HARUI Integrated DC power charger

(60~120KW European standard)

Product instructions for use

(V1.1 - 06.2022)

Zhongshan Harui Trading Company CO.,LTD

(Please read this detail instruction before using this machine)

Catalog

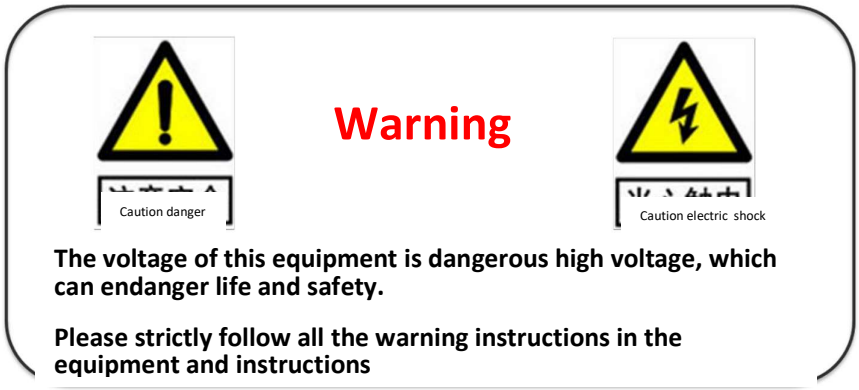
Chapter Ⅰ Overview

1.1 Direction for use

This manual expounds and explains the safety precautions, product features, technical performance, operation steps, installation and debugging, troubleshooting, equipment maintenance and other contents of the charging equipment. Please read this manual carefully after opening the box, and keep it properly for later inspection.

The Company reserves the right to modify the specification, and has the right not to give further notice.

1.2 Safety warning



1.3 Use of regulations

When using and connecting the electric vehicle charging equipment, the relevant regulations on electric vehicle charging should be strictly observed;

Electric vehicle charging equipment has been developed, produced, inspected and filed in accordance with relevant safety standards. If all specified instructions and safety technical instructions are followed, no property damage or safety is normally occur;

The instructions contained in this specification must be strictly followed, otherwise a potential safety hazard or failure of the safety device. Although this specification describes the relevant safety instructions, attention should be paid to comply with the safety regulations and accident prevention regulations in the area where the product is used.

1.4 Applicable to the crowd

This specification is applicable to the following populations:

- Charging equipment training personnel;
- Charging operator;
- Technical service personnel.

Chapter Ⅱ Safety precautions

2.1 Security statement

Failure to comply with the safety precautions of this section may cause life hazards, injuries and equipment damage! ZHONGSHAN HARUI TRADING Co., Ltd. does not bear any resulting claims.

2.2 Safety tips

To ensure the safety of personnel and equipment, the personnel operating the equipment must observe the following principles and regulations:

- Before power on, confirm that the equipment is well grounded;
- Before the equipment is powered, confirm that the input voltage, frequency, circuit breaker or fuse and other conditions of the device meet the specifications;
- All tools shall be insulated as necessary to prevent the exposed metal parts from touching the metal frame and causing a short circuit;
- Ensure the stable operation of the equipment, the equipment shall operate in a clean and well-ventilated environment as far as possible, and the operating environment shall not contain volatile gases or flammable gases.

2.3 Safety requirement

Tips and warnings can be viewed in different locations in this manual to indicate possible hazards:

No.	Safety signs		Meanings
1		Danger	Death or serious injury may occur if appropriate precautions are not taken
2		Warning	If appropriate precautions are not taken, property damage or minor injuries may occur
3		Attention	If appropriate precautions are not taken, property damage may be caused

1. Danger

- Electrical hazard, fire hazard! Never use a damaged, worn, or dirty charging gun;
- Do not bring inflammable, explosive or combustible materials, chemicals, combustible steam and other dangerous items close to the charging equipment;
- Power supply must be cut off during equipment installation and replacement to prevent electric shock;
- Do not use any extension cable to connect the charging equipment to electric vehicles, the charging equipment is only connected to electric vehicles, do not connect other loads (power tools), etc;
- Do not cause mechanical damage to the charging cable (bending, extrusion, or rolling) and make no surface contact with heat, dirt, or water sources;
- All cables of the equipment must be firmly wired, well insulated and properly sized. Loose, damaged, or undersized cables will Cause circuit failure, serious may cause equipment damage to the recovery, and even cause casualties or fire;
- Falling equipment, even if the appearance is not damaged, also can not be directly installed, because part of the internal damage may cause system disorder or circuit short circuit and other faults, must be tested by professional personnel, to determine the non-damage before deciding whether it can be installed;
- Never allow to flush the equipment with water, the equipment into the water will cause a short circuit.

