



Star Charge<sup>®</sup>



**Titan 180 V3**

**Installation manual**

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Wanbang Digital Energy Co., Ltd.

## **Legal Statement**

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## 1 General

### 1.1 Document purpose

The purpose of this document is to guide the construction personnel to complete the site installation of Titan 180 V3.

### 1.2 Scope of application

#### 1.2.1 This manual applies to the following equipment type

Titan 180 V3 DC EVSE.

#### 1.2.2 This manual applies to the following personnel

Professional electrical equipment installation personnel.

### 1.3 Definition of warning symbols






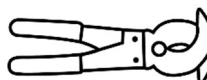
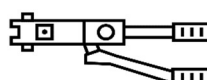
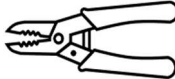

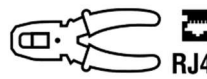
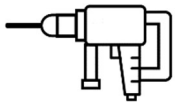
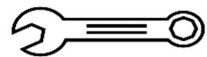
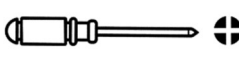







NO.	symbol	Content
1		<b>"Electrical hazard" symbol indicates danger</b> Failure to pay attention to the procedures, practices or improper implementation may cause injuries or death. Only after the conditions referred to are fully understood and fulfilled, can the operation accompanied the "Electrical hazard" symbol be performed.
2		<b>"Caution" symbol indicates danger</b> Failure to pay attention to the procedures, practices or improper implementation may cause product damaged. Only after the conditions referred to are fully understood and fulfilled, can the operation accompanied the "Caution" symbol be performed.
3		<b>"Tips" symbol indicates operation tips or useful information.</b> Operation tips and useful information shall be marked with "Tips". It does not contain information about warnings for dangerous functions or harmful functions.
4		<b>"Waste Disposal" symbol indicates electronic and electrical waste.</b> The logo is located on the product, in the instruction manual or on the packaging, indicating that electrical and electronic equipment and its accessories should be disposed of separately from ordinary household waste. The material can be reused according to its mark. You can make a great contribution to environmental protection by reusing old equipment and materials or other forms of reuse.

Table1 Definition of warning symbols

## 2.Preparation before installation

### 2.1 Installation tools

No.	Category	Name	Use	Picture
1	Cable preparation tool	Electrician knife	Stripping of insulating sheath	
2	Cable preparation tool	Cable cutter	Cable cutting	
3	Cable preparation tool	Hydraulic tongs	Terminal crimping	
4	Cable preparation tool	Wire stripping pliers	Stripping of insulating sheath	
5	Cable preparation tool	Hot air gun	Thermal shrinkage of insulating materials	
6	Cable preparation tool	Network cable pliers	Crimping of RJ45 connector	 RJ45
7	Installation tool	Percussion drill	Drilling hole	
8	Installation tool	Open-end wrench (full set)	Installing and removing nuts	
9	Installation tool	Cross screwdriver (PH2)	Installing and removing screws	
10	Installation tool	Hammer	Knocking	
11	Measurement tool	Spirit level	Horizontal measurement	
12	Measurement tool	Tape measure	Distance measurement	
13	Measurement tool	Multimeter	Measurement of voltage, current, etc.	
14	Measurement tool	Megger	Measurement of resistance	
15	Marking tool	Maker pen	Position making	
16	Handling tool	Fork lift	Equipment handling	


17	Hoisting tool	Crane	Equipment hoisting	
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Table 2 Installation tools

Note: The above tools should be selected according to the actual situation on site.

## 2.2 Materials for installation

### 2.2.1 Cable terminal

- (1) 150 mm<sup>2</sup> cable corresponding terminal: DT-150 copper terminal.
- (2) 70 mm<sup>2</sup> cable corresponding terminal: DT-70 copper terminal.
- (3) Network cable (cat6a): RJ45 connector. (if Ethernet communication is required.)

### 2.2.2 Other materials

Heat shrinkable tube for cable lugs, insulating tape and other accessories.

