# Product Specification

## for DC Charging Station V1.0

| Vertion | Date | Edit Department | Note |
|---|---|---|---|
| V1.0 | 23-8-25 | Technology Dept. | Edit the first version of the technical specification |

# Contents

## 一、产品技术特点/Product Technical Feature

Dc charging station is mainly used for fast charging of electric vehicles. It is designed with self-developed control board, integrating the charging module, charging connector, human-machine interaction interface, communication, and other parts. The modular design of the charging station make it easy to install and simple to operate and maintain. It is an ideal choice for electric vehicles to charge in the public area.

## 二、产品外观/Product Appearance


## 三、主要功能说明/ Main Function Description

- Without open door on back side, charging station can install with back to wall. Cover small area, easy to maintain.
- Internal charging module is designed with independent air space, isolated from the controlling part, to ensure the operating environment of controlling part clean and high stability.

- The system uses multi-module paralleled output mode, featured with flexible configuration and easy maintenance. Single module failure does not affect the system, greatly improving system reliability and stability.
- The charging module power can be intelligently allocated, high charging efficiency.
- With wide voltage output rang from 200V to 1000V, it is adjustable to meet the charging needs of different voltage levels of electric vehicles.
- All-round protections include input, output, components self-test and operation connection protection, input over/under voltage protection, DC output over voltage/short circuit protection, module overheating/fault protection, insulation protection, charging station and battery connection inspection and other multiple protection functions, to ensure system operate safely and reliably and effectively prevent accidents.
- Human-machine interface adopts 7-inch color touchscreen with humanized design, easy and convenient to operate.
- The charging station is designed to prevent rain and dust. IP54 protection grade meets the outdoor operation requirements.
- The function of charging plug falling off detection ensures the safety use during charging process.

## 四、系统工作原理/ System Working Principle

1、System Structure

The DC charging station consists of 4 main parts. The first is human-machine interaction part. It includes the charging station body, touchscreen, RFID card reading module, charging plug. Secondly is the controlling part, which mainly refers the main monitoring and auxiliary module. The third part is the metering unit-electricity meter. The last part is safety protection unit, which is composed of

lead-in line protection switch, emergency stop switch, over and under voltage protection unit, etc.

2. Working Principle

When connecting the charging plug to the charging station, the controlling board will confirm the connection to wake up the charging module, which convert AC voltage into DC voltage for charging. Through the human-machine interface such as card reading module or touchscreen, the user give the charge/ disconnect/ query instructions. Then the charging station will receive the instruction signals, communicate with the controlling board, and execute the instruction issued by the user. The main monitoring is not only responsible for many detections, like the detection of the charging port, the detection and control of the safety protection unit, the monitoring of the communication with the energy meter, to ensure the billing and user safety during charging process. It is also responsible for processing charging status, billing, alarm information, and then timely save the information and alarm fault in the controlling module.

## 五、产品技术规格及参数/ Product Specification &Parameter

| Model | CXE-D23 | CXE-D34 | CXE-D44 | CXE-D36 | CXE-D46 |
|---|---|---|---|---|---|
| Output Power | 60kW | 120kW | 160kW | 180kW | 240kW |
| Current Range | 0 ～ 260A | 0～500A | 0～500 | 0～500 | 0～500 |
| Input Voltage | AC380V±15% | | | | |
| Input Frequency | 50Hz±1Hz | | | | |
| Output Voltage | 200-1000VDC | | | | |
| Constant Power | 300-1000VDC | | | | |

| | |
|---|---|
| Range | |
| Charging Gun | Dual Guns with 5m charging cable (length customized available) |
| Communication Plug | 4G/LAN |
| Stable Voltage Accuracy | ≤0.5% |
| Stable Current Accuracy | ≤1% |
| Human Machine Interface | 7-inch color touchscreen |
| Efficiency | ≥97% |
| Power Factor | ≥0.99 |
| Current Sharing Coefficient | ≤5% |
| Harmonic Current | ≤5% |
| Noise | ≤65db |
| Metering Accuracy | 1 级 |
| IP Grade | IP54 |
| Standby Power | ≤N*50W |
| Cooling | Fan cooling |
| Electrostatic discharge immunity | Class 4 |
| Surge immunity | Class 4 |
| Working Temperature | -20℃～50℃ |
| Working Humidity | 5%～95% no condensation |
| Altitude | ≤2000M |