2. Warning

- Any failure that may affect its safety performance must be immediately eliminated by a professional before it can restart;
- When unplugging the charging gun, please hold the charging gun handle tightly, and do not pull the cable;
- Do not let the weight press the cable or artificially pedal the charging cable;
- Keep the charging gun clean and dry. If it is dirty, please wipe it with a clean dry cloth. Do not touch the charging gun core directly by hand;
- The products are installed by the company's professional and technical personnel (or authorized professional institutions), and the unauthorized installation or modification may lead to safety accidents or equipment damage. The company

shall not be liable for any loss caused thereby.

3. Attentions

- If there is any abnormal situation during use, please immediately press the emergency stop button to cut off all input and output power supply;
- In case of rain and thunder weather, please use it carefully;
- The normal operation of the equipment depends on the reasonable setting of some parameters, which are generally set after on-site installation and debugging. If not necessary, it is not recommended for users to reset the parameters by themselves;
- The vehicle can be charged after stalling, and the vehicle is allowed to start after the charging. During the charging process, the electric vehicle is prohibited;
- Check whether the charging gun and charging cable are damaged regularly, and check whether the equipment shell is damaged;
- When using a charging device to charge an electric vehicle, please read the relevant instructions and instructions for the vehicle carefully;
- The warning and operation identification of the equipment body and cabinet play an important role in the safe operation of the equipment. It is strictly prohibited to tear or damage it. If it is damaged or fuzzy, please replace it in time.

Chapter Ⅲ Product Introduction


3.1 Product overview

Integrated DC charger adopted the latest generation of digital rectifier power module and functional intelligent control system, products will charger, charging interface, human-computer interface (touch screen), communication, billing and other parts set as a whole, the integrated design, compared with the traditional analog power module of high-power charger, its performance is more stable and reliable, more efficient.

Integrated DC charger is suitable for small electric passenger cars or electric bus outdoor fast DC charging, product protection grade IP54, suitable for outdoor installation. With the characteristics of convenient installation and debugging, simple operation and maintenance, it is an ideal choice for outdoor DC fast charging of electric vehicles.

3.2 Appearance introduction

3.3 Technical parameter

No.	parameter name	Detailed parameters	
1	AC input voltage	AC380V±15%	
2	AC input frequency	47~63Hz	
3	DC output voltage range	DC200~1000V	
4	Power rating	60KW	120KW
5	Rated output current	60A	120A
6	Rated output voltage	DC1000V	
7	Stable pressure accuracy	≤±0.5%	
8	Stable flow accuracy	≤±1.0%	
9	Peak ripple factor(effective value)	≤±0.5%	
10	Power factor	≥0.99	
11	Productiveness	≥94%	
12	The AC harmonic current THD value	≤5%	
13	The unbalance of the current sharing of the module parallel machine	≤±5%	
14	Cabinet size includes top cover	950mm(W)×799mm(D)×1854mm(H)	
15	Cooling-down method	Intelligent air cooling	
16	Communication interface	Support 4G full netcom, Ethernet	
17	USB	IEC62196.3-2015	
18	Levels of protection	IP54	
19	Noise	≤65dB	

Note: The intelligent digital module selected for the 60-120KW equipment is the constant power output module

3.4 Working conditions

- The elevation does not exceed 2000m;
- Operating ambient temperature of the equipment-20℃ ~ + 50℃;
- The maximum relative humidity of the ambient air does not exceed 95% (when the ambient air temperature is 25 ± 5℃);
- The installation foundation should be stable, with no violent vibration or shock, and the vertical inclination shall not exceed 5;
- No conductive or explosive dust, no gas or vapours that corrode metal or destroy insulation;
- For outdoor operation, a ceiling should be installed above the equipment to prevent rain.

