

Manual of J Series 240~420kW DC Charger



Preface

To make sure that you can safely use the Euro standard DC charger and remove trouble timely once it occurs, please read this manual carefully before using this product.

The charger applies to lithium ion power battery, provides power output less than the rated power, and keeps a higher output voltage and current accuracy; the display screen is the most important human-machine conversation interface of the charger, and its main function is to show the state of charge, state of batteries, failure state, etc.

The charger strictly implements IEC 62196-3-2014 «Plug, Socket, Vehicle Connectors and Vehicle Sockets Electric Vehicle Conductive Charging Part 3: Size Compatibility and Interchangeability Requirements for DC and AC-DC Pins and Vehicle Coupler Conducting Tube», EN 61851-23-2014 «Electric Vehicle Conductive Charging System Part 23: DC Electric Vehicles Charging Station», and EN IEC 61851-1-2019 «Electric Vehicle Conductive Charging System-Part 1: General Requirements», and EN IEC 61851-21-2:2021 «Electric Vehicles of Electric Vehicle Conductive System- Part 21-2 : Requirements for Electric Vehicle Conductive Connection to AC/DC Power Supply-EMC Requirements for External Electric Vehicle Charging Systems».

This manual is only applicable to the European standard series electric vehicle DC charger, and the contents of the manual will be updated with the upgrade of control software and display interface software without extra notice.

Please keep the manual for later reference.

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Operating Conditions And Safety Precautions

(1) Operating Environment

Working Temperature	Working Humidity	Atmospheric Pressure	Altitude
-30℃～+50℃	5%～95%	80kPa～110kPa	≤2000m

(2) Safety Precautions

- Charger should be operated according to operation instruction provided by manufacturer;
- Nonprofessionals are forbidden to open charger cabinet and dismantle screen touch without permission, sharp objects are forbidden to operate on the screen;
- If there is a stop halfway, please first click “stop” button manually, then pull out charging connector. Forbid inserting and pulling out charging connector directly during charging, otherwise charging connector and charger will be burnt out and even the operators will be gotten burnt;
- Any operation irrelevant to charging during the charging is forbidden. Other operations should be done after clicking “stop” button on the charger and charging connector disconnects with the vehicle;
- Under urgent circumstances, press red emergency stop button on the charger and cut down charger internal power supply;
- Smoke and fire are forbidden around the charger and pay attention to ventilation;
- The fuse must be replaced with the same type fuse and can't be replaced by copper and iron wire;
- When there is high voltage or default, it should be repaired by professionals in

risk of danger;

- Charger upper circuit breaker and power distribution cabinet should be chosen, installed and operated by professional electricians;
- It is recommended to turn off the power under severe weather such as thunderstorm. If there is water accumulation in the charger, please contact the manufacturer's personnel;
- Charging cable unit weight is heavy, longer cable is easy to drag and under force, adding the risk of cable twist, bump to and influence product service life. Therefore, pulling hard and twisting charging cable is forbidden. Charging cable must not be twisted to make charging socket under force when charging;
- When inserting or pulling out charging connector, shaking the charging connector is forbidden and it must insert or pull out with vertical force.

If the following conditions occur, please cut down the power in time and inform the professionals for maintenance.

- Abnormal sound inside the charger.
- Abnormal smell or smoke inside the charger.
- No indication or responsive in charger display screen.
- An unrecoverable failure alarm in charger.



!Notice: Before power-on operation, please ensure good connection between device shell and ground, otherwise there is danger of electric shock.

1.Overview

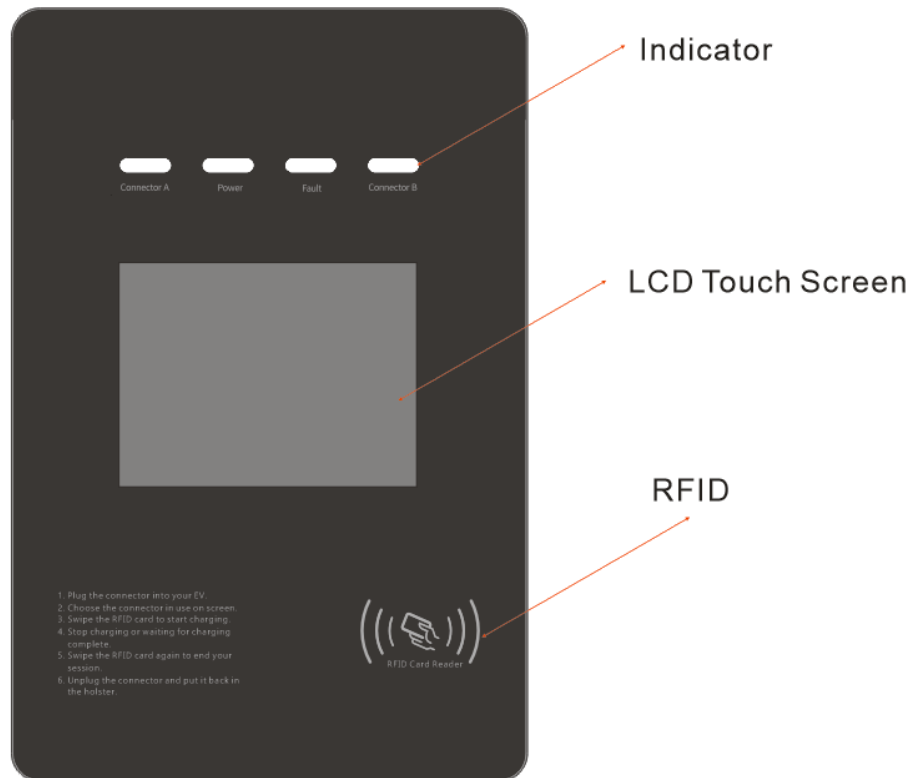
1.1 Function Description

This integrated DC charger can realize single connector fast charging, fast feed as well as two connectors equal power charging at the same time.

