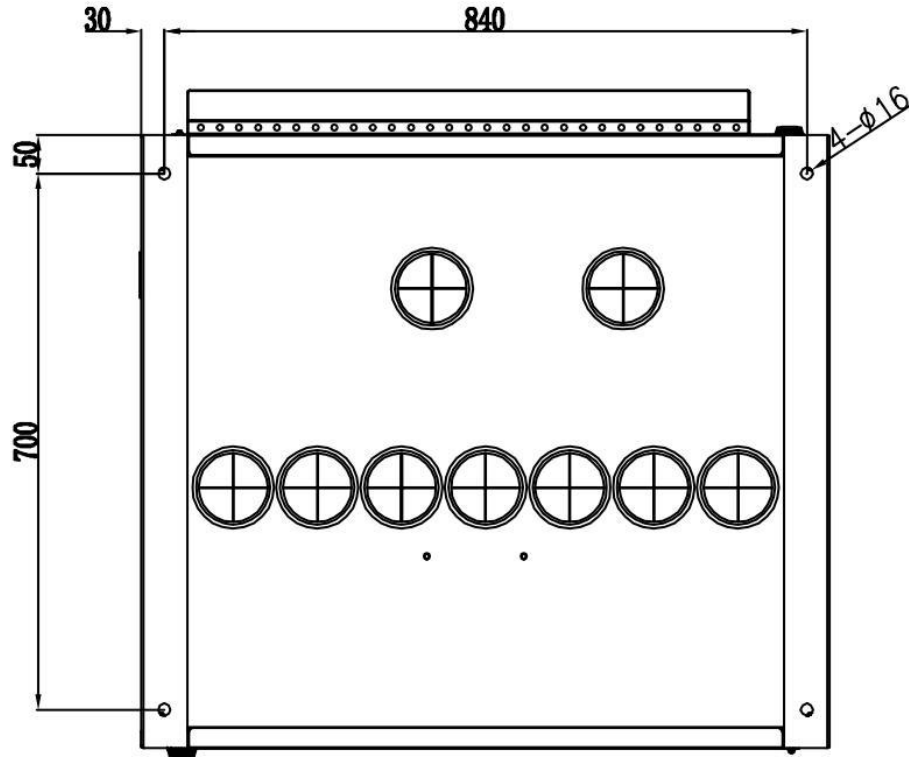
7.2 equipment installation

7.2.1 Installation requirements of charging pile

- 1) The charging pile has front and rear doors, and the operating space should be reserved around it. The reserved size is shown in Figure 7.2.1-A below;
- 2) The cabinet is recommended to be installed on concrete or channel steel foundation. See the figure 7.2.1-B for the size of the hole in the base;
- 3) The cable should be pre-buried in advance. See the following figure 7.2.1-C for the reserved length of the cable;
- 4) The recommended installation base height is 200mm (too high is not convenient for operation and maintenance), and the vertical inclination of installation should not exceed 5%;
- 5) Install 4 M12 stainless steel bolts in the installation surface, and the bolt threads are exposed on the ground 30 ± 3 mm, or install 4 M12 sleeve reinforced expansion bolts in the installation surface.



graph 7.2.1-A Charging pile placement requirements



graph 7.2.1-B Opening size of charging pile base

7.2.2 Installation requirements of charging terminals

- 1) The charging terminal is a front door, and the operation space should be reserved around it. The reserved size is shown in Figure 7.2.2-A below;
- 2) The cabinet is recommended to be installed on concrete or channel steel foundation. See the figure 7.2.2-B for the size of the hole in the base;
- 3) The cable should be pre-buried in advance. See the following figure 7.2.2-A for the reserved length of the cable;
- 4) The recommended installation base height is 200mm (too high is not convenient for operation and maintenance), and the vertical inclination of installation should not exceed 5%;
- 5) Install 4 M12 stainless steel bolts on the installation surface, with the bolt threads exposed 30 ± 3 mm above the ground, or install 4 M12 sleeve reinforced expansion bolts on the installation surface.

