



Star Charge®  
星星充电



## European standard 30kW wall box **Installation manual**

Version number / document number: 2.0/ DCY0210TYAZEN

Wanbang Digital Energy Co.,Ltd.

## Legal Notices

Wanbang Digital Energy Co., Ltd.

39 Longhui Road, Wujin High-tech Zone, Changzhou, China

Customer service: +86 400-8280-768

[www.starcharge.com](http://www.starcharge.com)

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## 1. General

### 1.1 Document purposes

The purpose of this document is to guide the construction personnel to complete the on-site installation of 30kW single-gun DC charger of European standard.

### 1.2 Scope of application

#### 1.2.1 This manual applies to following charging equipment:





European standard 30kW wall box Installation personnel

#### 1.2.2 This manual is for the following people:

Installer of European standard 30kW wall box

### 1.3 Definition of warning symbols















Table 1 definition warning symbol





No.	Symbol	Content
1		<b>"Warning" symbol indicates danger</b> Failure to pay attention to the procedures, practices or improper implementation may cause installer injuries and death. Only after the conditions referred to are fully understood and fulfilled, the operation accompanied the "electrical hazard" symbol can be performed.
2		<b>"Caution" symbol indicates danger</b> Failure to pay attention to the procedures, practices or improper implementation may cause product damaged or destroyed. Only after the conditions referred to are fully understood and fulfilled, the operation accompanied the "caution" symbol can be performed.
3		<b>"Prompt" indicates usage tips or useful information</b> Tips and useful information are marked with "prompt". It does not contain information to warn about dangerous or harmful functions.
4		<b>"Garbage disposal" symbol indicates electrical and electronic waste</b> This symbol is located on the product, in the instruction manual, or on the packaging. It indicates that electrical and electronic equipment and its accessories should be separately disposed from ordinary household waste. Materials can be reused according to this symbol. You can make a huge contribution to environmental protection by reusing old equipment, materials, or other forms of reuse.

## 2. Preparation before installation

### 2.1 Conventional construction tool

Table 2 list of conventional construction tools

number	category	name	use	picture
1	Fabricating traverse tool	The electrician knife	Stripping of insulation sheath	
2	Installation tool	Wire stripping pliers	The stripping of the insulating layer	
3	Installation tool	Line pressing pliers	Terminal joint	
4	Installation tool	Impact drill	Assembly of component pipe clamp	
5	Installation tool	Electric pick machine	grooving	
6	Installation tool	Cutting machine	Cut the pipe	
7	Installation tool	Heat gun	Thermal shrinkage of insulating materials	
8	Installation tool	Hot melt machine	Welded PE pipe	
9	Installation tool	Hexagon socket wrench (full set)	Install and remove screws	
10	Installation tool	Open spanner (full set with size 13)	Install and remove nuts	
11	Installation tool	Hexagon plum anti-theft screwdriver (full set)	Installation and removal screw	
12	Installation tool	Angle grinder	Polishing of materials	
13	Installation tool	Cross screwdriver (full set)	Installation and removal screw	
14	Measuring instrument	Laser level	Level measurement	

15	Measuring instrument	Spirit level	Level measurement	
16	Measuring instrument	Multimeter	Measure voltage, current, etc.	
17	Measuring instrument	Megger	Measure resistance	
18	Auxiliary appliance	Insulation mat	Place the parts under disassembly	

## 2.2 Construction materials

### 2.2.1 Cable connection terminals

10 mm<sup>2</sup> wire corresponding terminal.

### 2.2.2 Other materials

- (1) Fireproof mood or polyurethane foam sealant (only for the column mounted type);
- (2) Heat shrinkable tube, electric tape and other accessories.

## 2.3 Installer requirements

- (1) The safety management regulations of construction site shall be observed when entering the construction site
- (2) When entering the construction site, the safety helmet must be properly worn (tie the lower jaw belt, the safety helmet is in good condition), do not wear loose clothing, slippers or other unsafe clothing, do not drink to work, and do not smoke at the construction site.
- (3) Operators at high altitude must wear safety helmets, hang up safety belts, wear non-slip shoes, and fasten labor tools.
- (4) If the work site is dusty or has spray paint work, protective masks must be worn.
- (5) Do not enter dangerous areas such as the hoisting area and below the vertical operation to prevent objects from striking
- (6) Keep as far away as possible from various mechanical equipment, electrical circuits, and prevent mechanical and electrical injuries.
- (7) The user of mobile power tools must master the skills and precautions. Wear insulation shoes, insulation gloves, metal shell must be grounded or zero- protected.
- (8) Temporary on-site electricity: electrical box should be intact, damaged electrical components must be replaced in time.
- (9) Rubber cable should be used for temporary electric wire on site. No plastic spline is allowed. No wire shall be directly inserted into the socket.
- (10) Try to avoid living work.

(11) Enter the edge of foundation pits, roofs, and other openings, and concentrate to prevent falls from falling.

(12) Pay attention to the ground environmental conditions such as nails and steel bars, and prevent sticking, bumping, hanging, falling and other injuries

(13) The on-site construction protective facilities, safety signs, warning signs, etc. cannot be removed without authorization.

(14) Strengthen on-site maintenance of construction equipment to maintain intact rate, and prohibit operation with problems and overloading.

#### **2.4 Handover of construction drawings**

After the installer arrives at the site, first ask the store staff for a drawing of the installation location of the equipment, and check that the cables and concrete foundation of each equipment meet the requirements.

#### **2.5 Inspection of power cables**

The type of power cable to be laid in the 30kW wall box of European standard is not less than YJV -0.6/1kv -5 \* 10mm<sup>2</sup>, and the length over base surface is about 1.5m. Please check and verify the cable type before installation.

#### **2.6 Requirements for cement foundations (column mounted)**

Before the charging pile is installed, the cement foundation needs to be poured. The size of the cement foundation is 430mm\*300mm\*600mm, the buried depth of the foundation is 400mm, and the height is 200mm above the ground. The top view is shown in figure 1.

(1) Pay attention to the correction level when foundation pouring.

(2) The foundation installation is higher than the ground level, and the necessary maintenance channels are reserved on the site depending on the specific space.

(3) The drainage outlet on the foundation surface is slightly inclined to avoid ponding.

(4) The foundation is filled with C20 concrete.

(5) The Cable inlet hole is reserved on the foundation, as shown in figure 1.

(6) Test the flatness with a level after the foundation is completed.

(7) 4 anchor bolts of M10 are embedded in the concrete foundation in advance and expose 30-40mm on the upper surface of the concrete foundation.

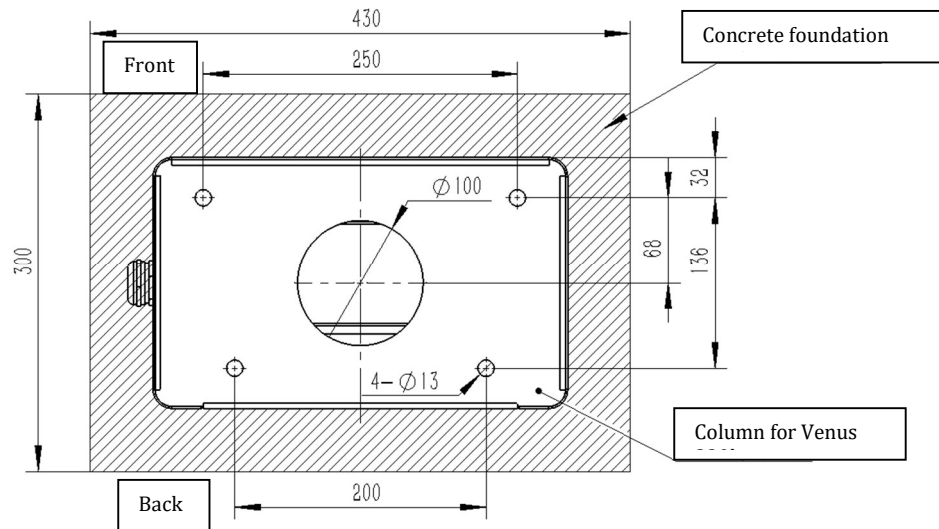


FIG. 1 top view of charging pile concrete foundation

## 2.7 Equipment spacing requirements

### (1) Maintenance distance requirement

When the charging pile needs to be installed against the back or side of the wall or other obstacles, a certain maintenance distance should be set aside. Please refer to figure 2 below:

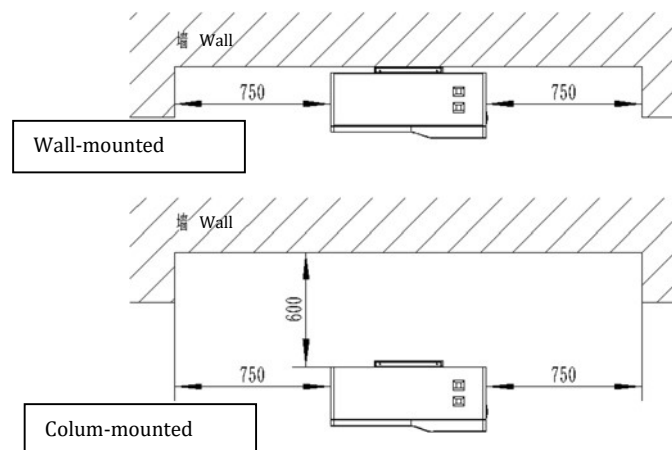


FIG. 2 maintenance distance diagram of the charger

### (2) Charging pile back to back installation distance requirements

When charging piles are installed back-to-back, it is recommended that the minimum distance between charging piles back-to-back is 1200mm, as shown in FIG. 3.



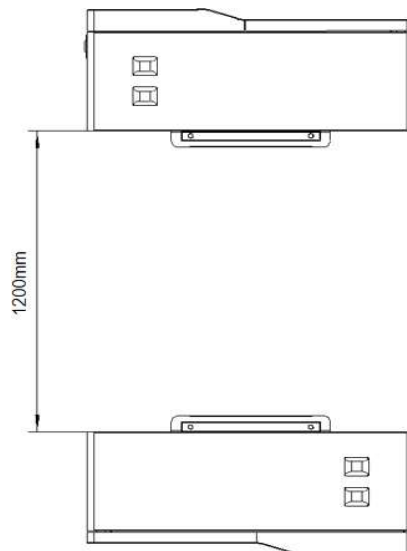


FIG. 3 installation distance diagram of charging pile back-to-back

(3) Single or back to back parking space installation distance

When charging pile is installed in a single parking space or back-to-back parking space, it is recommended to leave a distance of 500mm between the vehicle and the charging pile, the distance between the two charging piles should not be less than 2000mm, and the distance between the wheels and the center of the charging pile should not be less than 1200mm, as shown in figure 4.

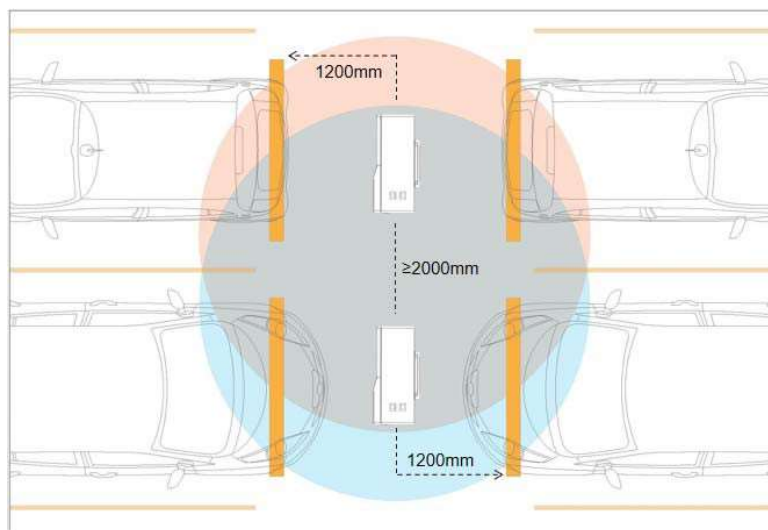


FIG. 4 installation distance of single or back-to-back parking Spaces

## 2.8 Current and distribution capacity requirements

If the charging pile runs at full power, the power grid capacity shall  $\geq 35\text{KVA}$ . It is recommended that the power supply MCCB:  $U_e=400\text{V}$ ,  $I_e \geq 80\text{A}$ , thermo-magnetic,  $I_{cu} \geq I_{cs} \geq 25\text{kA}$ , 3P.

## 2.9 Ground/insulation resistance requirements

- (1) Check grounding resistance test report, ensure the resistance of the grounding grid produced on site must be  $\leq 4\Omega$ .
- (2) Check construction insulation resistance test report, ensure the insulation resistance of cable

resistance  $\geq 10\text{M}\Omega$ .



**Note: the above requirements are the minimum requirements of the equipment.  
The specific standards are subject to the local laws and regulations.**

### 3. Installation procedure

#### 3.1 Unpacking and unpacking inspection

##### 3.1.1 Equipment unpacking list

Table 3 equipment unpacking list

Name	Package	Configuration	Package size (mm)	Weight (with package)	Attachment paper	Accessories list
Charger	Wooden box	Standard	770*680*646	55kg	1. Certification approval *1 2. User manual*1 3. Delivery inspection report*1	1. Charging socket*1 2. Charger*1 3. M6-screw*7 4. IC card*2 5. Key*2
Module	Carton	Standard	540*405*200	35kg	NA	M4-Screw*4
Column (only for column mounting)	Carton	Optional	1672*392*256	16kg	NA	M6-Screw*4

##### 3.1.2 Inspection of unpacking

- (1) Check the packing list number and equipment quantity.
- (2) Check the device nameplate information.
- (3) Check that the attachment papers are complete.
- (4) Check whether the spare parts and accessories are complete.
- (5) Check factory inspection report and certificate.
- (6) Check the appearance of the equipment is good, whether there is deformation, bump, stains and other conditions.

##### 3.1.3 Notes for unpacking

- (1) The installer shall unpack the container in the presence of the owner and fill in the unpacking record in detail. See appendix 1 for the unpacking record.
- (2) After unpacking, please ask the owner's representative to confirm and sign on the equipment unpacking record sheet.
- (3) If any problem is found in the process of unpacking and acceptance of the equipment, it shall not only record the accident, but also wait for the negotiation between the owner and the supplier.

##### 3.1.4 Check before installation

The installer needs to complete the pre-installation confirmation check before installation, see Appendix 2.

## 3.2 Equipment installation and connection

### 3.2.1 Wall mounted installation

The dimensions of wall-mounted installation are shown in figure 5.

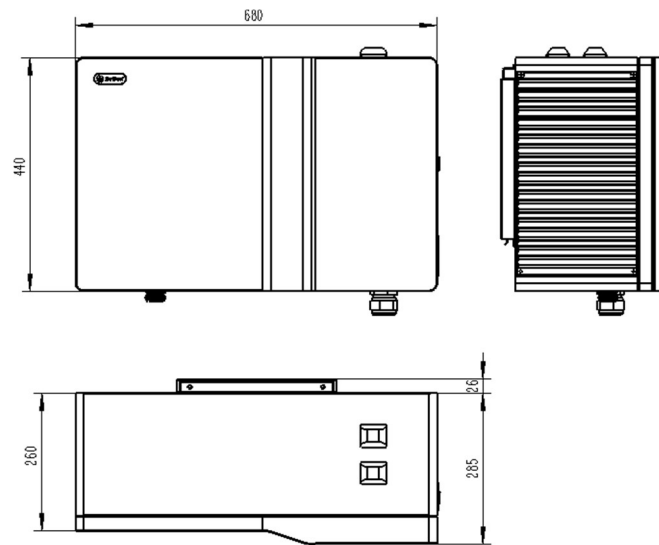


FIG. 5 wall-mounted mounting dimensions

The schematic diagram of the incoming line under the wall-mounted installation is shown in figure 6.