| | |
|---|---|
| Product Dimension W×D×H | 670MM*560MM*1760MM |

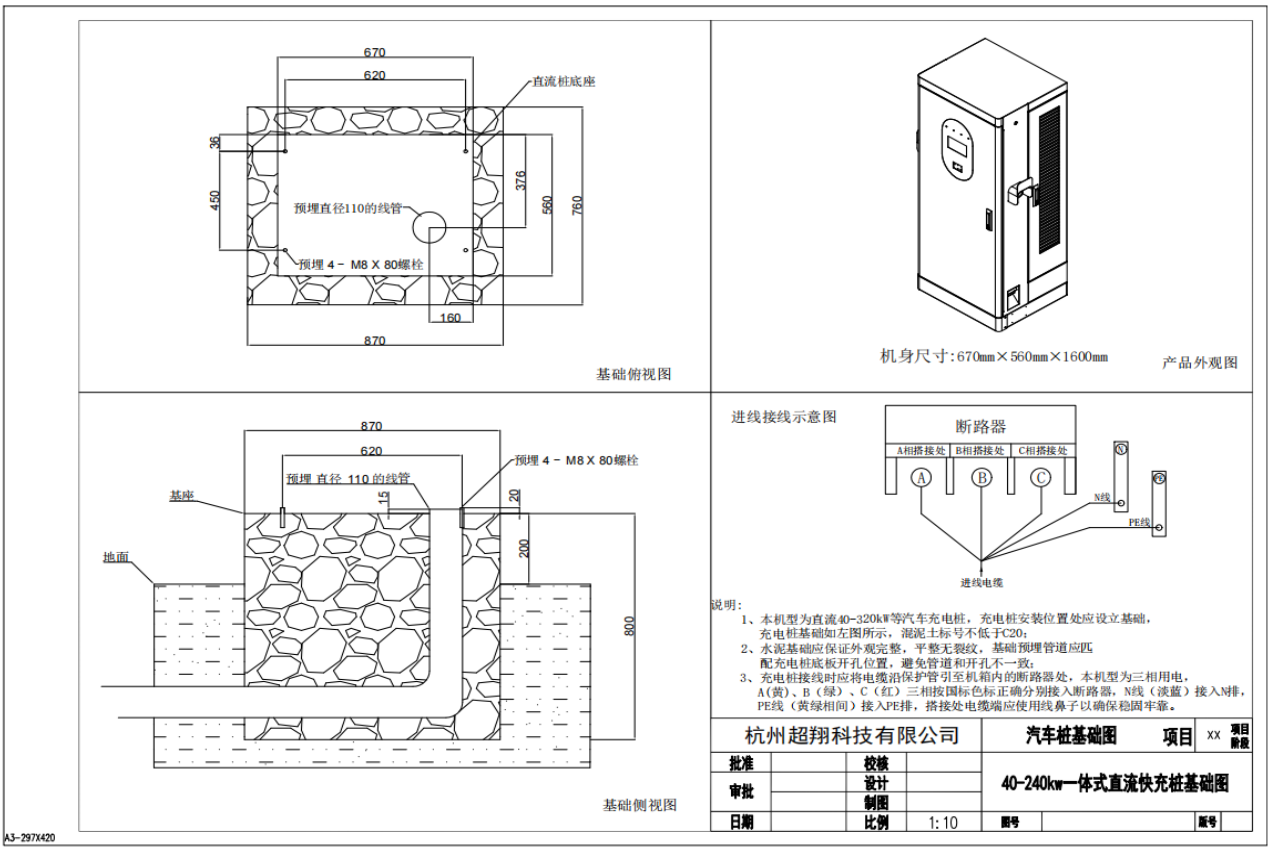
## 六、 依据标准/ According To Standards

- IEC/EN 61851-1, IEC/EN 61851-23； NB/T 33001, NB/T 33008.1；
- UL 2202, UL 2231-1/-2；
- IEC/EN 61851-21-2；
- DIN 70121, DIN 70122；ISO 15118-1/-2/-3/-4/-5；
- ISO 15118-20； GB/T 27930, GB/T 34658, GB/T 34657.1 ；
- CHAdeMO 2.0/3.0

## 七、安装说明/ Installation Instruction

Charging station foundation size construction (attention to keep one hole in the middle of the cement foundation for cables)

Generally, the integrated DC charging station is installed on the concrete ground. Please refer to the following figure:




Before power on, pls check and make sure that there is no short circuit in the input circuit.

