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AEV-AC007D AC Charging pile

Installation and operation manual V1.6

STATEMENT

The company reserves the right to modify the product specifications described in this manual without prior notice. Please consult your local agent for the latest specifications before ordering.

Catalog

1.Development prospects

Under the background of global energy crisis and environmental crisis, our government actively promotes the application and development of new energy vehicles. As a kind of green transportation with broad development prospects, electric vehicles will be popularized rapidly in the future, and the future market prospect is also very huge. As an important supporting infrastructure for the development of electric vehicles, charging pile has very important social and economic benefits.

As the energy supply device of electric vehicles, charging pile is similar to the gas dispenser in the gas station. It can be installed in the parking lot or charging station of public buildings and residential areas to charge all kinds of electric vehicles that meet the charging connection standards.

In response to the call of national energy conservation, environmental protection and green travel, Acrel provides users with two charging methods, slow charging and fast charging. Portable, wall mounted, floor mounted and other types of charging piles, including intelligent 7KW AC charging pile and intelligent 60kW /120kw DC integrated charging pile, to meet the market demand of fast, economic and intelligent operation and management of new energy automobile industry. It can realize fast, efficient, safe and reasonable power supply for power battery, and it can charge time, electricity degree and amount as the public power purchase terminal. At the same time, in order to improve the efficiency and practicability of public charging pile, it has the function of one pile multi charging.

Whenever and wherever possible, Acrel can provide convenient, efficient and safe charging service. APP, WeChat sweep, WeChat official account, Alipay sweep and Alipay service window, and charging mode are diversified, providing convenient, efficient and safe charging service for owners.

2.Standards to be followed

GB/T 18487.1-2015 《General requirements for conductive charging system of electric vehicles》

GB/T 18487.2-2001 《Requirements for connection between electric vehicle with electric vehicle conduction charging system and AC DC power supply 》

GB/T 18487.3-2001 《Electric vehicle conductive charging system electric vehicle AC / DC charger (station)》

GB/T 19596-2004 《Electric vehicle terminology》

GB/T 20234.1-2015 《Connecting devices for conductive charging of electric vehicles Part 1: General requirements》

GB/T 20234.2-2015 《Connecting devices for conductive charging of electric vehicles Part 2: AC charging interface》

GB/T 28569-2012 《Electric energy measurement of electric vehicle AC charging pile》

GB/T 29318-2012 《Electromechanical energy measurement for off board charging of

electric vehicles》

GB 4208-2008 《Enclosure protection level(IP CODE)》

NB/T 33001-2010 《Technical specification for off board conductive charger of electric vehicle》

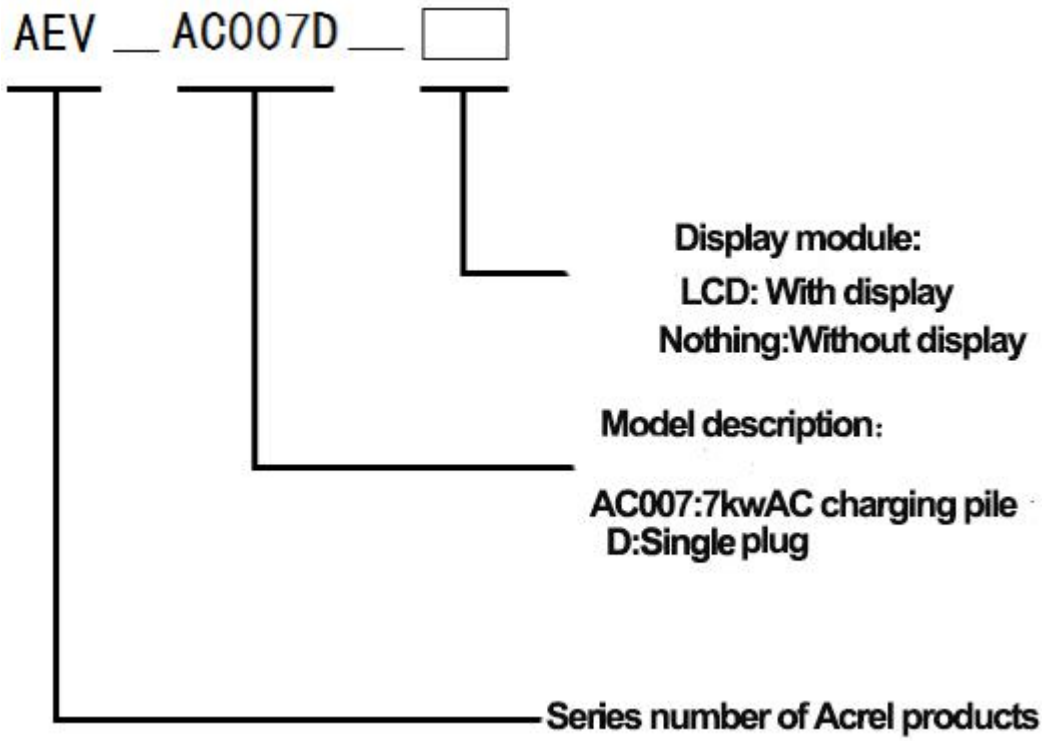
NB/T 33002-2010 《Technical specification for AC charging pile of electric vehicle》