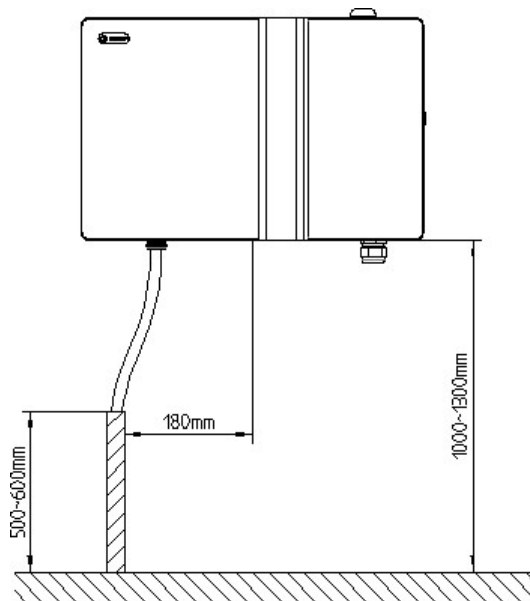


FIG. 6 wall mounted cable incoming

The diagram of wall mounted mounting panel is shown in figure 7.

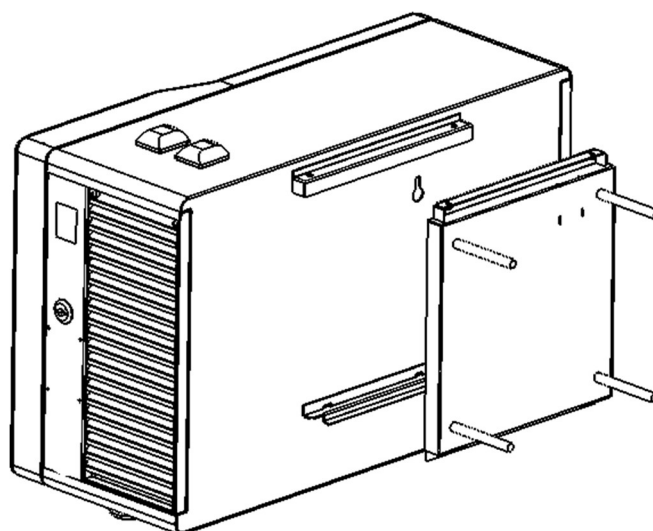


FIG. 7 wall mounted mounting panel diagram

Wall mounted mounting accessories are shown in figure 8.

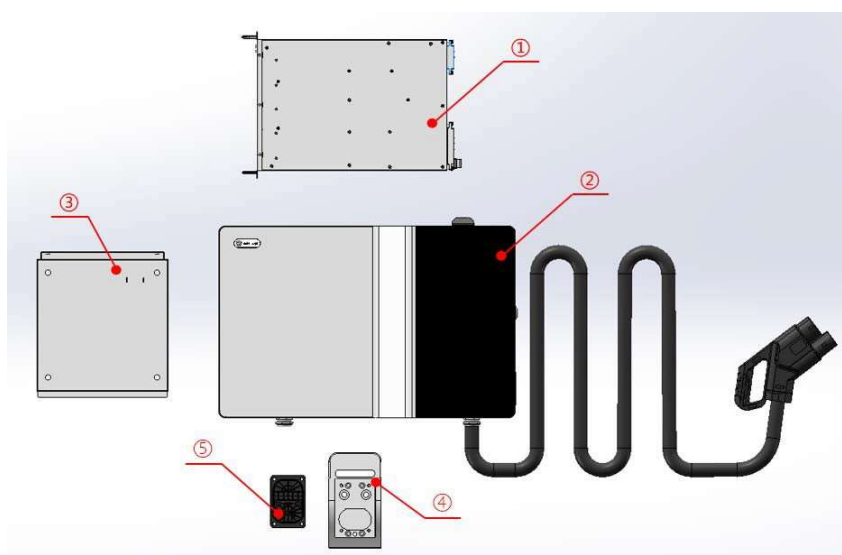


FIG. 8 wall mounted installation accessories

- ① : 30kW charging module
- ② : Charging box
- ③ : Wall mounted mounting panel
- ④ : Gun holder assembly 1
- ⑤ : Gun holder assembly 2

### Installation steps

(1) Open the front door of the charging box, remove the left shutter and dust proof cotton, as shown in figure 9.

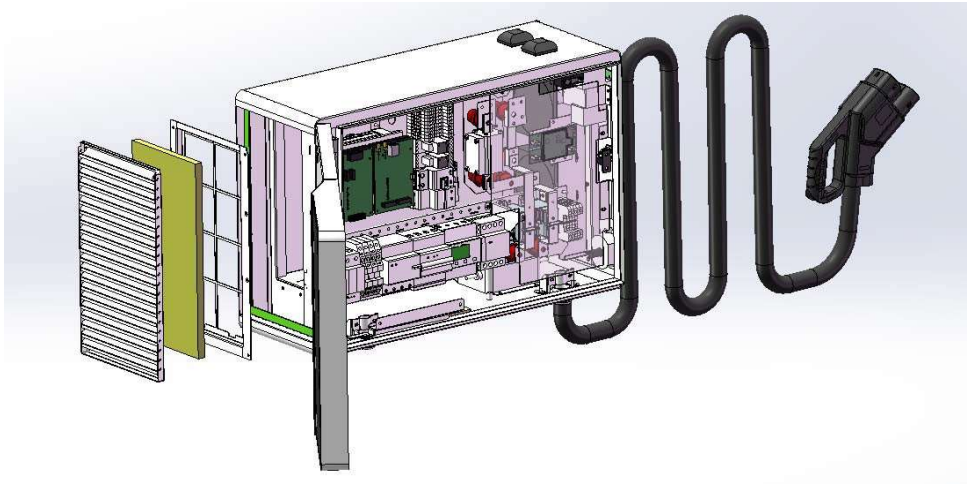


FIG. 9 removal of louver and dustproof cotton

(2) Locate the wall where the charging pile is to be installed, locate the four holes in the wall mounting panel, and mark the holes with a pencil, as shown in FIG. 10.

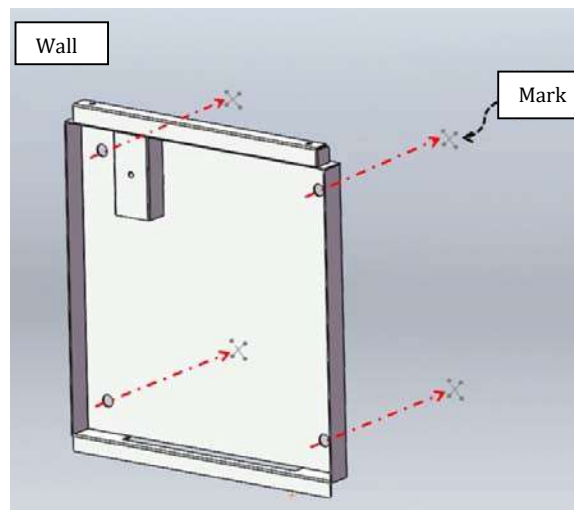


FIG. 10 hole marking diagram

(3) Choose  $\varnothing 10$  drill bit, use an electric hand drill to make holes with the diameter of 10mm at the marked position. (note: the drilling depth is more than the length of bolts), and then put the M6 \* 100 of bolts to hole, as shown in figure 11.

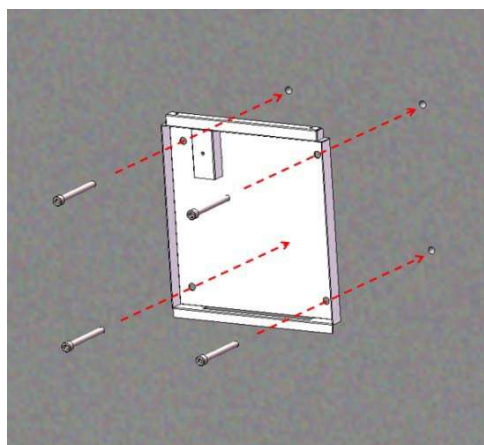


FIG. 11 punching diagram

(4) Align the four holes of the wall hanging mounting panel with the four screws on the wall and tighten them, as shown in FIG. 12.