## 2.3 Requirements for installation personnel

- (1) The safety management regulations of the 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) Those who use mobile power tools must master their use skills and precautions. Wear insulated shoes and insulated gloves as much as possible. The metal case must be grounded.
- (8) Temporary on-site electricity, electricity box should be kept intact, damaged electrical components must be replaced in time.
- (9) Rubber cable shall be used for the temporary electric wires on the site. No plastic splines are allowed. No wires shall be directly inserted into the socket.
- (10) Try to avoid live working.
- (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**

It is recommended that power cable to be laid for Titan 180 is YJV-0.6/1KV-3\*150mm<sup>2</sup> +2\*70mm<sup>2</sup> (copper core). The length over the concrete foundation surface is about 1m. Please check and verify the cable type before installation.

#### **2.6 Requirements for concrete foundation**

If there is no suitable installation place on site, it is recommended to build a concrete foundation. The concrete foundation shall be poured before the product is installed. The size of the concrete foundation is 900mm\*900mm\*600mm, and the buried depth of the foundation is 400mm, which is 200mm higher than the ground height. The top view is shown in Figure 1. The design of concrete foundation can be adjusted according to the customer's requirements and the actual situation on site. The inspection requirements for concrete foundation are as follows:

- (1) Pay attention to the correction level when pouring the foundation.
- (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 drain on the foundation surface is slightly inclined to avoid standing water.
- (4) The foundation is filled with C20 concrete.
- (5) Reserve an outlet hole on the foundation for cable, as shown in the Figure1.
- (6) After the foundation is completed, use a level to test the levelness.
- (7) 4 M10 screws with length L=250 are embedded in the concrete foundation in advance and expose 30~40mm on the upper surface of the concrete foundation.



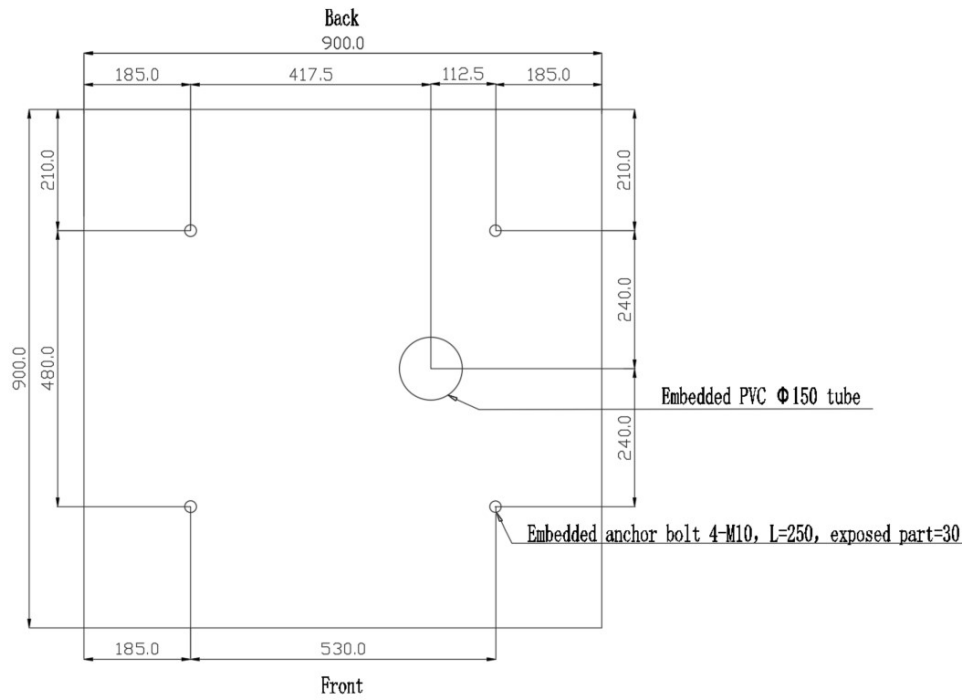


Figure 1 Top view of concrete foundation

Three views of installation and construction are as follows:

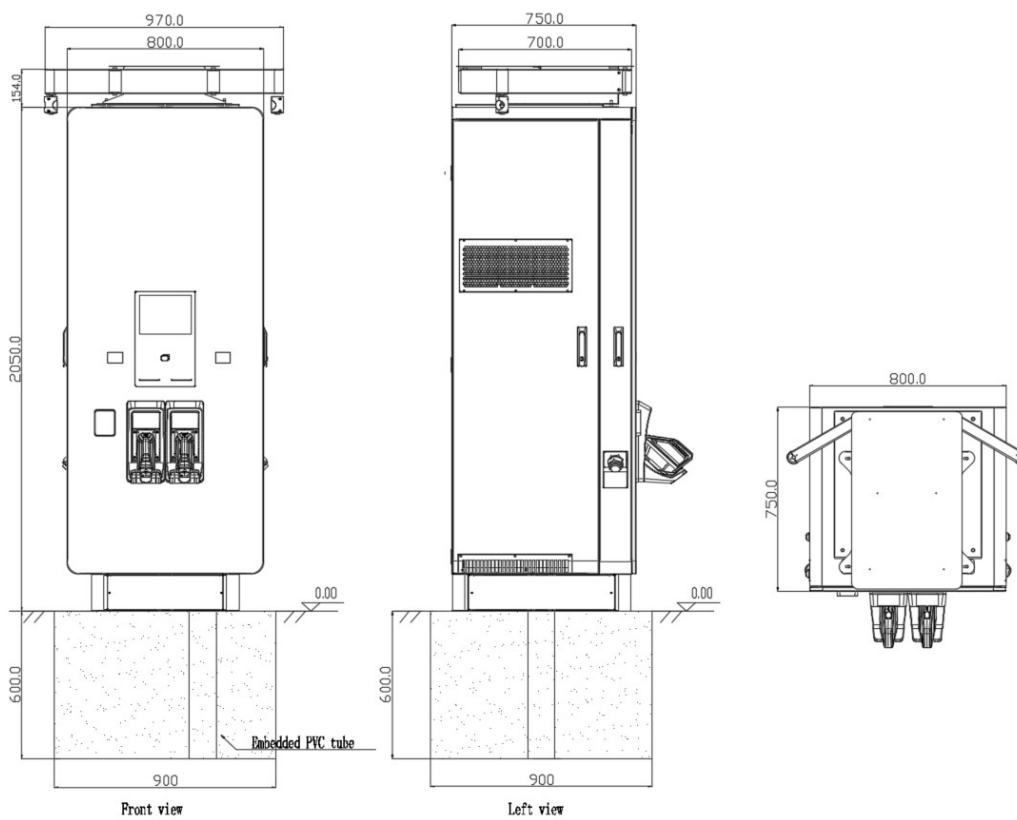


Figure 2 Three views of installation and construction

## 2.7 Equipment spacing requirements

### (1). Maintenance distance requirement

When charging piles need to be installed on the back or side near walls or other obstacles, a certain maintenance distance needs to be set aside. Please refer to Figure 3 below.