NB/T 33008.1-2018 《Specification for inspection and test of electric vehicle charging equipment Part 1: off board charger》

NB/T 33008.2-2018 《Code for inspection and test of electric vehicle charging equipment Part 2: AC charging pile》

3.Internet version of intelligent AC charging pile

3.1 Model description



3.2 AEV-AC007D Series

AEV_AC007D_LCD(With Display)

AEV_AC007D(Without Display)

3.3 Product performance

Product Model		AEV_AC007D(Without Display)		AEV_AC007D_LCD(With Display)	
Installation method		Wall mounted	Column type	Wall mounted	Column type
Product technical index	Rated power	7kW			
	input voltage	AC220V±15%			
	Input mode	Single phase three wire system			
	Working frequency	45～55Hz			
	Output voltage	AC220V			
	Output current	0A～32A			
	Output interface	One charger			
	Protect level	IP55			
	texture of material	PC/ABS			
	Working temperature	-20℃ ～ 55℃			
	Protcet function	With lightning protection, overload protection, short circuit protection, leakage protection			
	Communication mode	4G、Buletooth、WiFi			
	Payment method	Credit card payment, APP scan QR code (small program)			
Technical standards for product implementation		NBT33008.2-2013;GB/T20234.2-2015; GB/T 18487.1-2015			
Product size (length × wide × Height) Unit:mm		372mm*262mm*141mm	372mm*262mm*141mm,Column size:300*234*1450	372mm*262mm*141mm	372mm*262mm*141mm,Column size:300*234*1450
Weight		5KG	5KG+9.15KG	5KG	5KG+9.15KG

Notes： 1、Communication mode is optional.

2、The interface of AEV_AC007D_LCD(with display) can refer to the appendix.

3.4 Product function

1）**Intelligent monitoring：** The intelligent controller of charging pile has the functions of measurement, control and protection for charging pile, such as running state monitoring, fault state monitoring, charging metering and charging, linkage control of charging process, etc.

2）**Intelligent measurement：** It has its own charging metering, pulse output, and information can be uploaded to the cloud platform.

3）**Cloud platform：** It has the function of connecting the cloud platform, can realize real-time monitoring, financial statement analysis and so on.

4）**Protection function：** It has the functions of lightning protection, overload protection, short circuit protection, leakage protection and grounding protection.

5）**Remote upgrade：**Remote upgrade has perfect communication function, and can upgrade the equipment software remotely.

6）**Reliable material: Ensure long-term use and resist complex weather environment.**

7）**Suitable model：** Meet the national standard charging interface, adapt to all electric vehicles in line with GB / T 20234.2-2015 national standard, adapt to different power of different models.

8）**Asset security：**All the products are underwritten by PICC to fully guarantee the safety of equipment, vehicles and personnel.

3.5 Product features

Intelligent, safe, stable, cloud platform, mobile payment, remote upgrade, navigation, insurance, user management, wide range of suitable models, emergency stop and small size.