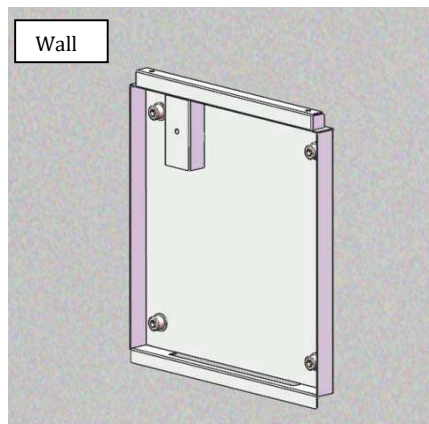


FIG. 12 mounting panel fixing diagram

(5) Mount the charging box on the mounting panel, and fix the charging box (see figure 13):

The rear of the charging box is slightly higher than the wall mounting panel, and moves towards the wall until the wall mounting panel is in contact with the rear of the charging box;

Move the charging box down until the charging box is clamped with the wall mounting plate.

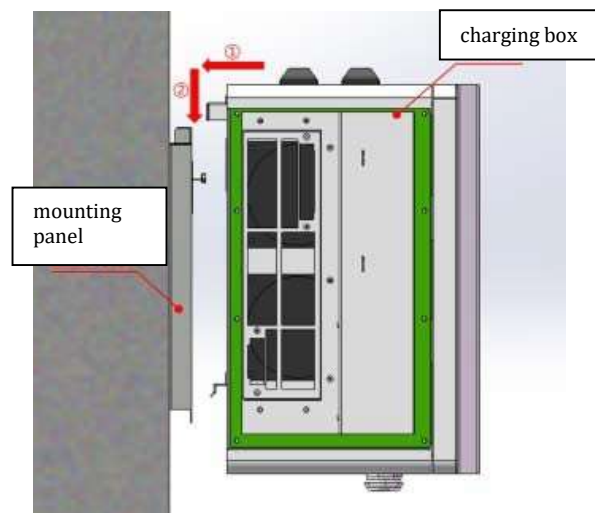


FIG. 13 diagram of wall-mounted charging box fixing

(6) Screw on the top of the mounting panel, and the mounting panel is completely fixed with the charging box, as shown in FIG. 14.

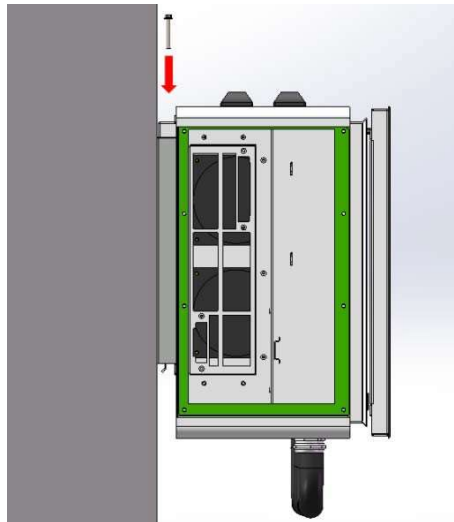


FIG. 14 wall mounted top screw fixation

(7) Put the charging module into the charging box (remove the louver from the left side), and then tighten the four screws fixing the module and the charging box, as shown in figure 15 and 16.

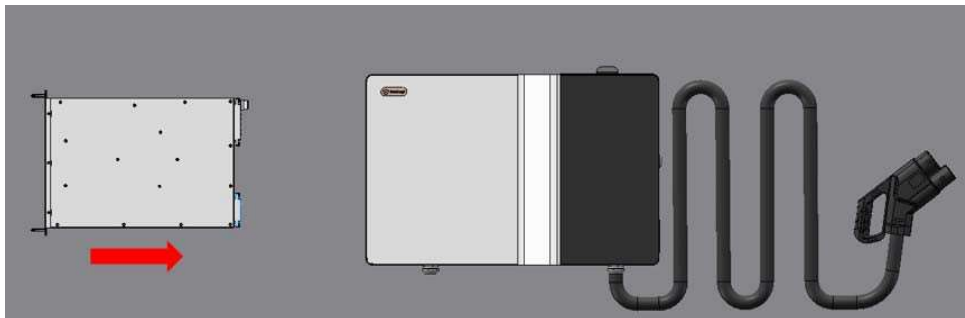


FIG. 15 module installation diagram

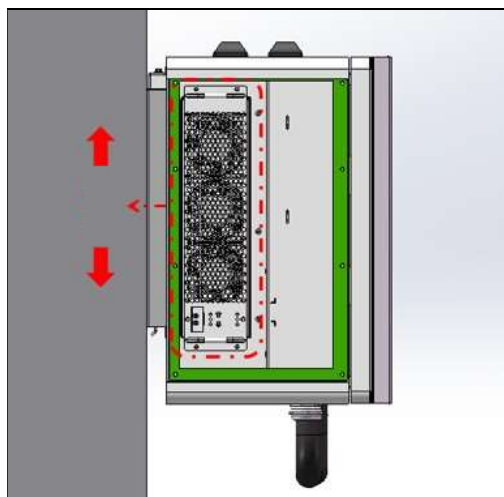


FIG. 16 module screw fixing diagram

(8) Install each part of louver in turn, tighten the corresponding screws and fix the louver, as shown in FIG. 17.



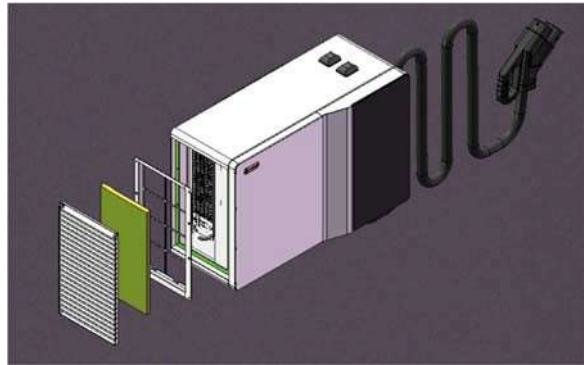


FIG. 17 installation diagram of each component of louver

- (9) Open the front door and remove the cable clamp, as shown in figure 18.

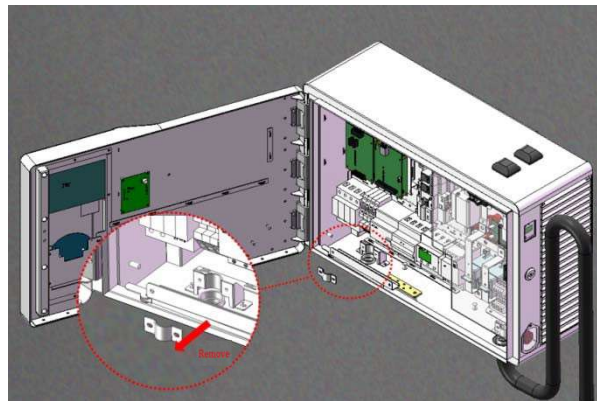


FIG. 18 cable clamp diagram

- (10) For wiring, insert the prepared cable (the cable has been stripped) into the charging box from the wiring port at the lower left, refer to figures 19 and 20. Connect the ground wire to the ground copper bus, refer to figure 21. Then connect the three phases of L1, L2, L3 and the zero line to the corresponding terminals. The phase sequence cannot be connected wrong (note: connect the N line first), as shown in FIG. 22. After the completion of wiring, fix the removed cable clamp is with the removed screws.