3.5 Product features

(1) The power module adopts AC-DC isolation to safely isolate from the power grid and provide better isolation protection for the power grid and equipment;

(2) The rectifier unit is composed of multiple digital charging power modules running in parallel, which are flexible and can meet various charging power requirements;

(3) The charging cabinet adopts rain-proof and dust proof design, and the protection level is IP54 to meet the requirements of outdoor operation;

(4) The human-machine interaction interface of charging pile adopts 7-inch color touch screen, which can choose four charging methods: "automatic charge", "charge by quantity", "charge by amount" and "charge by time". The operation is simple and convenient;

(5) The charging system does not need to be equipped with APFC (module itself), with current harmonic content of 5% and power factor of 0.99;

(6) information and the device status information to the background monitoring system through the Ethernet interface or the 4G wireless communication module, and obtain and execute the control command of the background monitoring system;

(7) The charging interface uses the 9-pin interface in accordance with the national standard "IEC62196.3-2015", and has the locking function of connecting the device, which is used to prevent accidental disconnection and misoperation during connection;

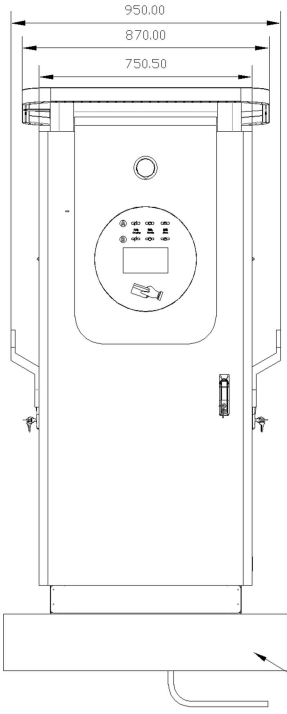
(8) With the function of recording field data with power failure, it can prevent accidental power failure and loss of charging data;

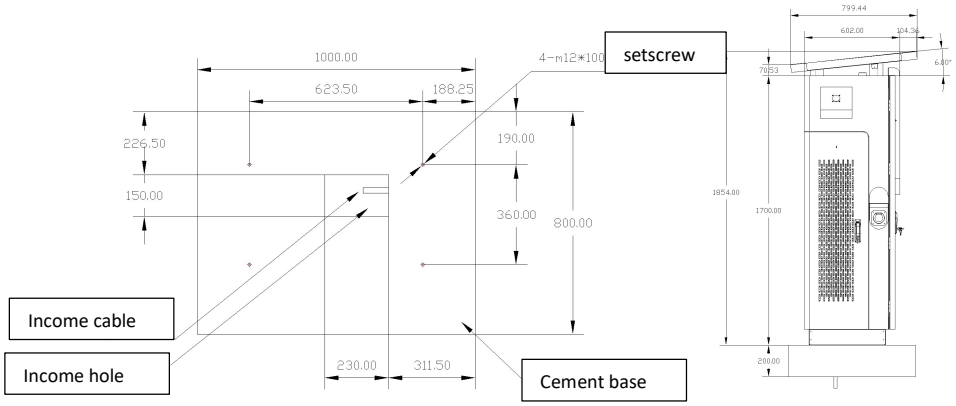
(9) The system has perfect protection functions, such as AC input, under voltage protection, output over voltage protection, output current limit, over current protection, over temperature protection, battery reverse protection, surge protection, output short circuit protection, soft start protection, charging interface misplug protection, emergency stop protection, etc;

(10) The charging cabinet has the function of heating and dehumidification, adapting to the harsh humid environment;

3.6 Product drawing

(1) Installation dimensions of 60KW DC pile





60~120KW Schematic diagram of the cabinet foundation installation

Chapter IV Installation and Commissioning

4.1 Install

The protection level of TEEV series integrated DC charger is IP54, suitable for outdoor installation; a ceiling should be installed above the equipment to prevent rain; the operating environment has no conductive or explosive dust, no gas or vapor that corrode metal or destroy insulation.

4.1.1 Foundation

The charger should be installed on the cement foundation with flame retardant material or the structure with trough steel support. When building the cement foundation, the cable trench should be preset according to the overall design of the charger and the entry mode of the cable at the bottom of the charger. The anchor bolt should be embedded on the cement foundation. The opening size of the anchor bolt is exactly consistent with the positioning hole size of the charger base, so as to fix and lock the equipment on the base. The foundation shall be smooth, solid, safe and reliable, the depression and inclination on the foundation surface shall be prohibited, and the vertical inclination of the equipment shall not exceed 5 after installation.