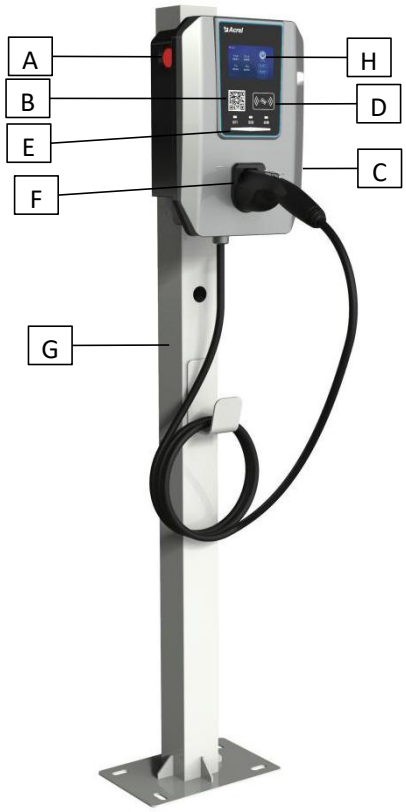
3.6 Application area

7KW wall mounted AC charging pile is small and light, easy to operate, small footprint, easy to install or hang on the wall, back board, lamp pole and other fixed facilities, suitable for families, companies, public parking lots, residential parking lots, large commercial parking lots and other places. It can provide AC power for electric vehicles with on-board charger, and is the main charging equipment for small electric vehicles.

3.7 Introduction of charging pile shape

Picture3-1 Appearance introduction of Wall mounted charging pile with charging plug

- **[A]**——Emergency stop button：When the equipment runs abnormally, press the button to stop the equipment.
- **[B]**——Charging QR code scanning area.
- **[C]**——Warning labels & nameplates.
- **[D]**——Charging area pay by card.
- **[E]**——LED status indicator.
- **[F]**——Charging plug position.
- **[G]**——Display area: LCD (with display)



Picture3-2 Appearance introduction of Column type charging pile with charging plug

- **[A]**——Emergency stop button：When the equipment runs abnormally, press the button to stop the equipment.
- **[B]**——Charging QR code scanning area.
- **[C]**——Warning labels & nameplates.
- **[D]**——Charging area pay by card.
- **[E]**——LED status indicator.
- **[F]**——Charging plug position & cable winding bracket。
- **[G]**——Column.
- **[H]**——Display area: LCD (with display).

3.8 Precautions for use of charging pile

（1）Do not put flammable, explosive or combustible materials, chemicals, combustible steam and other dangerous goods near the charging pile

（2）Keep the charging plug head clean and dry. If it is dirty, please wipe it with a clean dry cloth. It is strictly forbidden to touch the charging plug core with hands when it is charged；

（3）It is strictly forbidden to use the charging pile when the charging plug or the charging cable is defective, cracked, worn, cracked, or the charging cable is exposed. If any, please contact the manufacturer's after-sales personnel in time;

（4）Please do not try to dismantle, repair or refit the charging pile. If you need, please contact the after-sales service personnel of the manufacturer. Improper operation may cause equipment

damage, water leakage, electric leakage, etc;

（5）In case of any abnormal situation during use, press the emergency stop button immediately;

（6）In case of rain and thunder, please charge carefully;

（7）Children are not allowed to get close to the charging pile during charging to avoid injury;

（8）In the process of charging, the vehicle is forbidden to drive and can only be charged when it is stationary. For hybrid electric vehicles, please turn off the engine before charging;

（9）During use, please strictly follow the design parameters and service conditions, and do not exceed the threshold value in this specification, otherwise the equipment may be damaged;

（10）After the installation of the charging pile, if there is no voltage output or the charging cannot be carried out during the initial power on, please check whether the wiring is correct;

（11）Due to the limited dust-proof and water-proof capacity of the equipment, attention should be paid to anti-static, moisture-proof and water-proof during use. If the equipment has entered the water, it should be powered off immediately;

（12）It is strictly forbidden to plug in and out the charging plug in the charging process, so as to avoid irreversible damage to the charging pile and the car;

（13）When the distance between the installation position of charging pile and the power supply location is more than 60 meters, the diameter of cable or wire shall be increased accordingly to avoid voltage drop and unstable charging.

3.9 Maintenance

Maintenance of AC charging pile is relatively simple, with the characteristics of small maintenance. The environment shall be kept clean and tidy during operation, ventilation and heat dissipation shall be paid attention. There shall be no explosive medium in the air, and there shall be no gas enough to corrode metal and damage insulation. The device shall be installed in a place without severe vibration or bumps.

Generally, before the device is put into operation for the first time after transportation or after a long period of shutdown, it is necessary to check the whole device. In addition to checking the correct wiring according to the drawings, it is also necessary to check whether various components are loose due to transportation and other reasons; Whether the wire, copper plate and other joints are tight and in good contact; After the inspection, the power on test shall be conducted.