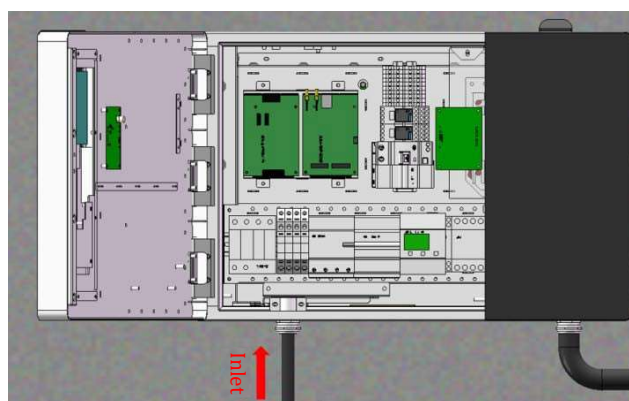


FIG. 19 cable installation diagram #1

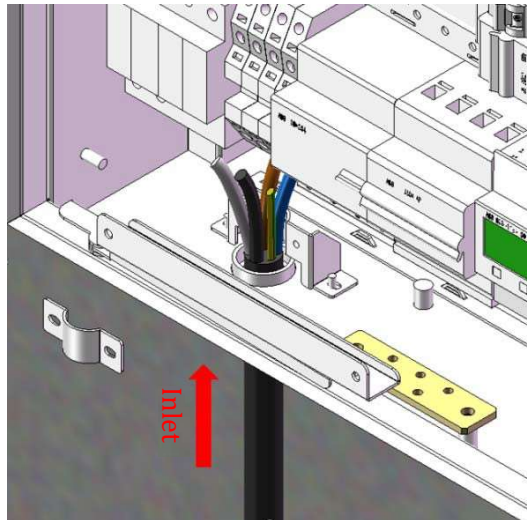


FIG. 20 cable installation diagram #2

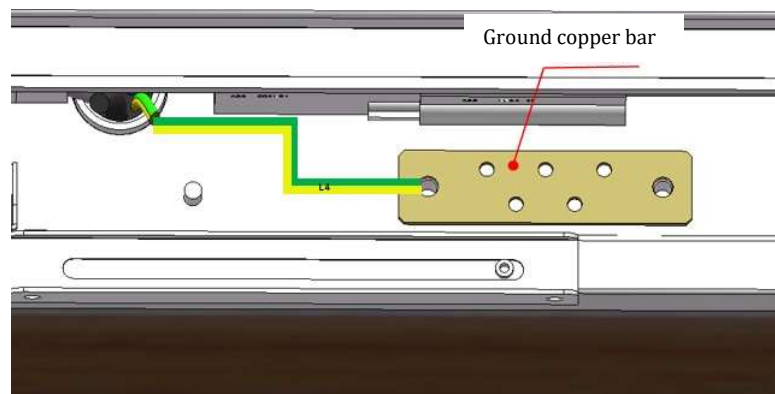


FIG. 21 schematic diagram of ground copper bar

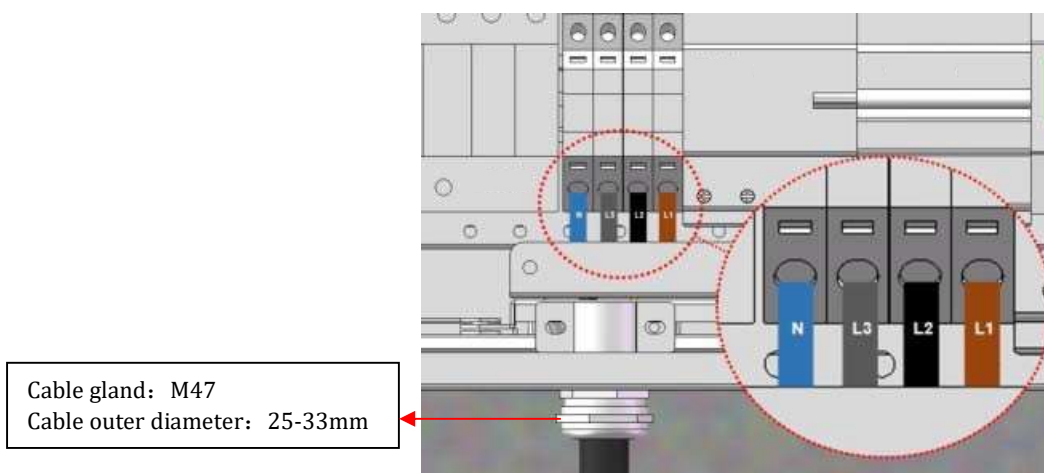


FIG. 22 schematic diagram of terminals

(11) If Ethernet communication is required, remove the cap of Ethernet port, and connect the network cable in the Ethernet port. The Ethernet port refer to figure 21.

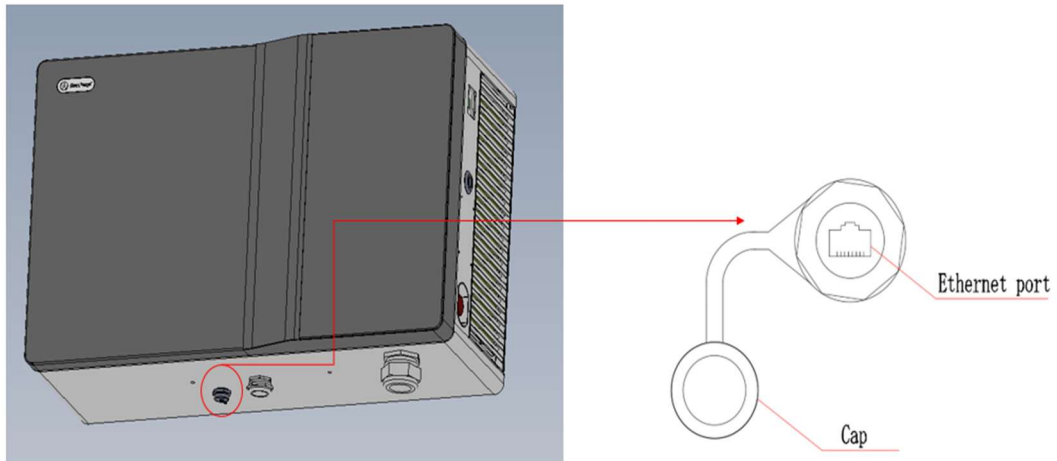


FIG. 23 schematic diagram of Ethernet port

(12) Install the gun holder after installing the main part. Select the appropriate position on the wall (It is recommended that the lower edge be 900mm away from the ground to facilitate the use of the gun), and mark the punching position according to the three holes on the gun holder assembly1, as shown in FIG24.

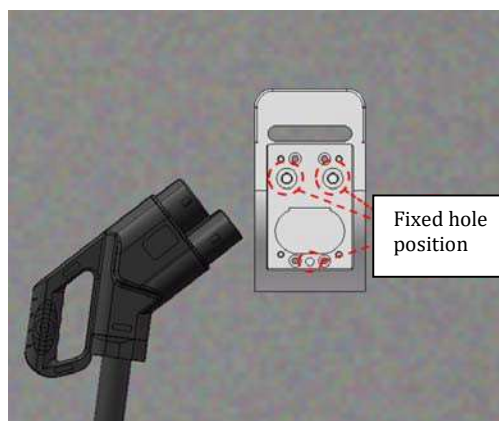


FIG. 24 schematic diagram of hole location of gun holder assembly1

(13) Select a drill bit with the diameter of 10mm, mark the position in the previous step with a hand drill to drill a hole with a depth of about 110mm, and then insert an M6\*100 expansion screw (note: the expansion screw should not be completely inserted into the hole) into the lower hole, as shown in FIG.25.

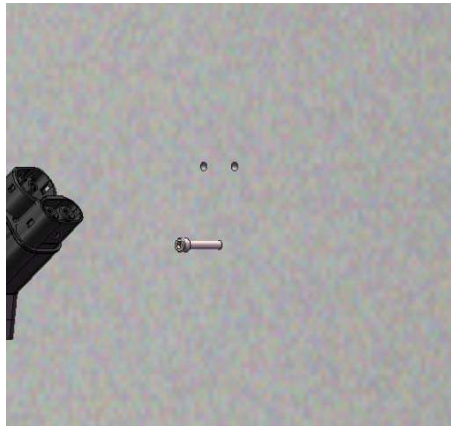


FIG. 25 schematic diagram of expansion screw insertion

(14) Attach the gun holder assembly1 to the expansion screw inserted into the wall hole in the previous step through the hardy hole at the back of the gun holder assembly1 (see FIG. 26), then insert the other two holes into the corresponding expansion screws, and tighten the three expansion screws completely, as shown in FIG. 27.