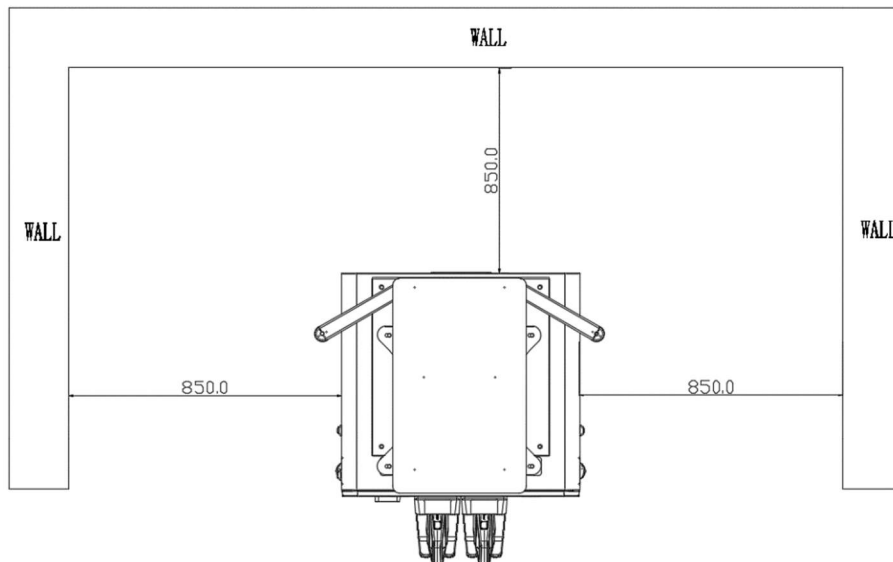


Figure 3 Charger maintenance distance diagram

### (2). Distance requirement for parking spaces.

When the charging pile is installed in the middle of a parking space or a parking space with back to back, it is suggested to set aside 1700mm space between the wheel stopper and the charger to facilitate the use of the charger, as shown in Figure 4.

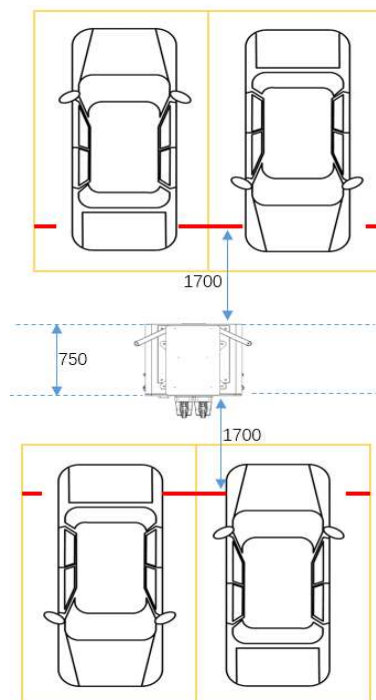


Figure 4 Distance requirements for parking spaces

## 2.8 Current and distribution capacity requirements

The power grid could be TN、 TT and IT system, and N line is optional (this charger can work normally without neutral line), the phase-to-phase voltage is 400V ( $\pm 10\%$ ), and the frequency is 50 ~ 60Hz. The grid capacity shall meet 200KVA and the rated input current is 290A. It is recommended that the MCCB should be Ue: 400Vac, In: 400A, thermo-magnetic type, Icu  $\geq 100\text{kA}$ , Ics  $\geq 70\text{kA}$ , 3P.

## 2.9 Ground/insulation resistance requirements

- (1) Check the civil grounding resistance test report to ensure that the resistance of the grounding grid produced on site must be  $\leq 4\Omega$ .
- (2) Check the civil insulation resistance test report to ensure that the insulation resistance of the cable is  $\geq 10\text{M}\Omega$ .



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

### 3. Installation steps

#### 3.1 Unpacking and unpacking inspection

##### 3.1.1 Unpacking list

NAME	Package	Configuration	Package dimension (mm)	Weight (with package)	Accompanying documents	List of accessories
DC charger	Wooden case	Standard configuration	1100*1050*2438 (W*D*H)	480kg	Certificate of conformity *1 Delivery Inspection Report *1 User Manual *1	DC Charger* 1 Operating handle * 1 Key * 3 IC card * 2 Lifting bolt M12 * 4
Module	Carton	Standard configuration	800*595*700 (W*D*H)	110kg		

Table 3 Equipment unpacking list

##### 3.1.2 Inspection of unpacking

- (1) Check the packing list number and equipment quantity.
- (2) Check equipment nameplate information.
- (3) Check whether the attached documents are complete.
- (4) Check whether the spare parts and accessories are complete.
- (5) Check the delivery inspection report and certificate.
- (6) Check the appearance of the equipment is good, and whether there are deformations, bumps, stains and other stains and other defects.