4.1.2 Wiring

The power supply cables of the standard charger are entered from the bottom of the equipment, the bottom has been reserved for the cable, the cabinet and grounding copper row must be grounded reliably, and all electrical installation must meet the national and local electrical installation standards. Please strictly follow the wiring signs inside the equipment.

The input terminal on the equipment shall be wired correctly as indicated label A / B / C / N / PE.

4.1.3 Module

Charging pile module installation: install the module according to the charging pile module compartment (module serial number and label).

4.2 Shakedown test

(1) After installation, check before startup, such as whether the system input and output circuit is short circuit or grounding hazard;

(2) Make that the AC input voltage is normal and the line is correctly connected without

loosening;

(3) After power on, the module power indicator is on, the monitoring buzzer is on and the power light is on, and the display screen is on;

(4) Set the monitoring system parameters and the alarm parameters according to the user requirements;

(5) Start the no-load charger to observe the output state and calibrate the output voltage;

(6) The load starts the charger to observe the output state and calibrate the output current;

(7) Follow the operation prompts and check whether the equipment is running normally;

(8) After the above steps are completed, confirm that everything is normal, then the device can be used for electric vehicle charging;

(9) Record debugging data.

Chapter V Instructions for Use

5.1 Boot check

(1) All connections shall comply with the installation guidelines and circuit diagrams;

(2) Internal protection of the equipment is firmly installed;

(3) Emergency Stop button is Not On (button is up);

(4) Check the system input and output loop for short circuit or potential grounding hazard;

(5) Ensure that the AC input voltage is normal and the line is correctly connected without loosening;

(6) For the charger that has been shut down for a long time, professional personnel should conduct a comprehensive inspection of the equipment before starting the machine before confirming that the equipment is normal.

5.2 Boot operation

Check and confirm that the equipment is normal. Press the AC power input side circuit breaker to the "ON" position. When the charger starts, it will detect itself and the LCD touch screen will enter the start interface.

- The AC circuit breaker is located in the cabinet, which controls the disconnect of the charger and the power grid. It is the main circuit breaker of the charger. When the AC circuit breaker is in the "ON" position, the charger can start the operation;
- When the charger is normal service operation, ensure that the door of the charging cabinet is locked and the key of the door has been pulled out and sent to the special person for proper safekeeping.

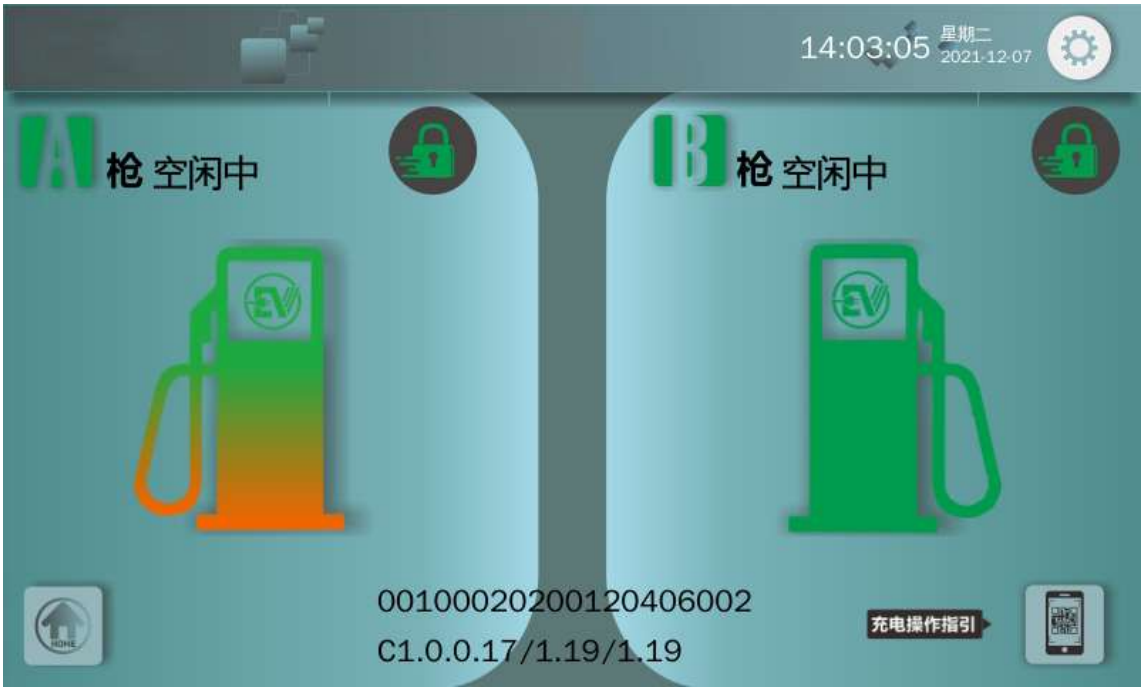
5.3 Charging operation

Step 1: Charging and access

Plug the (A or B) charging gun into the EV charging interface and ensure that the charging gun is in good contact with the charging interface.