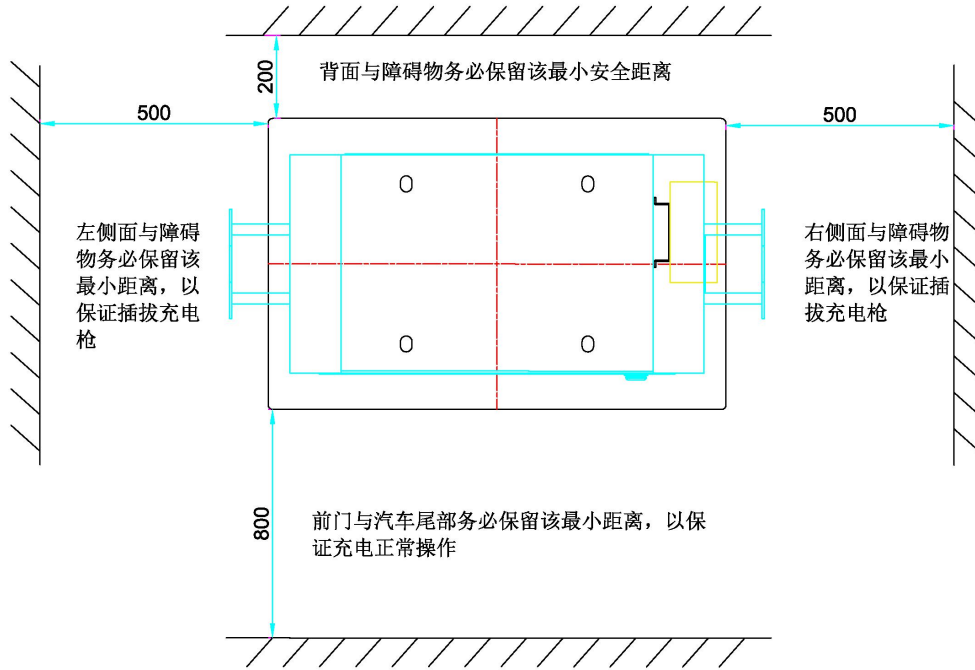
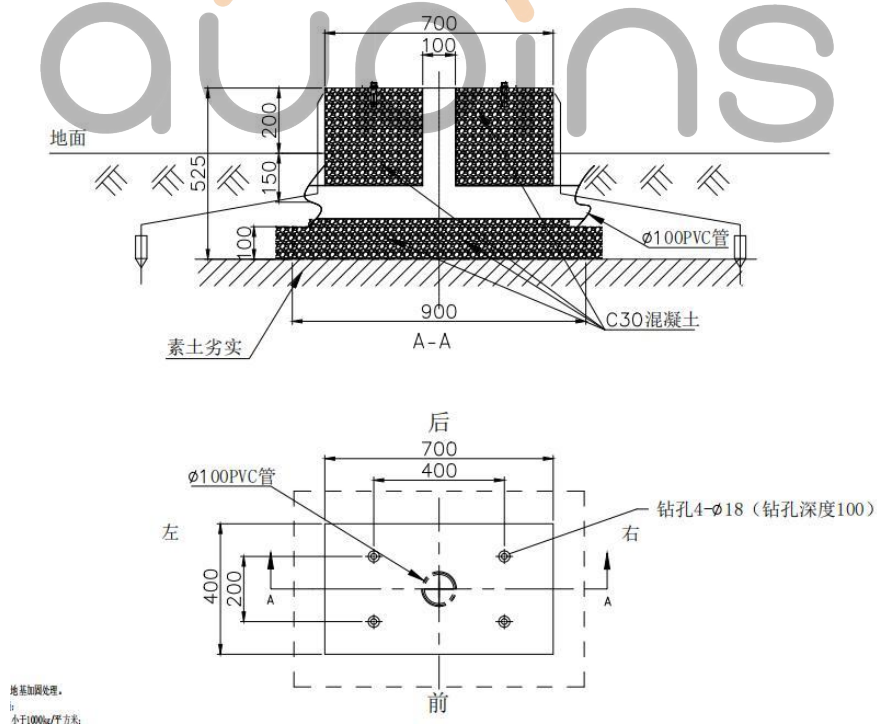