The dust removal and cleaning of the device shall be carried out regularly according to the cleanliness of the ambient air. When cleaning, all power supply shall be cut off, and the dust prone places such as the appearance of the device, internal devices and wire connection shall be cleaned carefully with compressed air machine (the pressure shall not be too high), vacuum cleaner or small brush.

If the equipment is not used for a long time, please turn off the power and add dust cover to the equipment.

3.10 Troubleshooting

Common faults and treatment methods are shown in the table below.

Serial number	Fault	Fault indication	Cause of failure indication	Treatment measures
1	Emergency stop press	The fault light is on and the interface prompts	The emergency stop button is pressed	Turn the emergency stop button clockwise to reset it
2	Meter failure	The fault light is on and the interface prompts	Meter failure	Contact the manufacturer
3	Contact manufacturer for RF card failure	The fault light is on and the interface prompts	Contact manufacturer for RF card failure	Contact the manufacturer
4	Gateway failure	The fault light is on and the interface prompts	Gateway failure	Contact the manufacturer
5	CP voltage abnormal	The fault light is on and the interface prompts	CP voltage abnormal	Contact the manufacturer
6	Leakage current fault	The fault light is on and the interface prompts	Electric leakage	Check the circuit to ensure its reliability
7	Under voltage	The fault light is on and the interface prompts	The amplitude of grid voltage is lower than the set value	Check the incoming voltage and restart the charging point
8	Over voltage	The fault light is on and the interface prompts	The amplitude of grid voltage exceeds the set value	Check the incoming voltage and restart the charging point
9	Over current	The fault light is on and the interface prompts	The output current exceeds the set value	Check the charging pile and confirm whether the high-power vehicle is used. Check the circuit and restart the charging pile. If the restart fails, please contact the manufacturer
10	Relay L fault	The fault light is on and the interface prompts	Relay L fault	Contact the manufacturer

11	Relay N fault	The fault light is on and the interface prompts	Relay N fault	Contact the manufacturer
12	Earth fault	The fault light is on and the interface prompts	There is no grounding	Check the circuit to ensure reliable grounding
13	Abnormal temperature	The fault light is on and the interface prompts	The temperature inside the charging pile exceeds 85 ℃	Check the charging point and restart it after a period of time

Charging pile may occur, including but not limited to the above faults. Users should first handle the problems according to the prompts during use. If the problems can not be solved, they can contact the manufacturer for consultation.

3.11 Installation guide

3.11.1 Safety instructions

Warning： All electrical installation and connection of charging pile must be completed by experienced electrical engineer according to local electricity rules.

All work must be carried out when the power supply and auxiliary power supply are disconnected, the input and output isolation must be ensured to be turned on, any grounding equipment switch must be closed, and the power cable must be grounded. Only the debugging and installation personnel approved by our company can disassemble the equipment, and our company will not be responsible for all possible damage caused by your neglect of the above contents.

3.11.2 Installation environment requirements

- ◆The installation position of charging pile shall not be close to water pipe, gas pipe, steam pipe and other dangerous positions, and shall comply with the relevant provisions in 9.2 of "GB 50058-q / GDW237-2009".
- ◆The installation position shall be convenient for charging, the wiring length shall be shortened when laying the line, and the energy consumption of cable resistance shall be reduced, which shall meet the requirements of 6.3 of Q / GDW237-2009 design guide for layout of electric vehicle charging station.
- ◆The vertical charging pile installation position should not be set at the place where the low-lying area is easy to accumulate water or drip water. The installation shall be vertical and the center of gravity shall not be too high to prevent overturning or tilting. It should not be set in places with strong vibration or high temperature. The height of charging column to the horizontal surface should be about 60cm, which should meet the requirements of 5.2.3 and 5.2.4 of Q/GDW237-2009 design guide for electric vehicle charging station layout.
- ◆The connection between the wall mounted charging pile and the wall should be at least two points, and the pile can not be removed without tools. The installation wall should be able to bear the gravity of the charging pile and its accessories, and should not tilt after

installation. The wall should not be too close to the internal line.

◆The protection grade of indoor installation shall be at least IP21, and outdoor installation shall be at least IP44. It is suggested that the charging pile should be installed in the environment with sunshade or umbrella, which should comply with Q/GDW238-2009 electric vehicle charging station power supply system specification; The lighting and passage of the charging pile installation site must meet the requirements of Q/GDW237-2009 electric vehicle charging station layout design guide and GB 50229-2006 fire protection code.