## 八、 安全策略/ Security Policy

**1. Overvoltage and undervoltage protection on the AC input side**

When the AC input overvoltage or undervoltage occurs, the charging station will automatically cut off the DC output and send alarming.

**2. Overvoltage protection on the DC output side**

When the DC output overvoltage occurs, the charging station will automatically cut off the DC output and send alarming signal.

**3. Overcurrent protection on the DC output side**

When overcurrent occurs on the DC output side, the charging station will automatically cut off the DC output and send alarming signal.

**4. Short-circuit protection on the DC output side**

When the DC output occurs short-circuit, the charging station will automatically enter the current limiting output state.

**5. Lightening surge protection**

The charging station is equipped with a C-class lightning protection device, which has the function of lightning surge protection. It can effectively prevent direct lightning, inductive lightning or overvoltage from damage to the charging equipment.

**6. Battery current backflow protection**

The charging station has the function of preventing battery current backflow from causing harm to charging equipment and personal safety.

**7. Over-temperature protection**

When the AC-DC conversion power unit overheats, the charging station will automatically cut off the DC output and send alarming signal.

**8. Power battery abnormal detection**

When establishing the connection between the charging station and BMS, the DC output circuit of the charging station is not allowed to connect to the battery until the power battery polarity is correctly detected. During the charging process, when the temperature and voltage of the power battery exceed the limit value, the charging station will automatically stop charging.

**9. Power battery connecting confirmation**

The charging process will start only when the charging station is correctly connected to the EV's battery system. If abnormal connection detected, it will automatically cut off the DC output immediately.

**10. Temperature monitoring and alarm**

The built-in temperature monitoring device in the charging gun monitors the temperature rise of the main power conduction pin in real time. If exceeds the setting value, the system will alarm and cut off the DC output to prevent the charging equipment and vehicle damage and personal injury.

**11. Emergency stop**

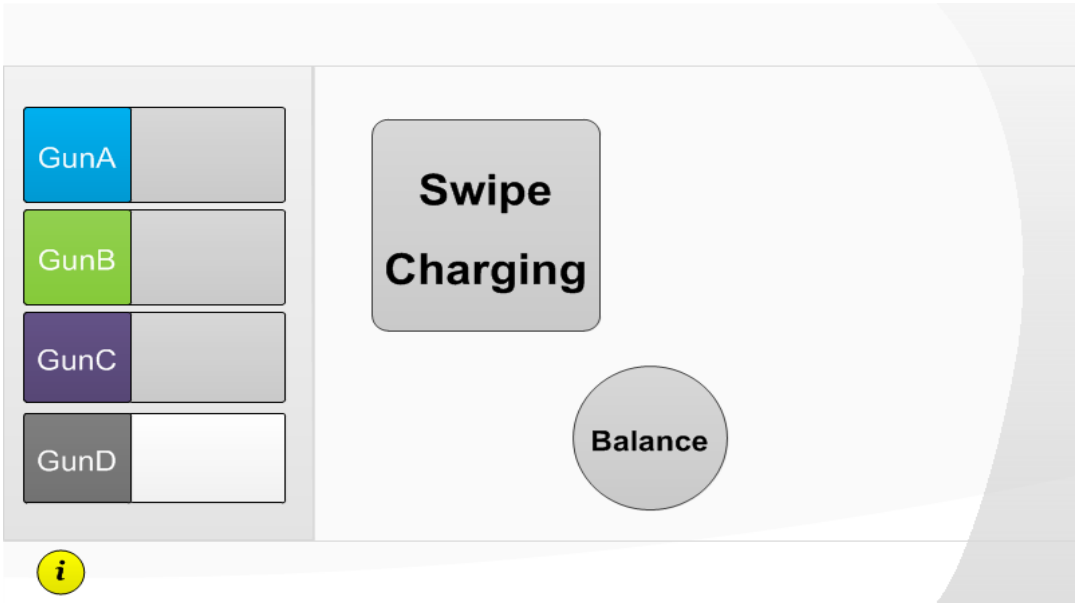
Equipped with the emergency stop on the DC charging station, the personnel can cut off the charging circuit within 100S on the hardware under the emergency cases. It helps to prevent many vicious events such as electric shock, fire, or explosion, etc.