Figure 7.2.2-A Reserved size



graph 7.2.2-B-1 terminal bottom opening size

7.2.3 Installation steps of charging equipment

- 1) Prepare the appropriate tools
- 2) Drill 4 holes with a diameter of 16mm and a depth of about 100mm on the cement base, and then insert the expanded bolts into the drilled holes through the wall expansion part (if the bolts are embedded in advance on the



钻孔说明

钻孔直径如下:

M6系列钻孔为8mm;

M8系列钻孔为10mm;

M10系列钻孔为12mm;

M12系列钻孔为16mm;

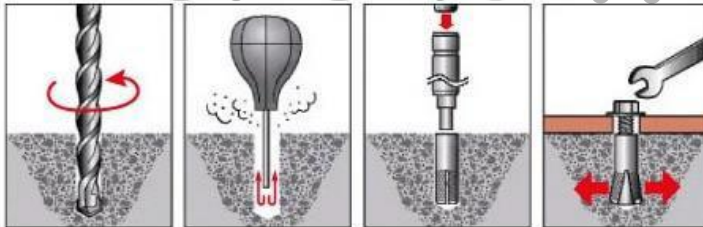
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以此类推，具体请参考商品参数数据。

这部分入墙体

安装方法：

1. 选择一个与膨胀螺丝套管相同直径的冲击钻头，安装在电钻上进行打孔，孔的深度最好与膨胀螺栓的长度相同，然后把膨胀螺栓套件一起敲到孔内，切记：不要把螺母拧掉，防止钻孔的比较深时螺栓掉进孔内不好往外去。
2. 把螺母拧紧2-3扣后感觉膨胀螺栓比较紧而不松动后在拧下螺母，在把被固定的物品上打有孔的固定件对准螺栓安装上装在外面的垫片或是弹簧垫圈把螺母拧紧即可。
3. 出现安装孔径钻大了或者螺母滑动情况，调整好外壳和螺母的位置，把膨胀螺丝直接敲击进去，通过旋转外部受力点拧紧即可。



installation foundation surface, ignore this step). The drilling instructions are as follows;

- 3) Remove the outer packaging;
- 4) Align the equipment to the hole, put it on the cement base, and tighten it with M12 nuts (with flat pad);
- 5) Connect the distribution cable;
- 6) Seal with seal mud.