1.2 Appearance Instruction

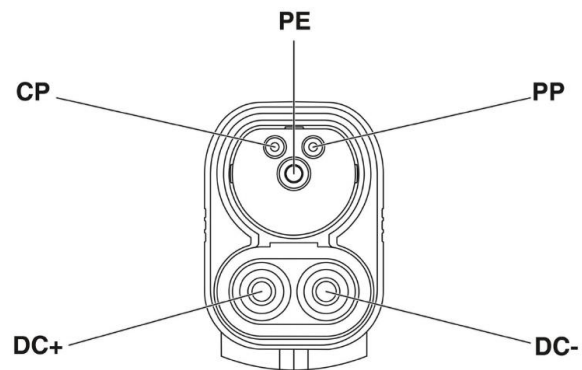
1.2.1 Operational Zone

Operation zone includes indicator, display screen, card reader zone and emergency stop button. Signal light can show power supply, charging connector and fault status, display screen is used for showing charging information, card reader zone is used for identifying charging card and providing simple operation instruction, emergency stop button is used for cutting off power supply under emergency situation to avoid accidents and normal outage is not suggested to use.

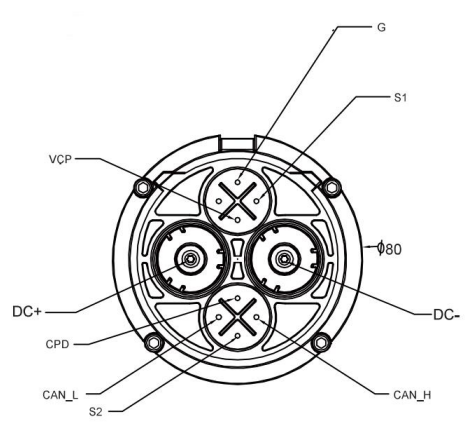


1-1 Operational Zone

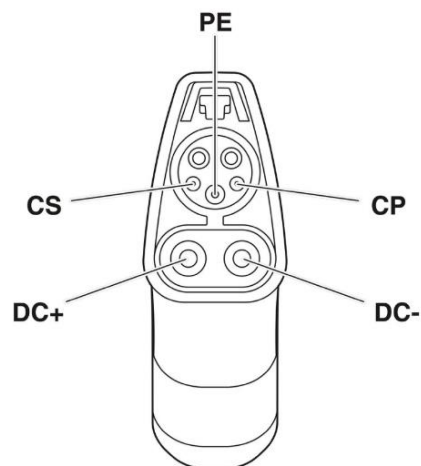
1.2.2 Charging Connector



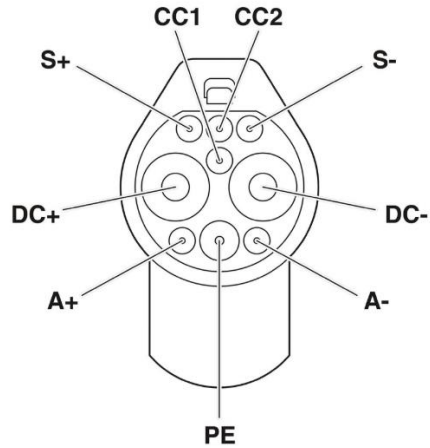
1-2 CCS 2 Charging Connector



1-3 CHAdeMO Charging Connector



1-4 CCS 1 Charging Connector



1-5 GB/T Charging Connector

1.3 Main Technical Parameter

No.	Items	Specifications	Remarks
1	Input Voltage	400V±15%	
2	Input Voltage Type	TN-S(Three Phase Five Wire)	TN-S (Three Phase Five Wire)
3	AC Grid Frequency	45-65Hz	
4	Output Voltage	150V-1000V	Continuous adjustable
5	Output Voltage Error	≤0.5%	Full output range
6	Output Current Error	When Output current≥30A:≤±1% When output current < 30A:≤±0.3A	Full output range
7	Stabilized Voltage Precision	≤0.5%	Full output range
8	Stabilized Current Precision	≤0.5%	Full output range
9	Ripple Factor	≤0.5%	Full output range
10	Peak efficiency	≥97%	
11	Power Factor	≥0.99	
12	Leakage current	≤10mA	
13	Power Frequency Withstand Voltage	2500VAC	No insulation breakdown and flashover within 1 min
14	Insulation Resistance	≥20MΩ	Test voltage 1000VDC
15	Cooling Method	Air Cooling	