Step 2: Charging interface selection **(Note:The following display screen is in Chinese, details can consult the salesman and the subsequent screen system can be changed according to your company's needs)**

After the charging gun is inserted into the vehicle charging port, it is well plugged in and enters the insertion gun interface as follows:



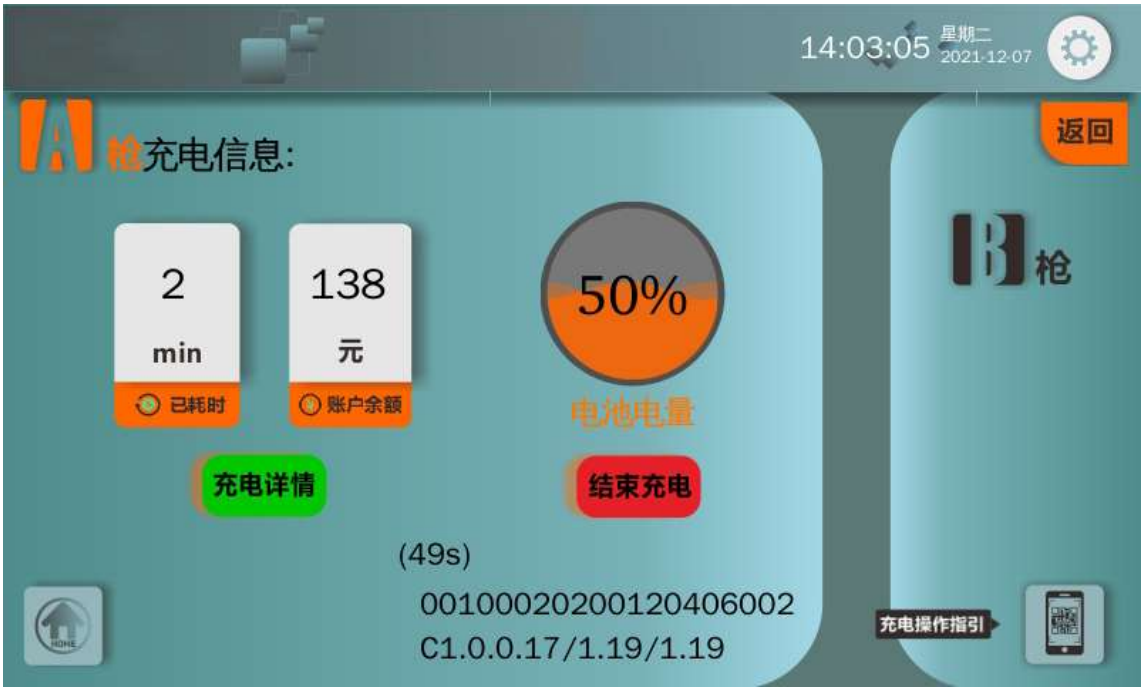
Step 3: Select the login method

Select the login and charging mode interface, as shown below:


14:03:05 星期二 2021-12-07
返回
A枪选择登录方式:
扫码充电
刷卡充电
VIN码充电
B枪
(58s)
00100020200120406002
C1.0.0.17/1.19/1.19
充电操作指引
14:03:05 星期二 2021-12-07
返回
A枪请使用微信小程序"虎妞充电"扫码充电
B枪
(9s)
00100020200120406002
C1.0.0.17/1.19/1.19
充电操作指引

Step 4: Start the charging

After successful charging, enter the charging interface as follows:



Step 5: Charging details interface

Click the charging details icon in the charging interface to enter the charging details interface, as shown below:

Step 6: End the charging interface

Click the end charging icon in the charging or charging details interface, the interface is as follows:

Step 7: End of the charging

After correctly entering the charging input password, the interface is as

follows:


14:03:05
星期二
2021-12-07
返回
A
枪充电已结束！
SOC(%)：
50
已充电量(Kwh)：
1.870
单体最高电压(V)：
3.80
电池最高温度(℃)：
25
电池动态
服务费(元)：
0.51
电费(元)：
2.23
占桩费(元)：
0.00
总费用(元)：
2.74
产生费用
充电时间(分)：
7
充电时长
(25s)
B
枪
00100020200120406002
C1.0.0.17/1.19/1.19
充电操作指引

Description: The above interface and operation steps take the charger in the online working mode as an example. Interfaces and operation steps may be different in different operating modes, or when connected to different operating platforms.