## 九、刷卡启动充电/Swipe Card To Start Charging

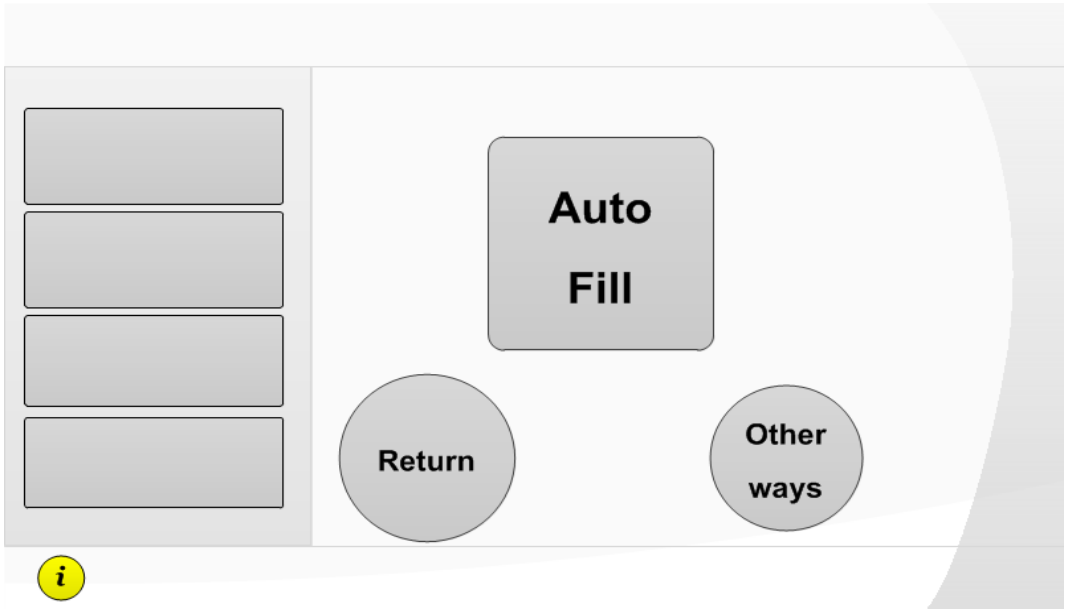
By swiping online or offline card, DC charging station can realize the functions of start, stop charging, refund and so on.

Main charging steps are as follows:

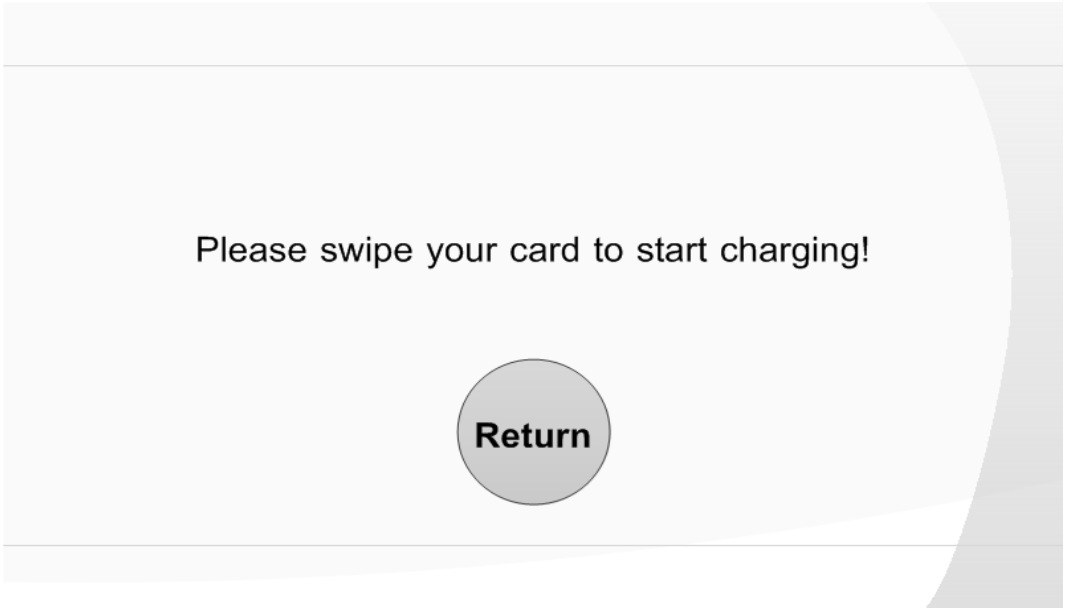
Step 1. Choose the free the charging station, correctly connect the gun to the electric vehicles, then tap the touchscreen to select start charging.