##### 3.1.3 Precautions for unpacking

- (1) The installation personnel shall unpack the package in the presence of the owner and fill in the unpacking record in detail. See appendix 1 for the unpacking record form.
- (2) After unpacking, please ask the owner's representative to confirm and sign on the equipment unpacking record form.
- (3) If any problems are found in the process of unpacking and acceptance of the equipment, make records and wait for the negotiation between the owner and the supplier.

##### 3.1.4 Check before installation

The installation personnel need to complete the confirmation and check before installation, see Appendix 2.

### 3.2 Charger fixing

(1) Using a Philips screwdriver, first remove the front, rear and side sealing plates of the base, as shown in Figure 5.

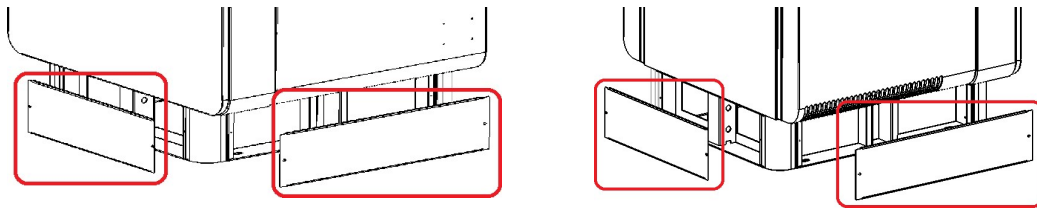


Figure 5 Schematic diagram of sealing plates

(2) Forklift or crane can be used for transport:

Forklift instruction: Fork the charger from the sealing plate holes, place it on the concrete foundation, and make the four holes aligned with the bolts.

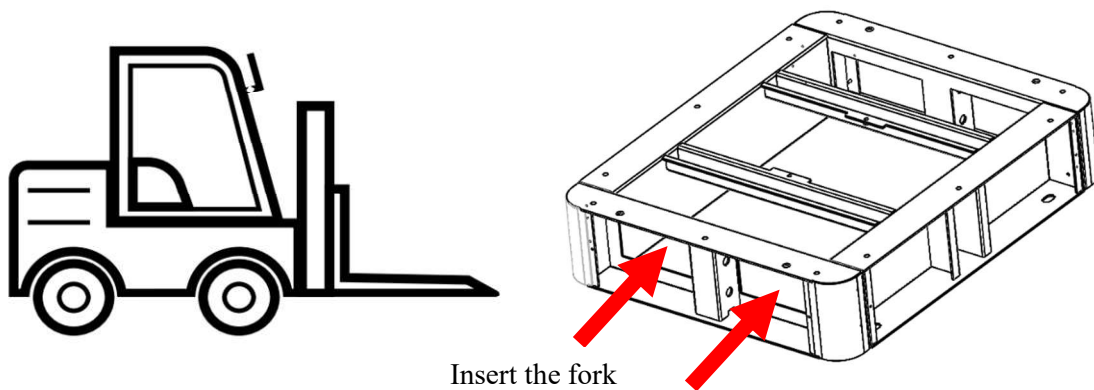


Figure 6 Schematic diagram of installation with forklift

Crane description: Select the appropriate lifting rope and machinery according to the weight. Each eyebolt on the top shall be provided with a rope, the lifting height of the rope shall not be less than 1m, the stress center of the hook shall be located at the symmetrical stress center, and the lifting schematic diagram is shown in Fig. 10. Hoist the charger according to the hoisting operation specification, align the four holes of the base with the anchor bolts, and place the charger on the concrete foundation.

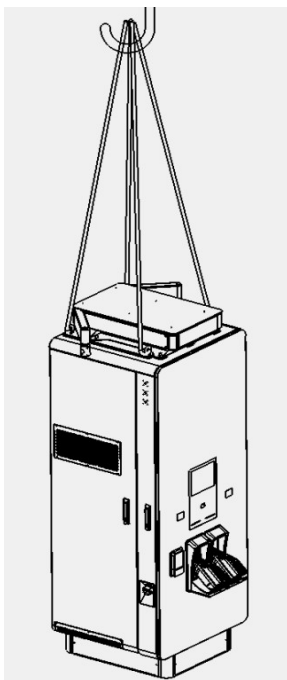


Figure 7 Schematic diagram hoisting of charger

- (3). Install nuts and washers on the anchor bolts to fix the charger.
- (4). Reinstall the base sealing plate and the charger is fixed.
- (5). Fix the charging cable on the cable management system (CMS) by cable clamp, as shown in Figure 8. The length of the charging cable from the gland to the clamp is 2.3 m. During the whole installation process, keep the charging cable sagging naturally to avoid knotting and torsion caused by external force.