- During the charging process, it is forbidden to forcibly pull out the charging connector! Forced to pull out the charging joint, may cause a fire at the joint, causing a serious safety accident!
- If a safety accident occurs during the charging process, such as abnormal sound, line short circuit, etc., please press the "Emergency stop" button on the panel, disconnect all power supply, and immediately contact the site management personnel.

5.4 Shutdown operation

In the following two situations, the charger needs to be shut down, and there is no need to shut down during daily standby.

(1) During normal maintenance and maintenance, it should be shut down, and send the circuit breaker on the AC power input side to the "OFF" position;

(2) In case of fault or crisis, it should be turned down. In case of fault or emergency, press the "Emergency stop" button on the panel.

- Turn off the charger by using the "emergency stop" button only in critical moments! Improper use of the "emergency stop" button will lead to damage to the charger. In the case of load, pressing the emergency stop button will make the related parts of the charger bear greater stress. If used frequently, it will lead to device damage;
- When the "Emergency Stop" button is pressed, the connection between the charger and the power grid is immediately disconnected, and the button itself will also be in a locked state. In order to restart the charger, the "emergency stop" switch must be rotated clockwise to release the locking state. Push the AC circuit breaker to OFF and then to ON to reconnect the grid.

5.5 Parameter setting

The normal operation of the charger is related to the parameter setting of the charger, which are set by the touch screen. Usually, when the charger is installed and adjusted on site, the technical service personnel have set the parameters, and the user does not need to set them again.

Chapter VI Fault Handling and Maintenance

6.1 Fault treatment

No.	Fault phenomenon	Fault analysis and troubleshooting methods
1	DC output over / under voltage alarm (Surveillance beep alarm)	Check whether the total DC output voltage is normal
		Check the alarm parameter setting and charging voltage calibration for normal operation
		Check for any module failure
2	AC input over / under voltage alarm (Surveillance beep alarm)	Check whether the system AC input power supply is normal
		Check whether the alarm parameter setting is normal
		Check for any module failure
3	Module shutdown	Check whether the BMS or charging station monitoring and management system is related to the machine commands
		Check that the working mode is normal
		Turn off the total power supply for 3~5 minutes and then turn it on, to see if the module is back to normal
4	Charging equipment and charging stations Monitoring and management system communication is abnormal	Check whether the communication line is damaged, and replace the communication line after power failure
		Check whether the communication interface is poorly touched, and unplug the communication connector again
		Check whether the communication module is congested, and restart the charging device
5	The charging device temperature is too high	Check the system for overload operation
		If the charging stops and cannot be resumed, stop the charging immediately and contact the technical service personnel
6	Unable to swipe the card or swipe the card slow reaction	Re-swipe the card again
		Please restart the system
		Check whether the mainboard serial port is reliably connected
7	The charge amount cannot be displayed correctly	Restart the charging device
		Check whether the electricity meter interface is reliable connection
8	The printer cannot print the data properly	Check the current operating status of the printer through the charging station monitoring and management system, and do the response processing

		If the printer status is normal, check the printer interface for reliable connection
9	The power supply indicator light is turned off	The superior power supply is not normally, and the charging equipment does not enter the live state
		The AC power input side circuit breaker does not hit the "ON" position
After the above processing, the fault phenomenon still exists, please contact with our company's technical service personnel!		

6.2 Equipment repair

If with the help of this specification, the above problems are still solved, please contact our company for negotiation. Repair by the company or an authorized professional service organization, in this case, users need to provide the following information to contact and quickly respond to user needs:

(1) Charger model;

(2) Factory number of the charger;

(3) Fault information and simple description;

(4) Photo of fault site (if site conditions permit);

(5) building user;

(6) Contact information (including contact person, telephone number, fax, address).