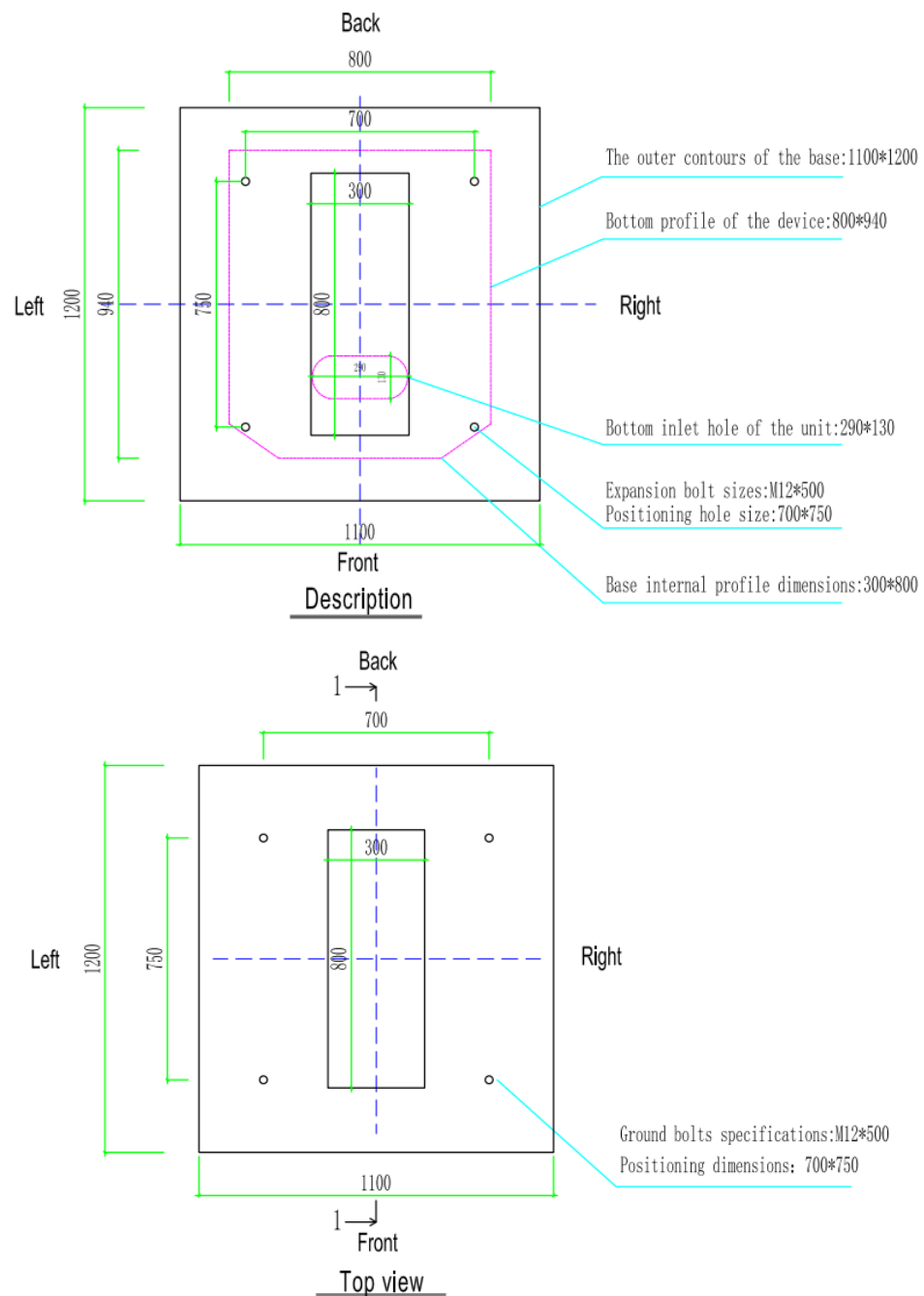
2. Method of Application

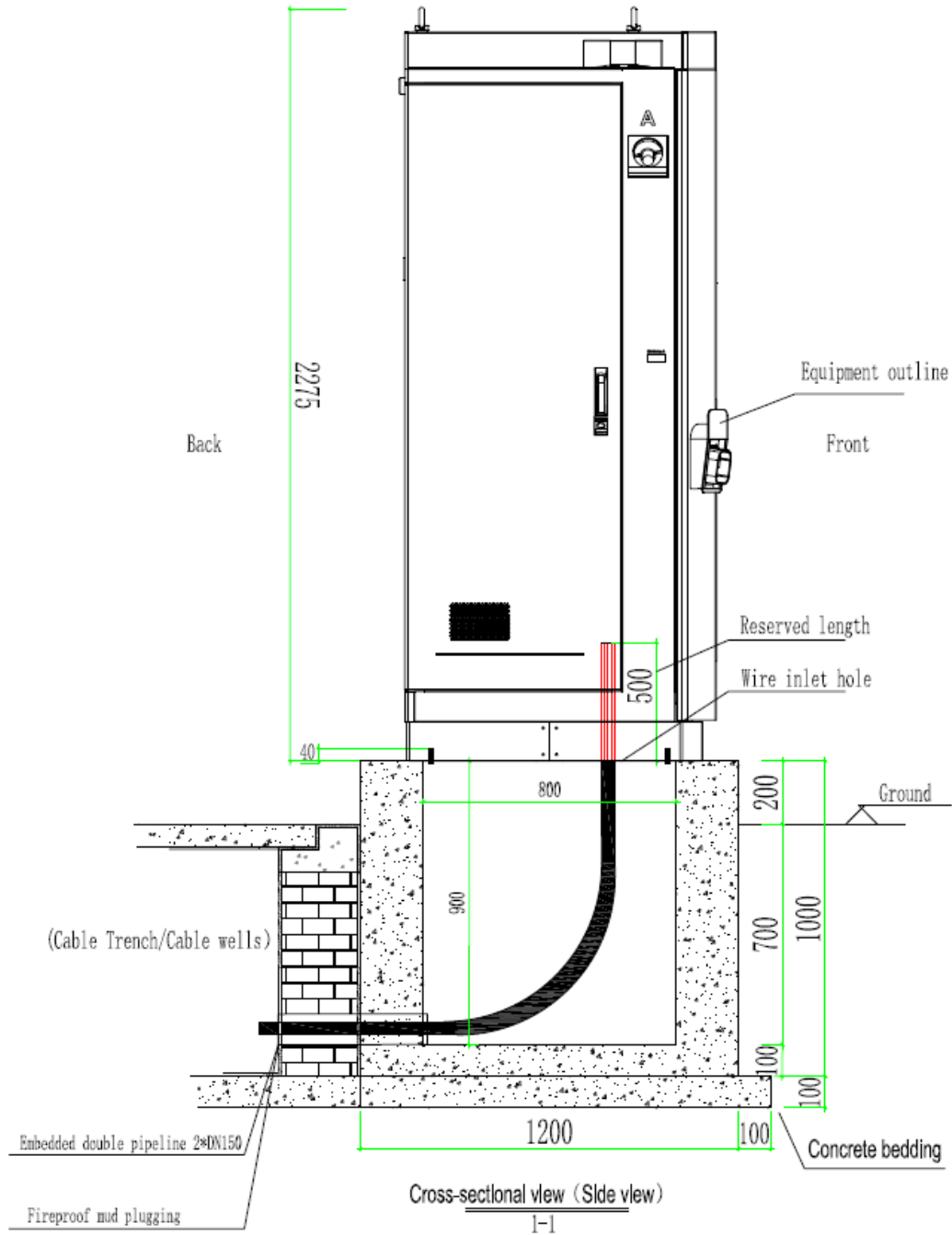
2.1 Installation Instruction

2.1.1 Structure Installation

(1) Foundation Drawing

The EV charger adopts ground-mounted and the installation should be reliable and fastened, the following foundation is suggested:





2-1 Concrete Foundation Profile Map

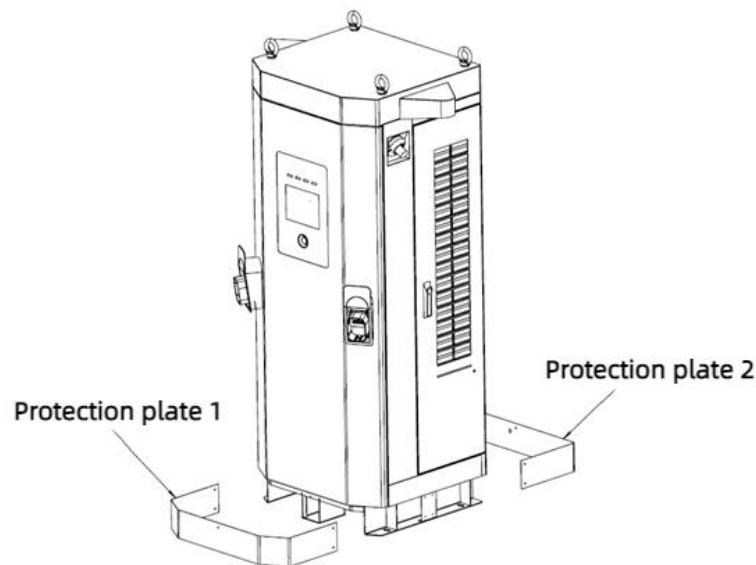
Power	AC Input Cable	Terminal	Remarks
420kW	2* (YJV-0.6/1kV-3*185mm ² +2*95mm ²)	DT185-12 DT95-12	
360kW	2* (YJV-0.6/1kV-3*150mm ² +2*70mm ²)	DT150-12 DT70-12	
300kW	2* (YJV-0.6/1kV-3*120mm ² +2*70mm ²)	DT120-12 DT70-12	
240kW	YJV-0.6/1kV-3*185mm ² +2*95mm ²	DT185-12 DT95-12	

Comparison Table for AC Input Cables

- A. Choose Proper AC Input Cable according to the above table, it is suggested to choose flame retarded cable and cant into Ø150 insulation flame-retardant electrical pipe, cable above the ground length is 600mm;
- B. The foundation adopts C25 concrete pouring, embedded M12 stainless steel anchor bolt, bolt exposure 40mm and keep vertical, and size refers to concrete pouring profile, each group M12 stainless steel screw head need to equip with one stainless 12 spacer (GB/T96 washer level C),one spring washer, one M12 nut (8.8 level) to guarantee that it will not rust within 10 years;
- C. When the foundation is during construction, it must harden the ground for the loose soil area to ensure that the charger will not incline after long time working. Note to adjust charger horizon based on the cabinet;
- D. The routing pipe shall prevent rainwater from pouring into the cable hole, and be embedded to reduce the cable laying resistance, and the flatness of the concrete boss installation surface should be no more than 3mm;
- E. Outside of concrete foundation, set protection railing or bumping block as precaution measures.
- F. Concrete foundation exposed above the ground the four sides should be painted into yellow and black warning line, 45° with horizontal ground (warning line width is 100mm).

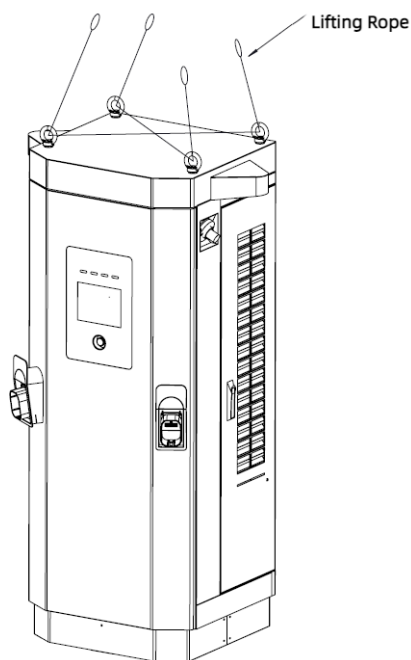
(2) Dismantle Instruction

When installing, dismantle cabinet wooden box and pallets, dismantle protection plate 1 and protection plate 2, use forklift and move the cabinet to foundation platform, then use bolts and nuts to fasten the cabinet and put the protection plate back to original location.



2-2 Dismantle Instruction

You can also install the cabinet by hoisting. Use two proper lifting ropes (4 meters for each 2 tons) to run diagonally through the lifting ring, and lift the cabinet onto the foundation platform, and then fastening the cabinet on the foundation with nuts and washers. It is forbidden to use only one rope for lifting the cabinet and please make sure that the lifting rope is correctly installed. Forbidden to stand under the cabinet during hoisting, in case any hurt by falling cabinet accidentally .



2-3 Hoisting Instructions



1. Forbidden to use only one rope for lifting the cabinet.

2. Make sure that the lifting rope is correctly installed.

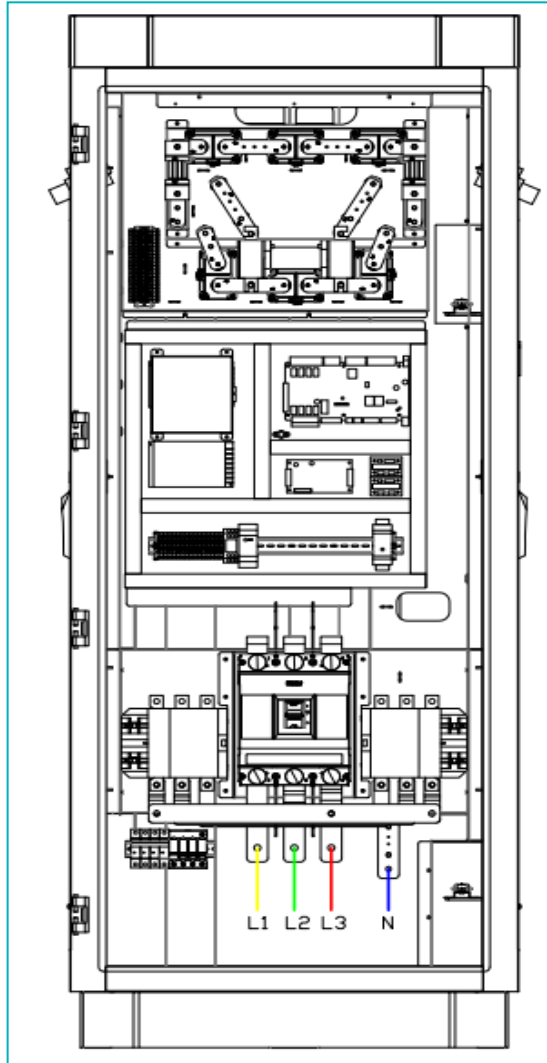
3. Forbidden to stand under the cabinet during hoisting, in case any hurt by falling cabinet accidentally.