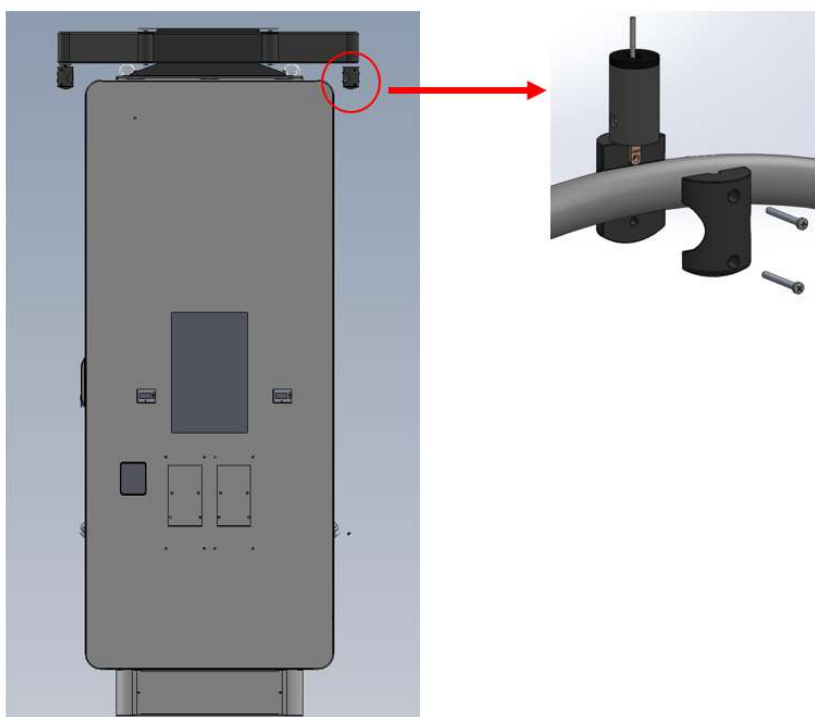


Figure 8 Schematic diagram of charging cable fixing

### 3.3 Electrical wiring

- (1) Open the right door of the charger and put the power cable in to the charger from the bottom.
- (2) Make the power cable go through the waterproof gland as shown in Figure 9, reserve the corresponding length, crimp the copper lugs, and connect it to the corresponding terminal, and ensure that the copper lug bolts of the wiring connection are not loose; When wiring, avoid the scratch and damage of the cable insulation sheath, so as to avoid short circuit.