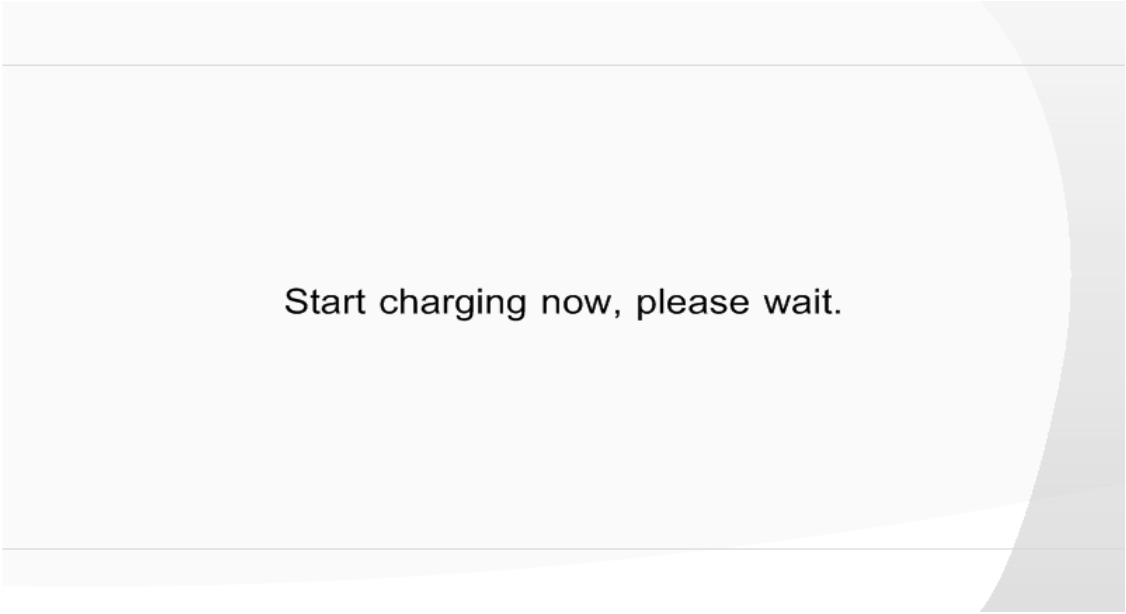

Step 2: After swiping card to start charging, select any charging way as shown in the figure below.