Installation Notes:

- Drainage measures should be made at charger installation location to avoid charger immersion to affect normal usage;
- When installation, it should guarantee charger left and right side within 2 meters without obstacles to ensure the charger heat dissipation and there should be enough distance for easy operation in front of charger;
- After fastening cabinet on the foundation, its installation vertical inclination should be less than 5%, when fastening, nut tightening torque suggested is 28.5N·m;
- Operation site should avoid direct sunshine and outside shade(rain-proof) shed should be added;
- The charger noise only meets the national standard of charger noise, in order to avoid unnecessary dispute, if it need to install near to residential area or special requirements for noise, please test noise in advance or install after sound proof treatment.

2.1.2 Electrical Installation Instruction

DC charger electrical installation must be guided by professional technicians. Open charger front door (face to charger) dismantle baffle and connect inlet cable into wire copper bus bar, shown as 2-4.



2-4 Inlet Position

Copper cable in accordance with require is recommended, adopting terminal compression which matches with cable section, the exposed part of terminal joint adopts heat shrinkable sleeve or insulation tape for insulation protection. Requirement for tensile strength of compression terminals of every size is as below:

Conductor Size (mm ²)	Tensile Strength Under Pressure (N)	Conductor Size (mm ²)	Tensile Strength Under Pressure (N)
0.13 (AWG#26)	13	30	2300
0.2 (AWG#24)	22	38	2500
0.3 (AWG#22)	36	50	2900
0.5 (AWG#20)	58	60	3200

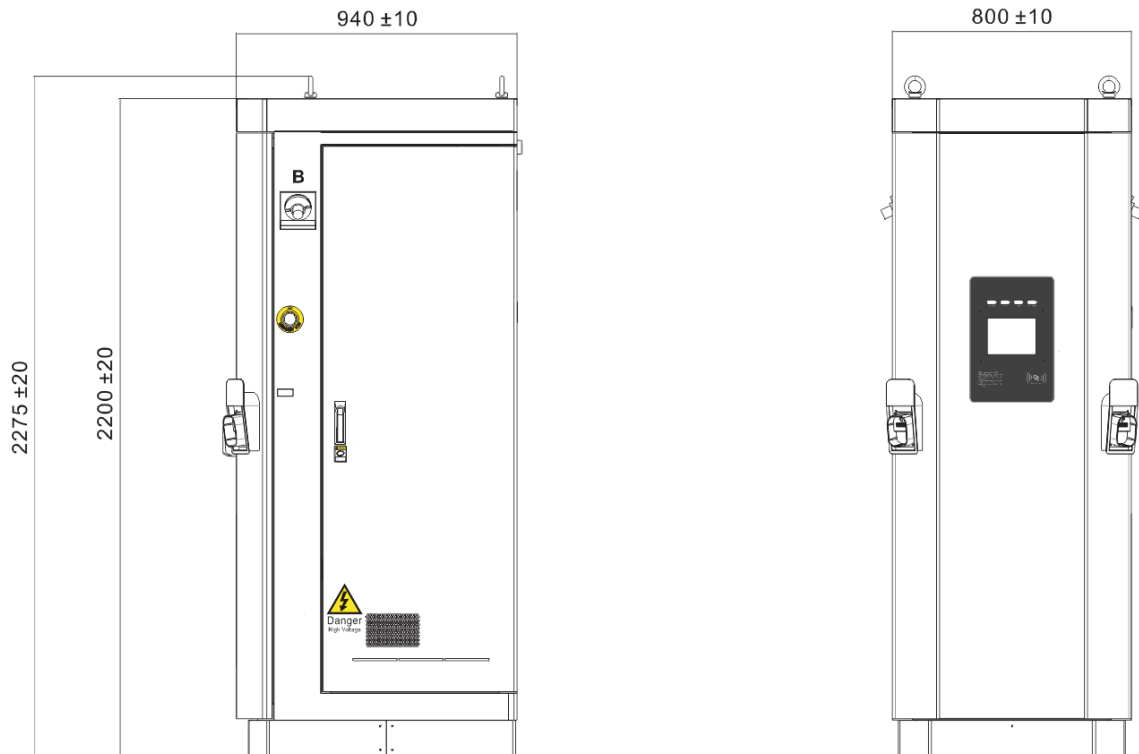
0.75 (AWG#18)	89	80	3500
1.25	200	100	3900
2	290	125	4000
3.5	540	150	4100
5.5	780	200	4400
8	980	250	4600
14	1400	325	4800
22	1800		

If the conductor size used is not included in the table, it can choose appropriate size corresponding tensile strength for test.

The AC incoming line is fed from the bottom of the charger and connected to the AC input terminal and the ground wire terminal inside the charger. AC input must be connected according to inlet notes, the zero line and phase can't be connected reversely, otherwise leading to charger unrecoverable fault. Charger upper breaker and distribution panel is chosen and operated by professional electricians, torque 9N·m is suggested by electrician for installation.

! Notice: First dismantle the terminal baffle when connecting the wire, then tighten the terminal screw with socket wrench, it is forbidden to use screwdriver for operation.

2.1.3 Outline Dimension Drawing



2.2 Power-on Preparation

2.2.1 Requirements for The Operators

The operators should pass the operation training before operating the charger. During the working period, they should wear work clothes and insulating shoes according to the regulations, and operators with long hair should wear safety helmets.

2.2.2 Inspection Matters Before Use

- According to the standards of electrician operation, check the inside of the cabinet to see whether there is electrical damage and loose parts and ensure that the crimping of all connection terminals is tight and there is no damage and burning;
- Open the left cabinet door, turn the circuit breaker to the ON position, close the air switch of the control circuit, and conduct an on-off test to ensure that there is no short circuit in the line. Switch the breaker to OFF, the breaker is off, turn off the air switch of control circuit and connect AC inlet wire;

- After the AC incoming line is powered on, please make sure that the emergency stop button is off, then turn on the breaker and air switch and make a test with a multi-meter to ensure the power-on;
- Before charging, check charging connector, charging socket insulator, pin and pin hole whether there is foreign matter, if yes, clean according to part 3.2 (8) .