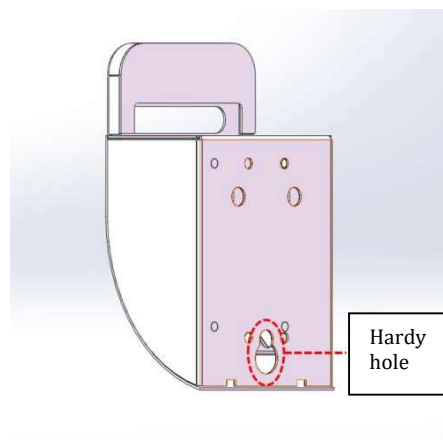


FIG. 26 schematic diagram of hoist hole at the rear of gun holder assembly1

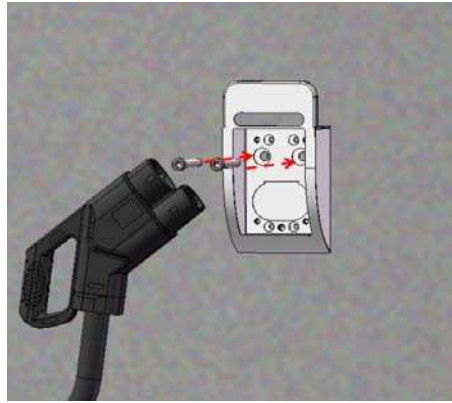


FIG. 27 mounting diagram of expansion screw of gun holder assembly1

(15) Install the gun holder assembly2, fix the gun holder assembly2 on the gun holder assembly1 via the fixing hole with M6\*16 screws, as shown in FIG. 28 and 29.

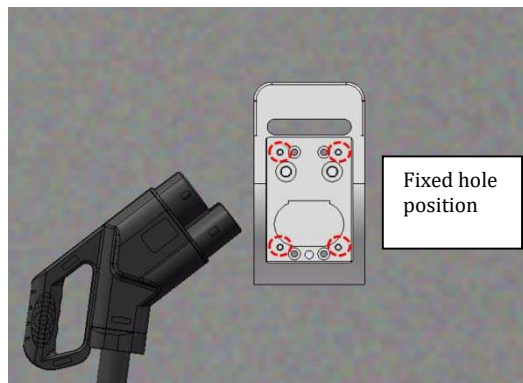


FIG. 28 schematic diagram of corresponding holes of gun holder assembly2

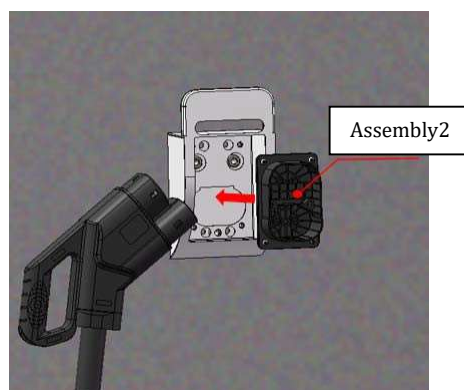


FIG. 29 installation diagram of gun holder assembly2

(16) Installation of the wall mounted charging box is done and the installation effect is shown in FIG.30.



FIG. 30 wall mounted charging pile installation effect diagram

### 3.2.2 Column mounted installation

Column installation size is 680mm\*322.5mm\*1641.5mm, the appearance size is shown in figure 31, the installation figure is shown in figure 32, and the installation parts are shown in figure 33.

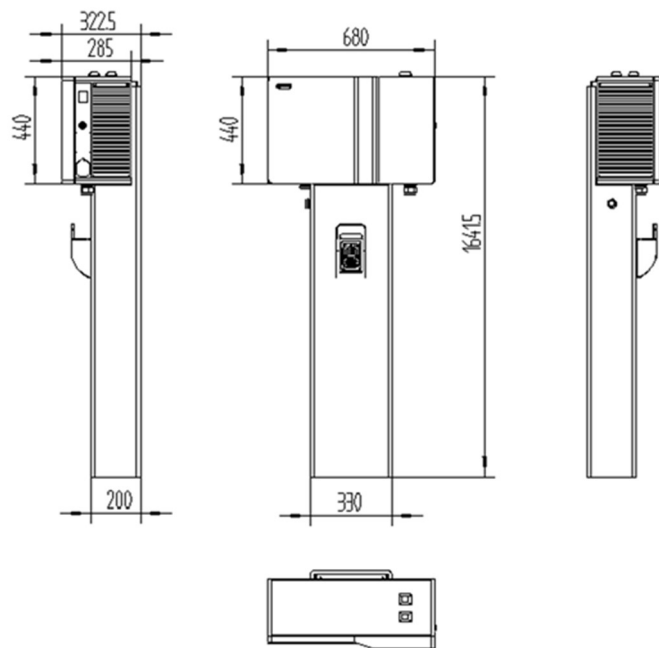


FIG. 31 appearance dimensions of column installation

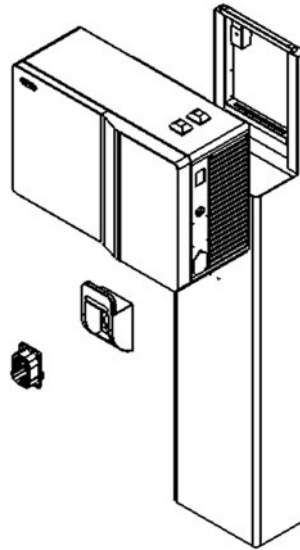


FIG. 32 column installation schematic diagram

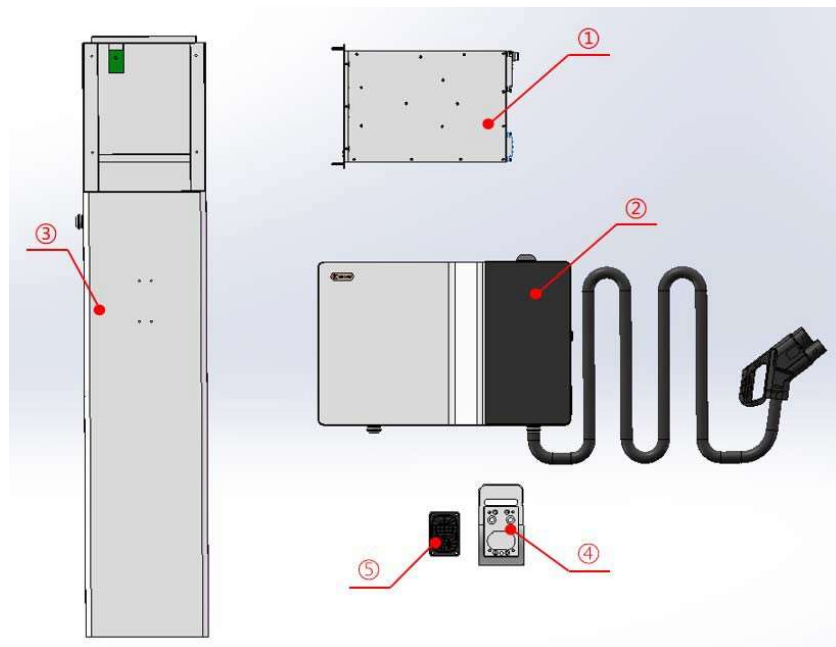


FIG. 33 column mounting parts

- ①: 30KW charging module
- ②: Charging box
- ③: Stand column
- ④: Gun holder assembly 1
- ⑤: Gun holder assembly 2

### Installation steps

(1) Refer to the wall mounting steps to remove the shutter and dust proof cotton. Then remove the cover plate of the installation column, as shown in figure 34.