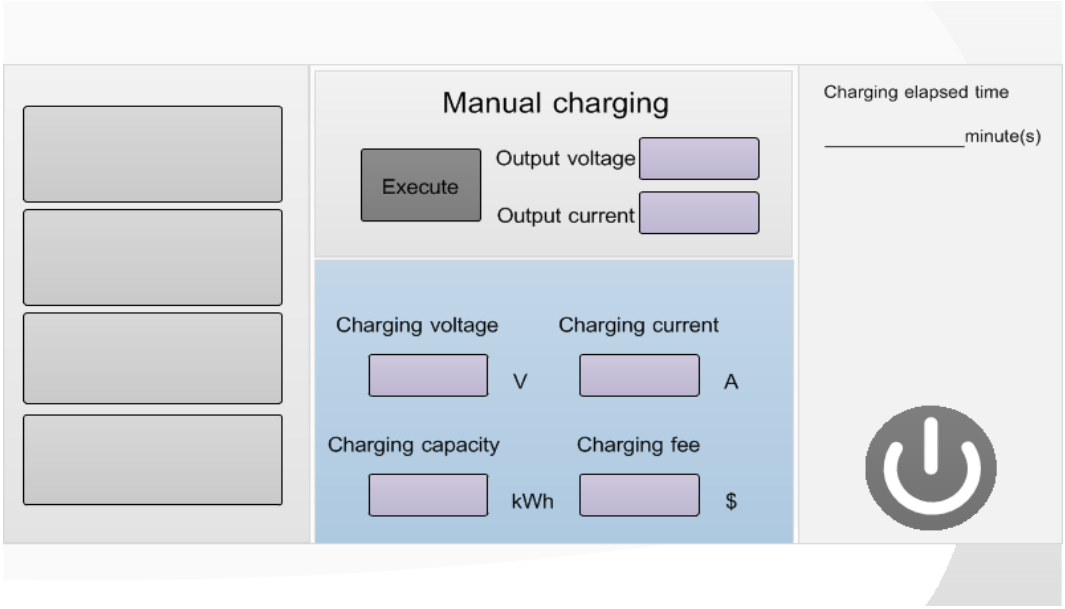

After selecting the charging way, swipe the online card or offline card.




Step 3: Click to confirm charging, the system enter self-test, and wait for charging.

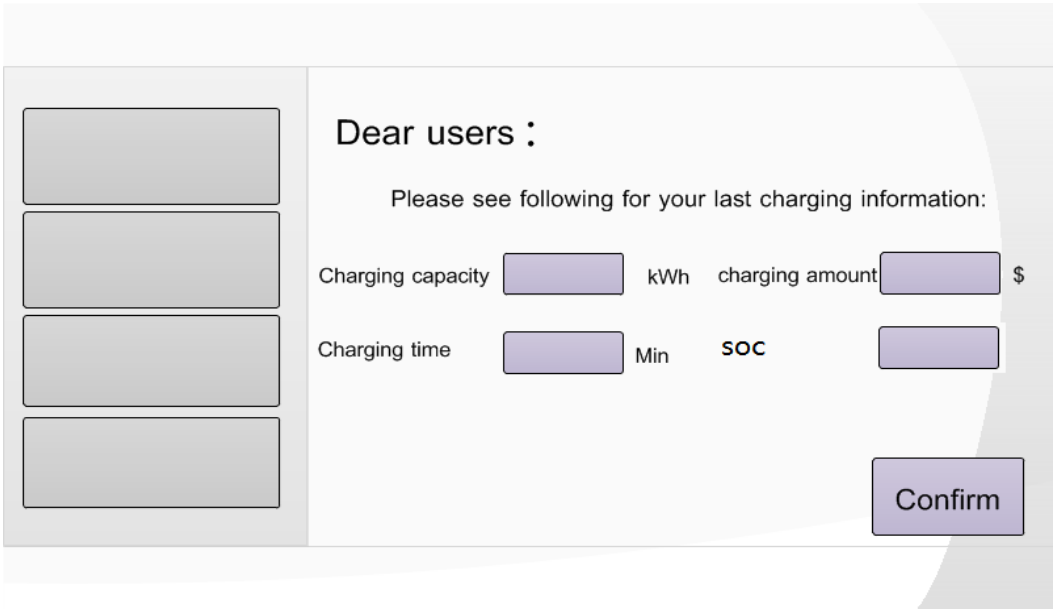



Normal charging interface




Step 4: If need to ending the order in advance, pls swipe the card, then charging ends and the amount settlement interface appears.


Pls swipe card again to pay the amount and refund the remaining withholding fee.



## 十、操作注意事项/Precautions For Operation

1、 Due to some vehicle models cannot be charged after locking the car for a few hours, please connect the gun and charge it in time after locking the cars.

2、 During the charging process, the user shall not directly pull out the charging gun by force.

3、 The charging station should be used under the environmental conditions specified in this specification.

4、 If need to stop charging in advance, please follow the specifications. Stop charging first and then pull out the gun.

5、 If safety accident happens during the charging process, such as abnormal sound, short circuit and other emergencies, press immediately the emergency stop button, disconnect the power, and then notify the site management personnel or call the manufacturer for maintenance.

## 十一、包装运输及贮存/Packaging,Transportation And Storage

1、The charging station is packed in a ultrahard material carton. Pls keep sure that there is no severe vibration, impact, tumbling or inversion during transportation.

2、The charging station should be stored in a dry and ventilated environment. And it is strictly prohibited to stack them in the open air. They should be placed in a warehouse without corrosive and explosive gases.