2.3 Requirement of Charger Network Matching

- Prepare a SIM card for each charger and install it in the corresponding card slot (as shown below). Then power off and restart. Wait for 30 seconds and observe whether the 4G icon in the lower right corner of the screen is on, if not, please contact with for further instruction.



2-5 Position for SIM Card



2-6 4G Icon

2.4 Charging System Introduction

Charging Mode Introduction

Power on the charger and the screen will show the main interface after self-system check, see figure 2-7 below. It is showing charging connector type, connector status, station code, and QR code.

IP address is available on the left bottom, and icons are on the right bottom

showing the network and connection status.



2-7 Main Interface

2.4.1 Charging Process

(1) To start charging: Click to select the charging connector, and start charging by swiping the card or scanning the QR code, as shown in Figure 2-7;

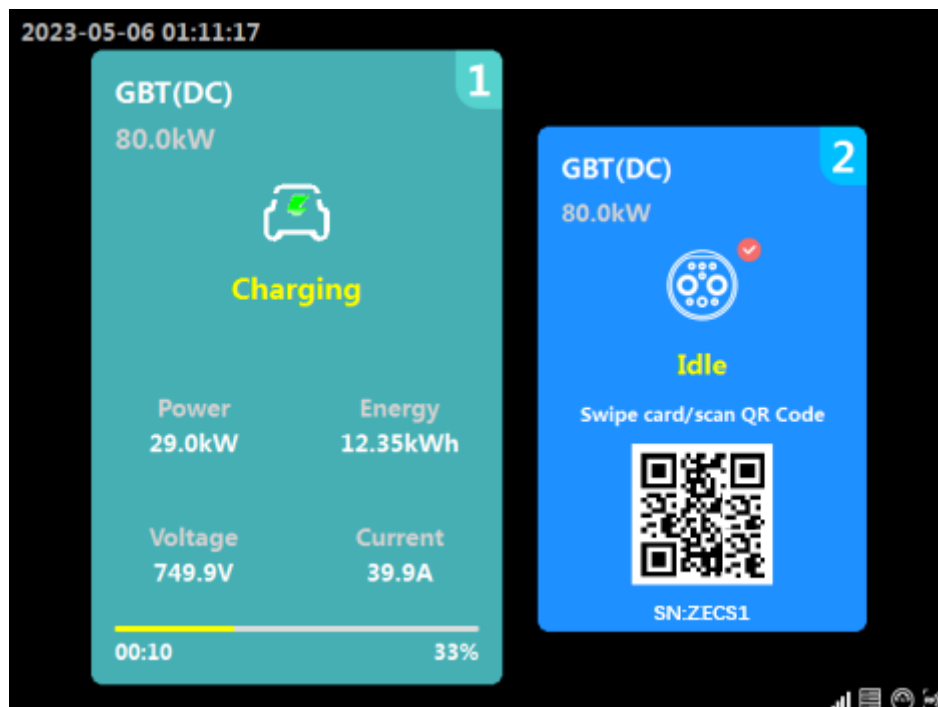


2-8 Select Charging Connector

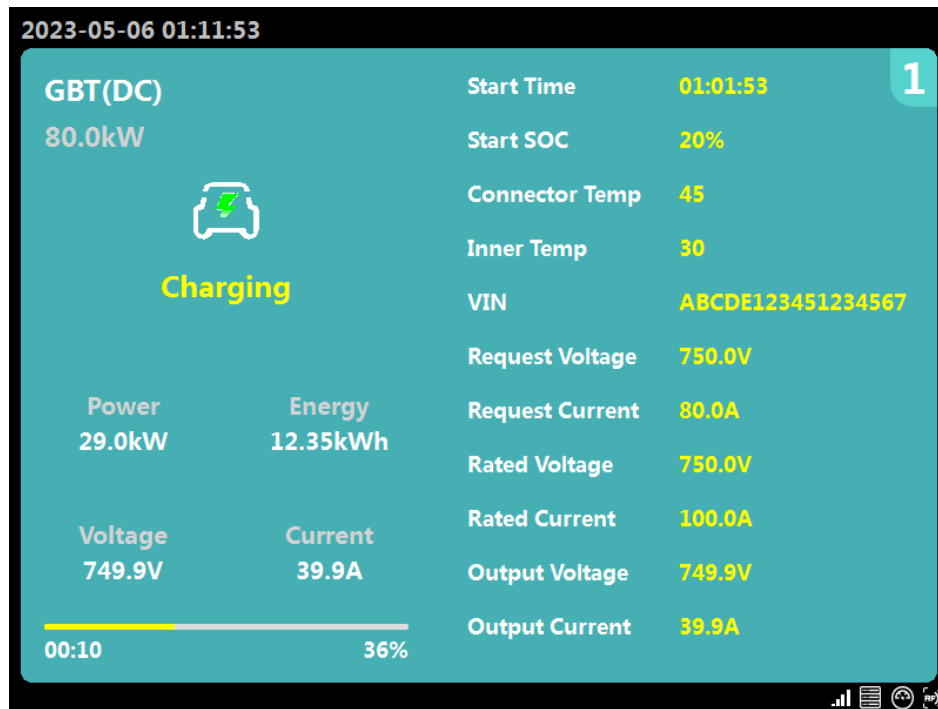


2-9 Start Charging

(2) Charging: Parameters such as power, voltage, current, energy, duration, battery capacity during charging. You can also get further details when you click on charging page again;