(Note: Model and factory number of the charger can be found on the nameplate below the side of the charger body)

6.3 Facilities maintenance

The equipment operates under normal working environment without special maintenance during life. However, because the equipment is placed outdoors, it is generally necessary to clean the internal dust of the equipment for 2~3 months to prevent the dust attachment, causing poor heat dissipation and ventilation of the equipment, thus causing the equipment failure. The actual maintenance cycle should be reasonably determined in combination with the specific installation environment of the product.

- Charging machine shut down and power off before cleaning and maintenance;
- If the operating environment is large wind or sand or dust is thick, it must shorten the maintenance cycle and improve the maintenance frequency;
- The cabinet shall be cleaned with a soft cloth or a vacuum cleaner;
- The warning and operation marks on the equipment must be replaced in time when they become blurred and cannot be identified.

Chapter Ⅶ Packing, Transportation, and Storage

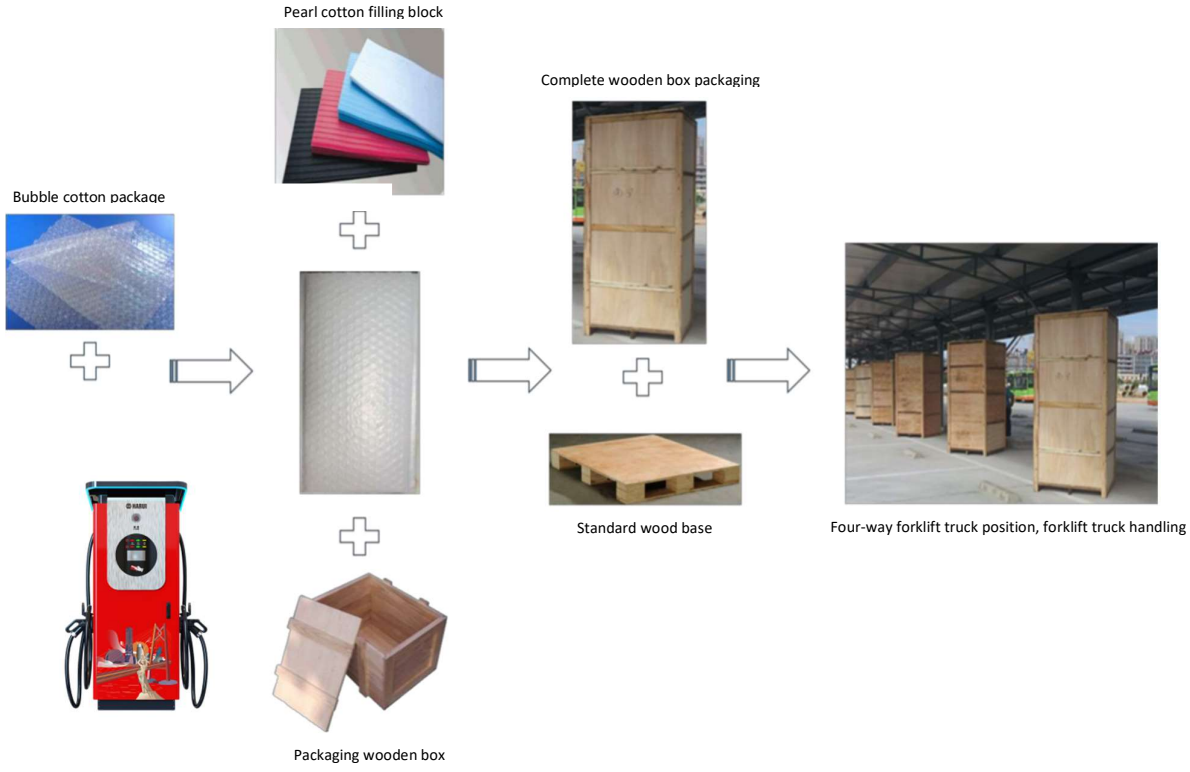
7.1 Packing

The charging equipment adopts modular design, and the power module supports quick disassembly and installation (using fixed card position). There is no need to guarantee the integrity of the DC charger during transportation. We will choose the overall packaging of the equipment or the charging cabinet and the power module separately according to the equipment specifications. During transportation, ensure that the internal components of the equipment do not shift, damage and damp, and do not affect the installation and performance of the equipment.