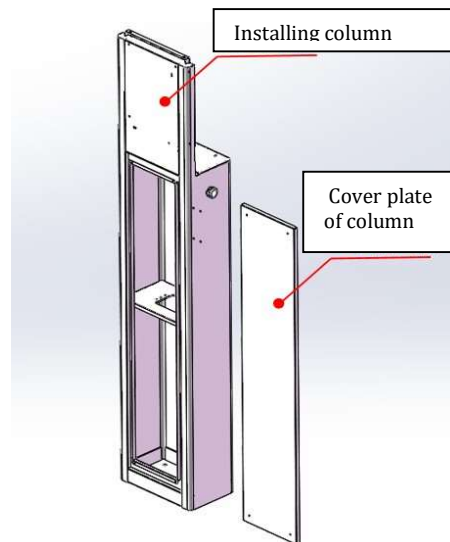


FIG. 34 schematic diagram of cover plate of column

(2) Four M10 anchor bolts are used to fix the mounting column to the concrete foundation through four holes at the bottom, as shown in FIG. 35.

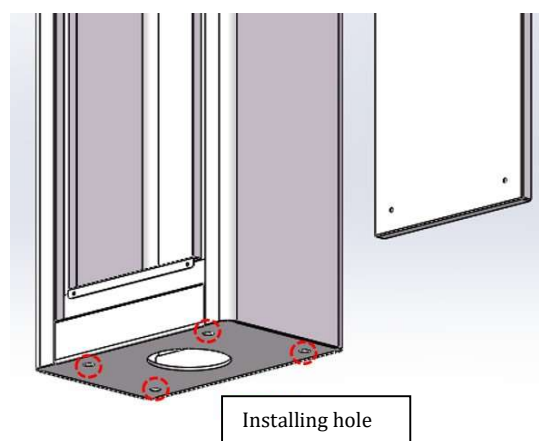


FIG. 35 installing holes of column bottom

(3) The cables prepared to be connected to the charging pile in the foundation are inserted into the column through the hole at the bottom of the column. The cable is then inserted into the outlet hole at the side of the column through the hole in the middle of the installation column, as shown in FIG. 36.



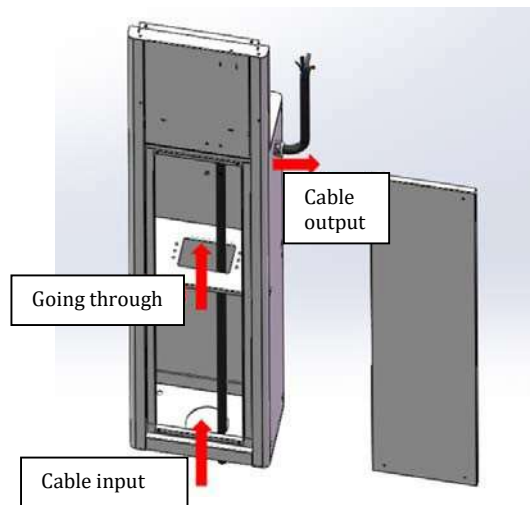


FIG. 36 cable routing in column

(4) Fix the charging box with the column. The steps of fixing refer to the wall mounted installation, as shown in figure 37.

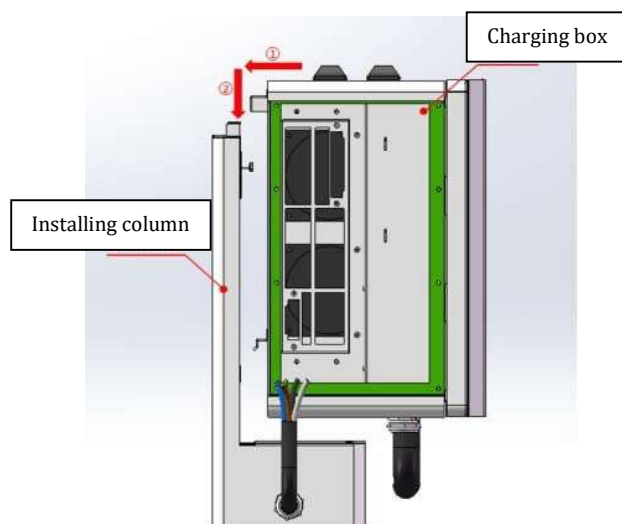


FIG. 37 fixing diagram of column mounted charging box

(5) Tighten the screws on the top of the mounting column, and fix the upper part of the mounting column and charging box, as shown in FIG. 38.

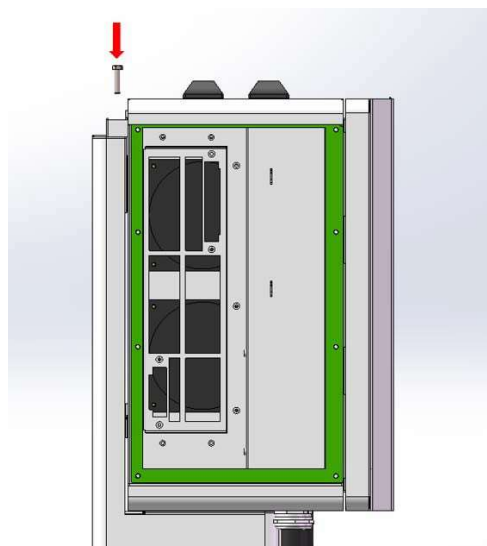


FIG. 38 fixing diagram of column and charging box upper part

(6) The bottom of the charging box is fixed with the landlord, and the M6\*16 screws are punched into the two mounting holes respectively inside of the column, as shown in FIG. 39.

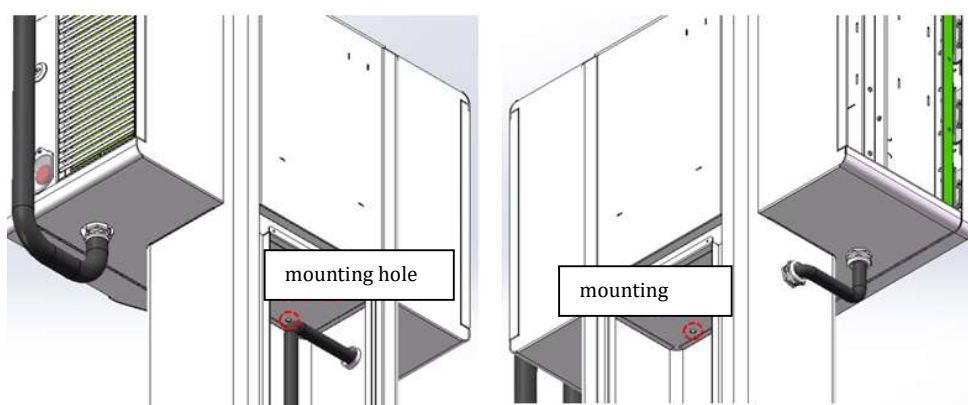


FIG. 39 schematic diagram of mounting hole at the bottom of charging box

(7) Use materials such as fireproof mud or polyurethane foam in the entry hole to prevent moisture or insects entering the equipment, as shown in Figure 40.

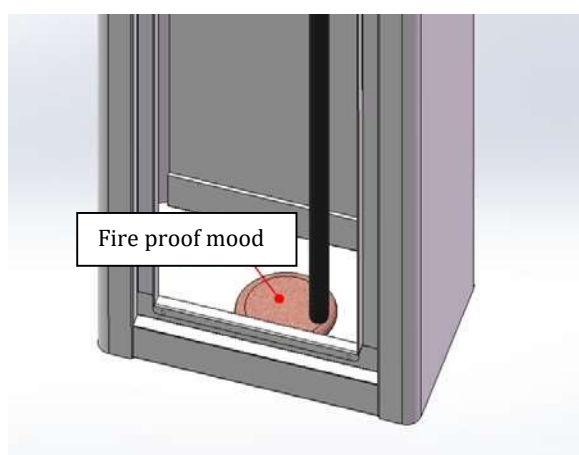


FIG. 40 fireproof mud sealing effect diagram

(8) Reinstall the cover plate on the column, as shown in FIG. 41.