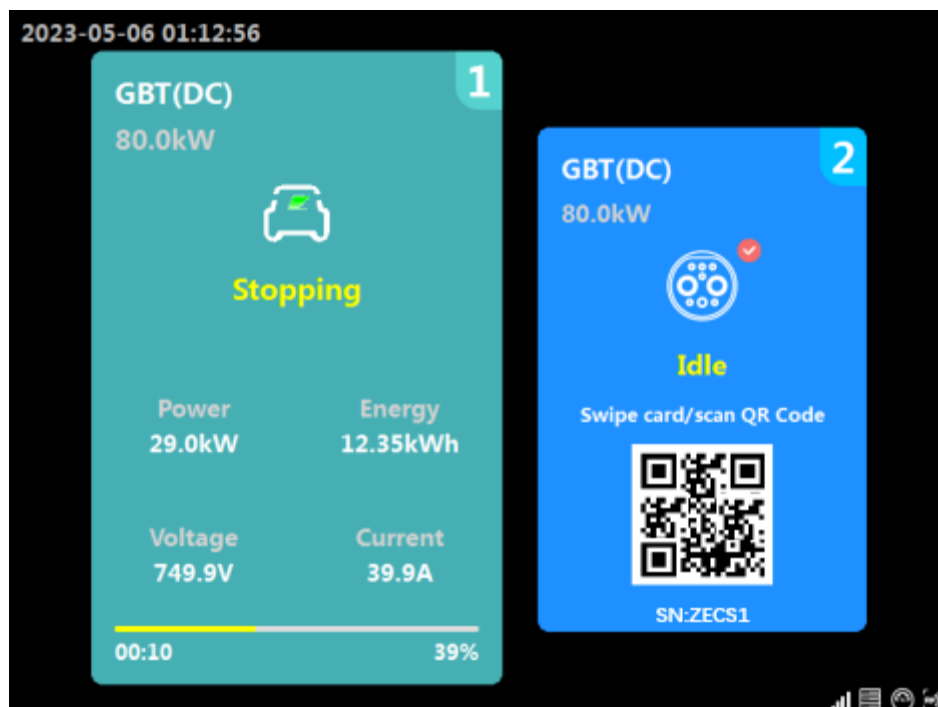


2-10 During Charging

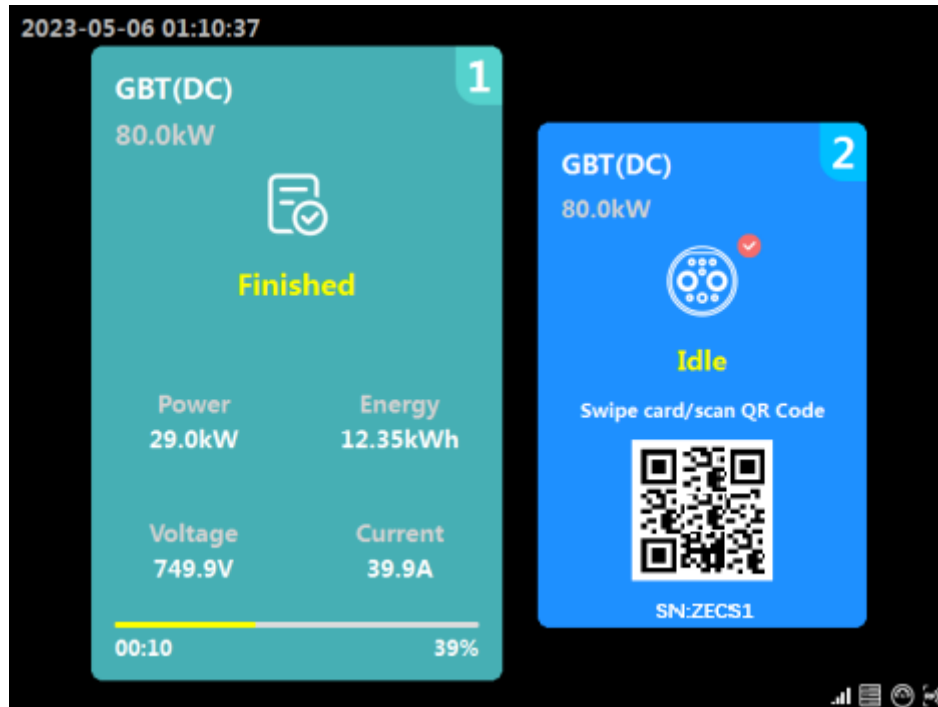


2-11 Charging Details

(3) Stop Charging: Select the connector in use, slide the RFID or control it through the mobile APP to stop the charging; It will show the stop reason and the end of charging session;



2-12 Stop Charging



2-13 Complete Charging

3. Instruction of Equipment Storage And Maintenance

3.1 Storage of The Charger

The packaged equipment should be stored in a place with good ventilation, temperature is between -35°C ~ 55°C , and the monthly average relative humidity is not more than 90%.

The storage place should be free of corrosive and explosive gases, and should not be exposed to rain, exposure, condensation and frost during storage.


Storage Period:

Equipment Name	Class I Environment Limited Storage Period (year)	Class II Environment Limited Storage Period (year)	Class III Environment Limited Storage Period (year)	Remarks
Charging Station	1	0.8	0.5	

Correspondence of Storage Environment Condition:

Classification of	Temperature $^{\circ}\text{C}$	Relative	Remarks
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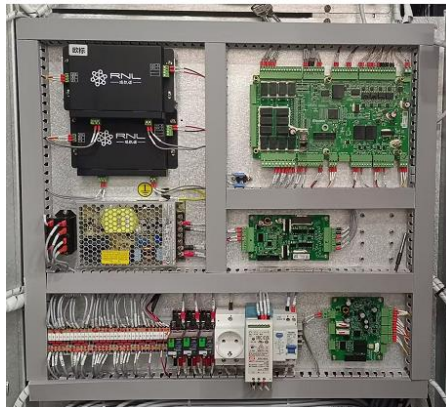
Storage Environment		Humidity %	
I	15~25 °C	Less than 65 %	
II	-5~30 °C	Less than 75 %	
III	-35~55 °C	Less than 90 %	

 Strictly forbidden to store in the same place with corrosive items!

3.2 Maintenance of The Charger

Daily maintenance of the DC Charger can ensure that it is always in a good working condition. Main tasks are:

- (1) Regularly check whether there is dust in the cavity, and clean it regularly to prevent the decline of internal insulation performance;

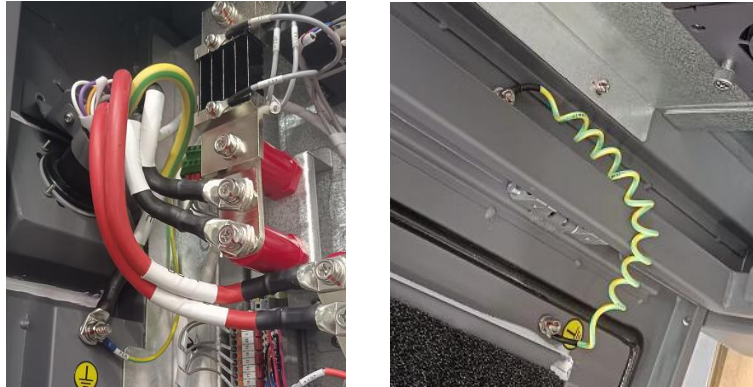


3-1 Open the front door



3-2 Open the side door

- (2) Regularly check whether the ground wire is reliably grounded;