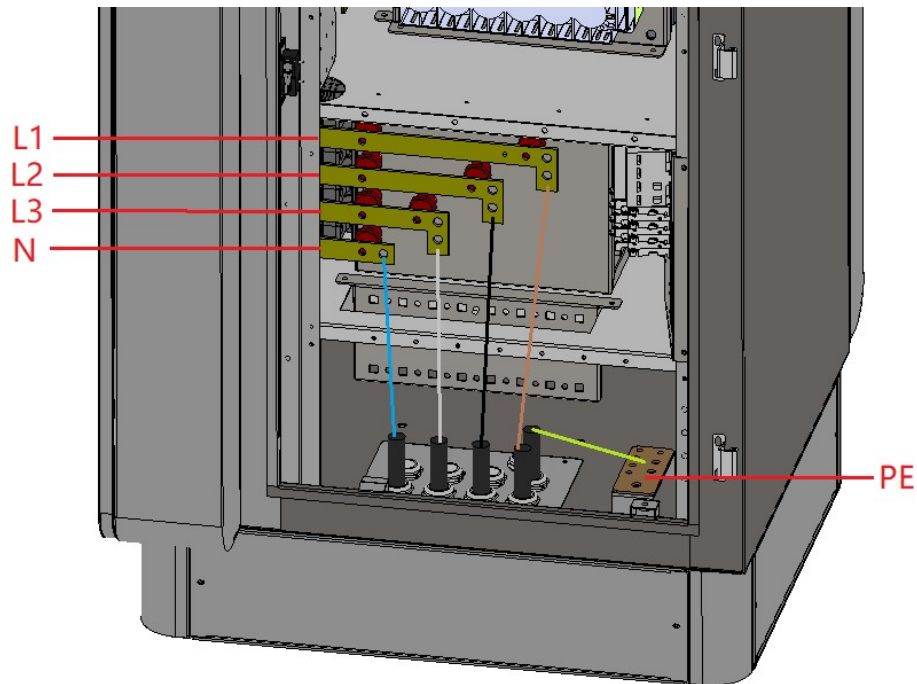


FIG.9 Power cable wiring diagram

- (3). If the Ethernet communication is required, open the right door of the charger, make the network cable go through the bottom of the cabinet, and take it from the right side to the front side, reserve the corresponding length, strip the cable, crimp the RJ45 connector, and connect it to the switch, as shown in Figure 10.

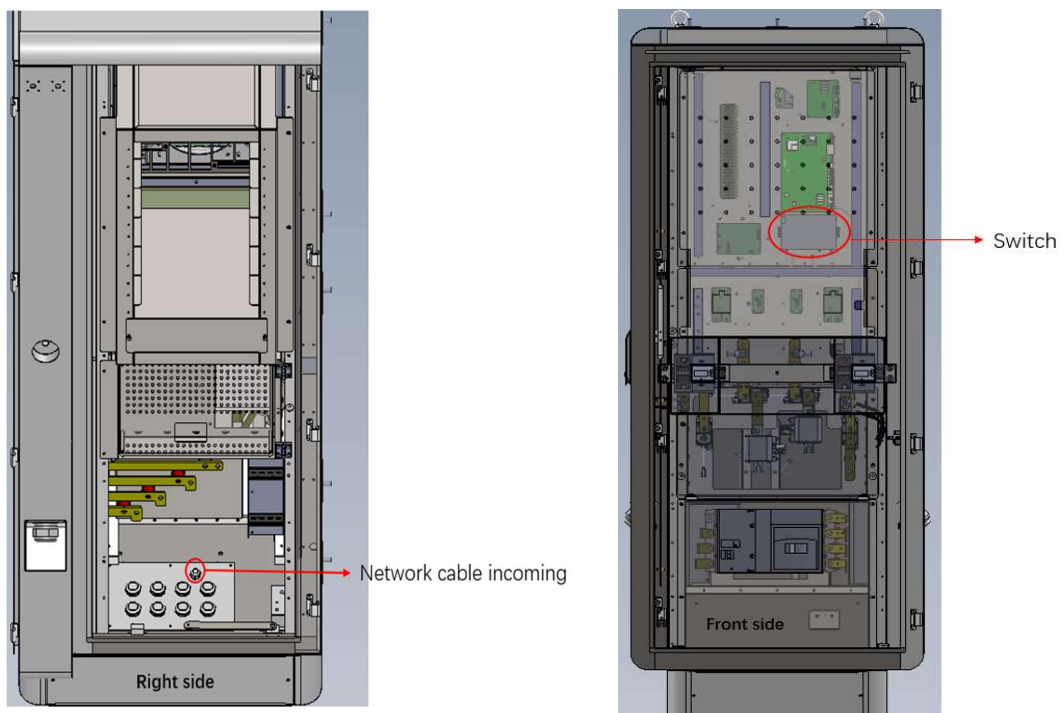


FIG.10 Network cable connection

### 3.4 Sealing up

- (1). Clean the stains and sundries on the cable entry of the charger.
- (2). Fasten the cable glands to maintain its sealing performance.