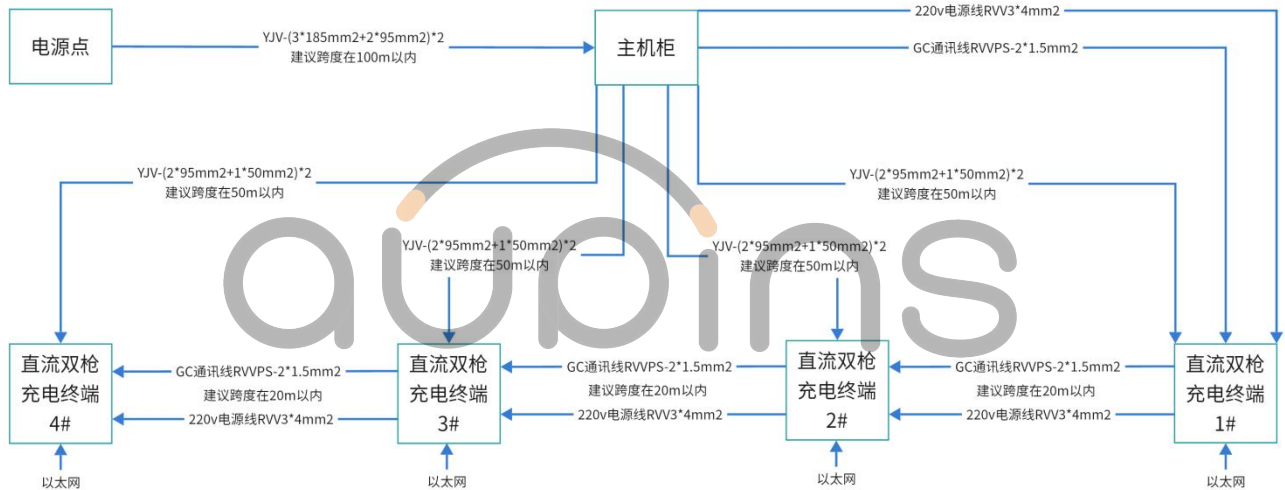
7.3 Distribution cable construction

7.3.1 Requirements for distribution cable layout

- 1) The system input/output power lines are introduced and drawn out from the bottom of the charging pile, and the power cables should be laid through the cable trench.
- 2) For split-type charger, the mains power should be used as the main power supply for AC power supply system, which adopts three-phase five-wire system.
- 3) AC power lines should be copper core lines, and the cross-sectional area of power lines should be adapted to the load.
- 4) Outdoor power lines shall be laid according to the power specification, and the power lines shall be separated from the signal lines.
- 5) The communication introduction line starts from the user's distribution switch and is connected to the copper busbar at the inlet end of the charging pile's inlet switch. The user's distribution should have protection devices such as overcurrent, short circuit and lightning strike.
- 6) The colors of AC power lines are yellow, green, red, light blue and yellow-green, which correspond to AC A, B, C, N and PE respectively. If there is only one color of power lines, the wire number should be attached (or a sleeve with a mark should be used).
- 7) Five-core wires are prohibited to be used in the DC power line to the terminal. The power line should be fitted with a wire mark to indicate which output circuit (such as DC1+, DC1-, PE1) is connected, so as to avoid wrong connection of the output circuit.
- 8) AC power lines should be laid separately from DC lines.
- 9) Do not allow power lines to have broken ends, damage or scratches.
- 10) Due to the requirements of the overall layout design scheme, five-core cables are prohibited from being used in the power cables from the charging pile host to the terminal.

7.3.2 Schematic diagram of equipment connection (take 240KW 8 guns as an example)

480KW一拖八枪充电设备外部走线示意图



Schematic diagram of main line power supply and terminal wiring

Equipment connection description:

- 1) The shielding layer of one end of CAN communication cable must be reliably grounded;
- 2) Power lines and CAN communication cables should be routed separately to avoid interference of communication signals;
- 3) The ground wire of each terminal should be drawn out separately from the charging pile host, and the ground wire

between terminals should not be connected in series.

7.3.3 Inspection after installation

1. tightness

According to the design and protection grade requirements, the bottom of the cabinet and the junction with the foundation must be sealed with fireproof mud to prevent insects or dirt from entering the cabinet.

2. stability

After the pile body is installed, shake the cabinet from different directions, and should not feel obvious loosening and shaking.

3. put in order

- All materials used for transportation and packaging shall be properly handled in accordance with local regulations.
- Clean up the debris inside and around the cabinet, such as small cables, binding straps, screws/mothers, etc. Do not leave installation tools on site or in the pile (record the types and quantities of tools to prevent omission).

- Wipe the insulating part with anti-static cloth. Do not use any corrosive solvent.

4. check up

- Check that the base is fixed and sealed.
- Check whether the internal components of the equipment are fastened and reliable.
- Check whether the electrical connection and wiring are correct and complete, whether the connection is firm, and whether the grounding is reliable.
- Check whether the protection level of the equipment meets the requirements, especially at the cable entrance at the bottom of the pile.
- Check appearance, marking, integrity and cleanliness.
- Conduct a comprehensive inspection of the equipment installation against the basic installation diagram.