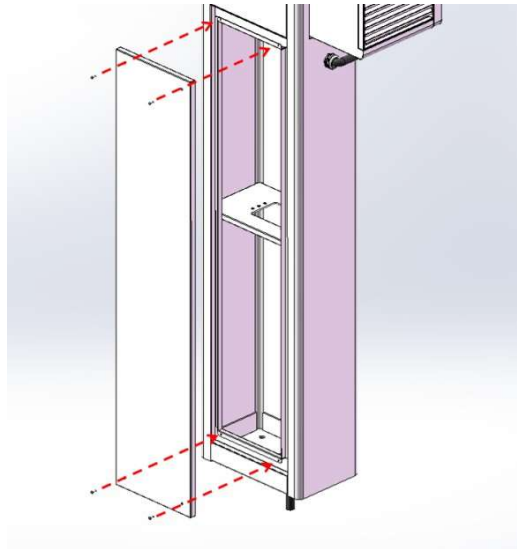


FIG. 41 installation diagram of cover plate of column

(9) Module installation steps refer to wall mounted charging pile

(10) Wiring refer to the connection of wall-mounted charging box, as shown in FIG. 42

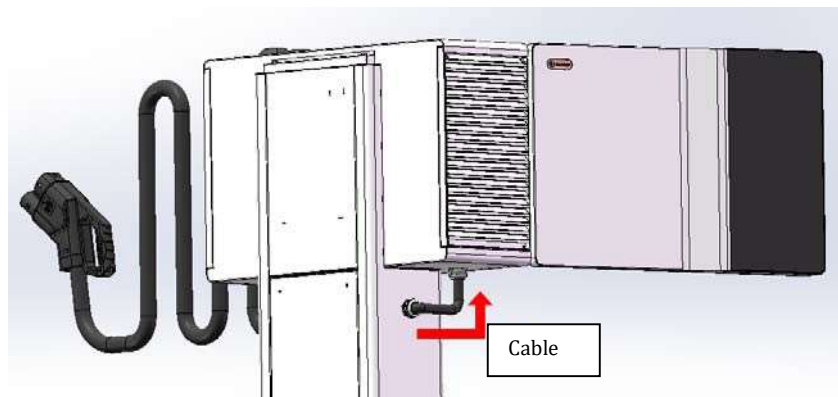


FIG. 42 schematic diagram of column installation routing

(11) Fix the gun holder on the column, and fix the gun holder assembly1 on the column with M6\*16 screws, as shown in FIG. 43.

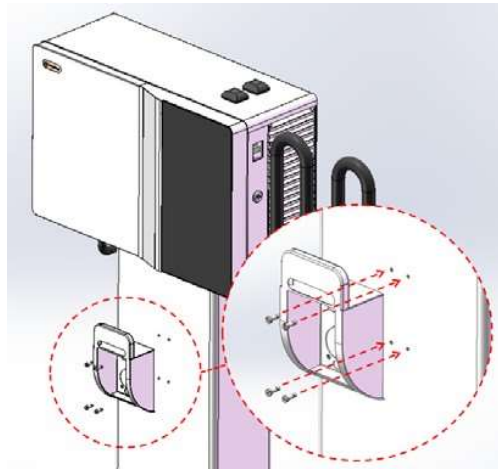


FIG. 43 diagram of column mounted gun holder installation

(12) Install the gun mounted assembly2, refer to the wall mounted installation.

(13) Column mounted charger is installed. The effect picture is shown in figure 44.



FIG. 44 column installation effect diagram



**Warning: it must be carried out according to the standard and correct operating procedures. Improper execution may result in personal injury or death.**

#### **4. Post-installation inspection (Live parts shall be operated by local qualified engineer)**

##### **4.1 Installation wiring inspection**

###### **4.1.1 Equipment and equipment fixation inspection**

- (1) The charging pile is clean in appearance, free from knock damage, consistent with the position of the base and secure without looseness.
- (2) Equipment orientation meets installation standards.
- (3) No missing installation of equipment accessories.
- (4) Measure the levelness of equipment by spirit level, ensure it meets the requirements.

###### **4.1.2 Cable laying and connection inspection**

- (1) Check whether the cable insulation is damaged.
- (2) Check whether the wire terminals of power cable is in compliance with requirements and whether the wiring is reliable.
- (3) Check the connection terminals of communication cable are correct and not loose.
- (4) Check for hanging cable tags.
- (5) Check whether the bending radius of cable meets the requirements.
- (6) Check whether each box leads the ground wire into the ground grid.

#### 4.2 Check before power on

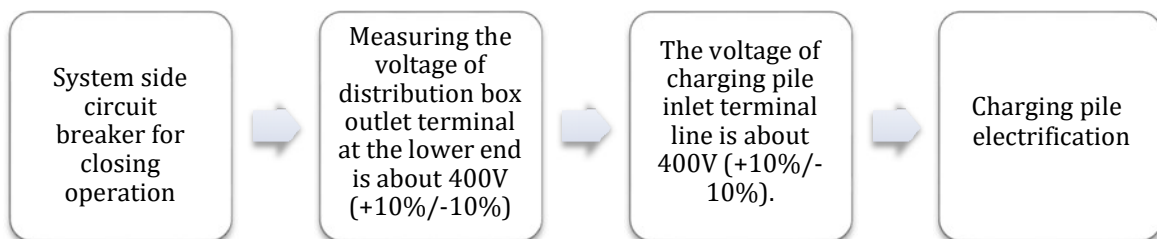
(1) check the power supply line of the low voltage distribution cabinet connected to the charging pile, and check whether there is a short circuit between the three-phase hot wire, neutral wire and ground wire.

(2) Power supply voltage before power on: before power on of equipment, please check whether the power supply voltage on upper end of MCCB in low-voltage distribution cabinet is normal, ensure there are no lack-phase, over voltage, under voltage, phase-sequence anomaly and other abnormalities.

#### 4.3 Check on power-on

(1) After confirming that the wiring of the equipment is complete and correct, power the equipment.

The power operation is as follows:



(2) Complete the overall installation.

## 5. Installation environment

The environmental conditions listed in the table below should be considered when selecting the installation site of high-power charger. The accumulation of dust or sand in the equipment may cause premature damage to the equipment.

Table 3 installation environment

<b>Environmental conditions</b>	<b>Recommended range</b>
The environment temperature	-30°C ~ + 50°C
Altitude	≤2000m
humidity	5% ~ 95%RH, no condensation inside the product;
Degree of dust	≤1mg/m <sup>3</sup>
Corrosive substance	No pollutants, such as salt, acid, smoke, etc.
Vibration	≤1.5mm/s
Insects, pests, vermin, termites	No
Mold	No
Damp	Rainproof
Fireproof	No inflammable material at the top and bottom of the cabinet

## 6.Completion information

Number	Name	Number of pages	Document necessity
1	Unpacking record sheet	1	√
2	Pre-installation checklist	1	√



**Appendix 1**

<b>Unpacking record sheet</b>						
Name of dealership				Unpacking date		
No.	Name of commodity	The actual commodity	Quantity	Qualified number	Equipment situation	Remark
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Unpacking conclusion						
Signature block	Installation unit			The owner unit		

Pre-installation checklist				
Project name::				
Civil construction unit:			Equipment installation unit:	
Sub-project	No	Main acceptance items	Acceptance record	Treatment measures
Installation plan	1	Whether the on-site equipment installation complies with the construction plan design drawings		
Distribution box circuit breaker	1	Meet the equipment installation requirements (the maximum input current of the equipment is 50A)		
Cable type	1	YJV-5*10 mm <sup>2</sup>		
Concrete foundation (Column mouted)	1	Dimensions meet requirements		
	2	Foundation bolts meet the requirements of section 2.6 in the installation manual		
Maintenance distance	1	The maintenance distance meets the equipment spacing requirements in section 2.7		
In conclusion:				
<p>Note: (1) In the acceptance record, fill in "√" or "×" according to the on-site situation; (2) At the conclusion, fill in "qualified" or "need to rectify" according to the on-site situation</p>				
Signature of person in charge of inspection: _____				