1.Charging cabinet packaging

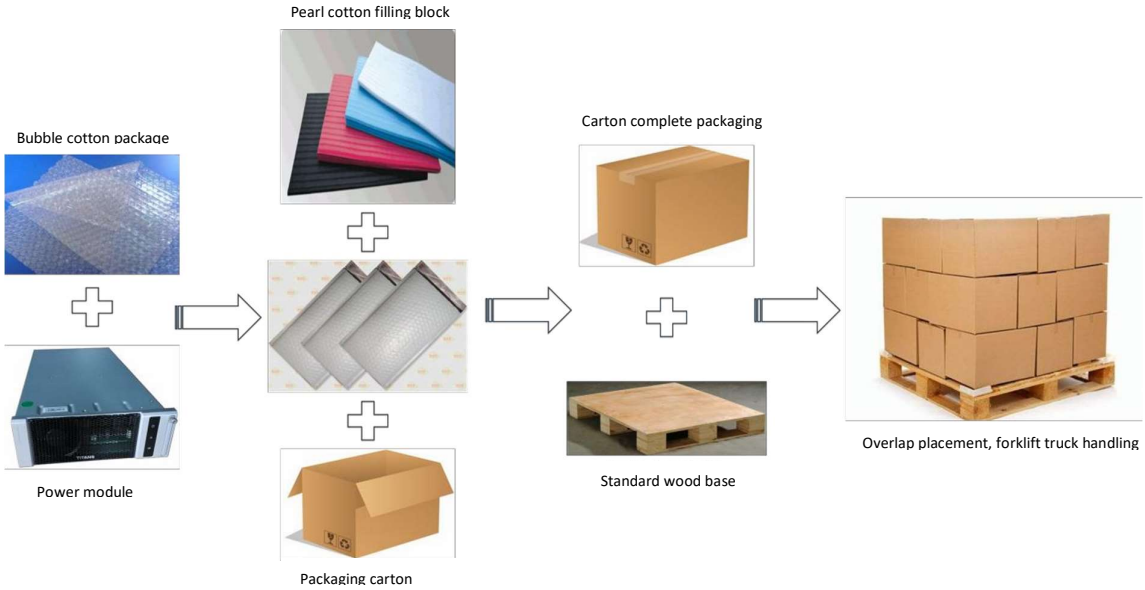
The packing box is wooden packing box, with light weight, high strength, good durability, scratch-proof, moisture-proof and many other characteristics; each wooden box is equipped with wooden tray, all around the forklift position, forklift handling, more convenient.

The charging cabinet is wrapped with air foam and filled with pearl cotton between the cabinet and the box.



2. Power module packaging

The power module is packed in cartons, which has many characteristics of good environmental protection, high strength, good buffering, light weight and so on. The power module is wrapped with bubble cotton, and pearl cotton is filled between the power module and the carton.



7.2 Transport

Products should not be violently shaken, impacted or inverted during transportation.

7.3 Storing

If the product is not used immediately after purchase, it should be short or long-term storage, avoid high temperature, dust and poly metallic powder environment, ensure that the surrounding air does not contain acidic, alkaline, other corrosive and corrosive gases or explosive gases, and be stored in dry and well-ventilated indoor places.

Chapter Ⅷ After-sales warranty

8.1 Warranty conditions

(1) Due to transportation reasons, the user found that the product or accessories are damaged when unpacking the inspection;

(2) The user shall fully comply with the installation, storage and use rules specified in this specification.

8.2 Term of service

The warranty period is subject to the sales contract signed.

8.3 Warranty method

(1) Within the warranty period, the manufacturer is responsible for the replacement or repair free of charge;

(2) If the warranty period exceeds, the user should negotiate with the manufacturer to pay for replacement or repair;

(3) If user need repairman, which need to cover all expenses such as air freight ticket, accommodation and insurance etc.

8.4 Liability exemption

The following circumstances are not covered by the company warranty:

- The whole machine and parts have exceeded the warranty period;
- "Product damaged during transportation" caused by user reasons;
- The equipment operates in very harsh conditions beyond those stated in this manual;
- Machine failure or damage caused by installation, repair, changing or disassembly by non-company service personnel;
- Any scope beyond the scope of installation and use specified in the relevant national standards;
- Man-made damage caused.

If the above situation causes product failure and the customer requests maintenance, the company will evaluate and determine whether we can assist in providing paid services.

The content of this manual is subject to change without notice, the final interpretation right belongs to Zhongshan Harui Trading Company CO.,LTD.

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