**Warning:** The operation must be implemented in accordance with specifications and correct operation procedures, so as to prevent personal injuries or death.



#### 4. Inspection after installation (the live parts can only be operated by the engineers with relevant local qualifications)

##### 4.1 Installation and wiring inspection

##### 4.1.1 Equipment and equipment fixing inspection

- (1) The appearance of charging equipment shall be clean and tidy without bumps or damages, its position shall be consistent with the base and fixed firmly without looseness.
- (2) The orientation of equipment shall meet the installation standards.
- (3) Missing parts shall be avoided.
- (4) Levelness of installation meets the requirements.

##### 4.1.2 Cable laying and connection inspection

- (1) Check whether the insulating jacket of cable is scratched or damaged.
- (2) Check whether the power cable terminals are in compliance and whether the wiring is firm.
- (3) Check that the terminals of communication cable are correct and not loose.
- (4) Check whether there are hanging cable signs.
- (5) Check whether the cable bending radius meets the requirements.
- (6) Check whether the ground wire is led to the grounding grid for device.

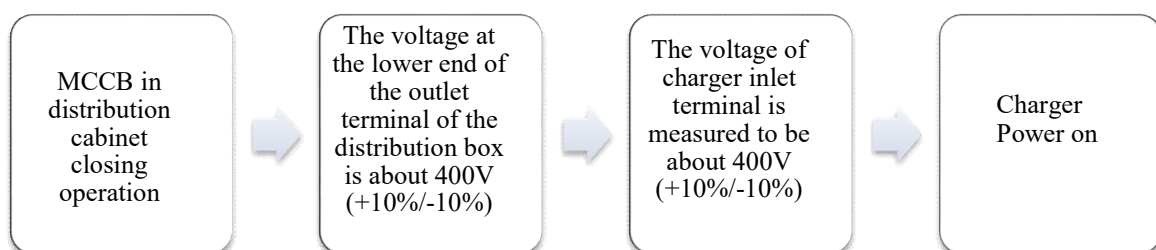
##### 4.2 Check before power-on

- (1) Short circuit: check the power cable of the low-voltage distribution cabinet connected to the charger, and check whether there is a short circuit between the three-phase wire, neutral wire and ground wire.
- (2) Power voltage before power on: before powering on the equipment, check whether the power voltage on upper end of MCCB in the low-voltage distribution cabinet is normal, ensure there are no phase lack, overvoltage, undervoltage, phase-sequence anomaly and other abnormalities.

##### 4.3 Power-on inspection

- (1) The equipment can only be powered on after confirming that the wiring of equipment is completed correctly.

The power-on operation is as follows:



- (1). Complete the overall installation.

## 5. Installation environment

Do not perform installation operations outdoor on rainy days.

Ambient conditions	Recommended range
Ambient temperature	-30°C ~ +55°C
Altitude	≤2000m
Humidity	5%~95%RH, no condensation
Dust level	≤1mg/m <sup>3</sup>
Corrosive substance	No pollutants, such as salt, acid, smoke, etc.
Vibration	≤1.5mm/s <sup>2</sup>
Insects, pests, vermin animals, termites	None
Mold	None
Moisture	Rain prevention
Fire prevention	No flammable substances on top and bottom of cabinet

Table 4 Installation environment

## 6. Completion documents

No.	Document name	Page	Document necessity
1	Unpacking record form	1	√
2	Pre-installation checklist	1	√

**Appendix 1**

Unpacking record form					
Owner's name				Unpacking date	
No.	Case	Name of goods	Quantity	Acceptance	Notes
Unpacking conclusions	Installation unit			Owner's unit	
Signature block					

**Appendix 2**

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 MCCB	1	Meet the equipment installation requirements of section 2.8 in the installation manual.		
Cable type	1	Meet the equipment installation requirements of section 2.5 in the installation manual.		
	2	Network cable cat6a (if Ethernet communication is required).		
Cement foundation	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:				
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				
Signature of person in charge of inspection: _____				