3-3 Check whether the nut of grounding stud is loose

(3) Regularly check whether the cooling fan is working properly. If it is damaged, replace the fan of the same type in time;



3-4 Check the fan is working properly or not

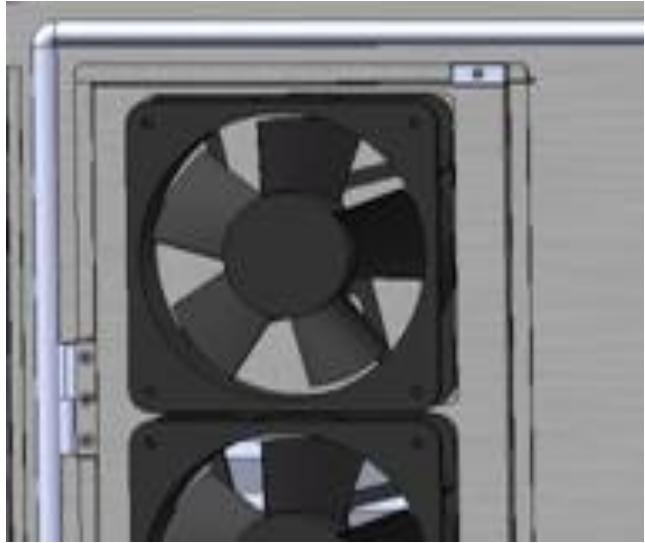
(4) Regularly check the ventilation status of the cabinet of the charger. In order to ensure good ventilation of the cabinet of the charger, it is necessary to clean the dust net of the side door regularly. It is recommended to clean the inside of the charging cabinet once every three months. In case of harsh environment, the user can shorten the cleaning interval according to the specific situation. The steps for dismantling and washing as follow:

- Open the left door , remove the black filter, take out the ventilation shutters and the metal dust filter, then wash them with water;

- Open the right door, remove the butterfly screw fixing the fan components, open the fan components, take out the black filter, clean it with water through the louver fan and the metal dust filter;
- After the metal dust filter and black filter are dry, take out the metal dust filter, ventilation shutter and black filter installed in reverse order, and lock them with screws.

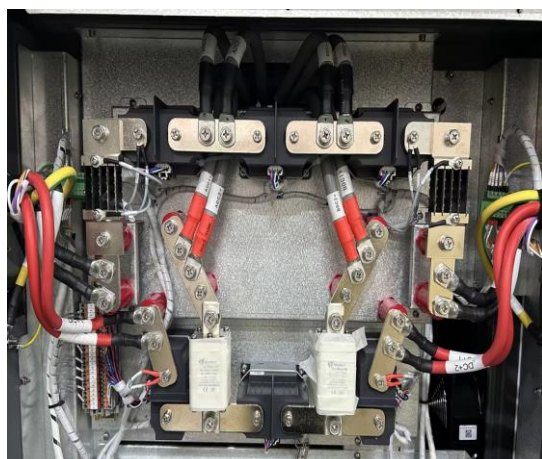


3-5 Detail of ventilation shutters



3-6 Detail of the fan in the right

(5) Regularly check the charging cable and winding tube. If there is aging or wear, it should be replaced in time to ensure safe using. The charging connector is loose then needs to be tightened in time. Maintenance operation is recommended once a month. In case of harsh conditions, the interval can be shorted according to the specific situation;



3-7 Check the aging and wear of the charging cable and winding tube

(6) Daily Maintenance of Surge Protector

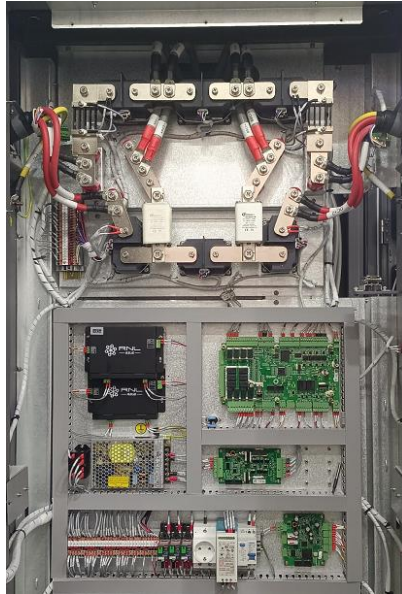
Regularly check whether the incoming and outgoing lines of surge protector are loose, prevent line failure due to surge protector and line aging;



3-8 Check the aging and wear of surge protector and circuit

(7) Daily Maintenance of Dust Accumulation

Regularly check the dust and dust accumulation in the cabinet, and clean the dust of the cabinet and the parts. After disconnecting the power supply, use a vacuum cleaner or air compressor to clean the bottom surface, sides and components of the cabinet;



3-9 Check the dust accumulation of the cabinets regularly

(8) Daily Maintenance of Charging Connector and Cable

When the charging connector is idle, put on the dust cover or insert it to the connector holder on the charger to prevent foreign objects from entering. Use a high-pressure air gun and brush to clean the charging cable and the connector holder every week. If unconditional, you can use a dust-free cloth or cotton swab to clean the charging connector and cable. You should use the above methods to clean the charging cable in time in case of accidents (such as the charging cable being discarded or dropped on the ground).



3-10 Clean the charging connector and cable



Notice: Non-professionals strictly prohibited disassembling equipment components.

4. Warranty

4.1. During the warranty period from the date of purchase, our company will carry out quality maintenance for users due to product quality problems caused by correct use;

4.2. During the installation and use of the charger, failure to operate in accordance with the product instruction manual and specification requirements of charger will result in various quality problems of the product, which are not covered by the warranty. For example:

4.2.1 Install the charger in the natural environment without protection, and use it in extreme weather conditions such as heavy rain, hail, and blizzard, resulting in all product problems;

4.2.2 During the normal operation of the charger, all product problems caused by unplugging the charging connector and cable without stopping charging first;

4.2.3 All product problems caused by disassembling and modifying the charger without communicating with our company and without permission.