◆A certain space shall be reserved for charging pile installation, so that engineers can open the back door of the equipment for inspection and maintenance. It shall comply with the code for construction and completion acceptance of electric vehicle charging and swapping Facilities Engineering (NB/T33004-2013).

◆Ensure that the grounding wire is reliably connected to the grounding wire of the power supply system nearby(Note: A. It is forbidden to connect this grounding wire to any circuit breaker, such as fuse, air switch, knife switch, switch, etc; B. The grounding wire must be copper plate with enough area).It shall comply with NB/T33004-2013 code for construction and completion acceptance of electric vehicle charging and swapping facilities engineering.

3.11.3 Power Supply

The power supply mode of AC charging pile is AC single-phase power supply, input electrical requirements：

◆AC operating voltage：AC220V±5%

◆AC operating frequency：50HZ±10%

◆Voltage asymmetry：No more than 5%

◆Voltage distortion rate：Non sinusoidal content not exceeding 10% of 220V

3.11.4 Environment requirements

◆Working environment temperature：-20℃～50℃

◆Relative humidity：5%～95%

◆Installation vertical inclination：≤5%

◆Altitude of installation and operation：≤2000m

◆There is no strong vibration and impact, no strong electromagnetic interference.

3.11.5 Wiring requirements

◆Recommended cable type：YJV

◆Maximum allowable working temperature of conductive core：90℃

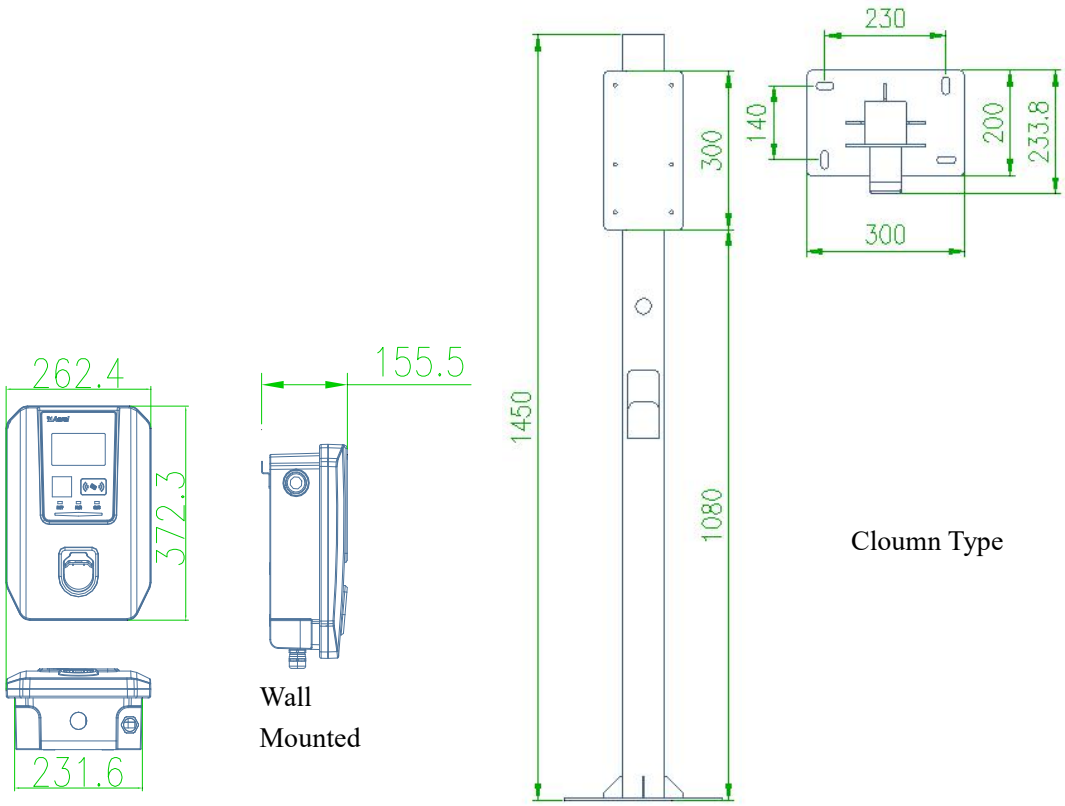
◆Ambient temperature：0℃

3.11.6 Product installation

❖ **Tool list**

Electric drill, tape, cross screwdriver, pen, adhesive tape, tool hammer, installation screw, expansion screw, inner hexagon wrench, outer hexagon wrench.

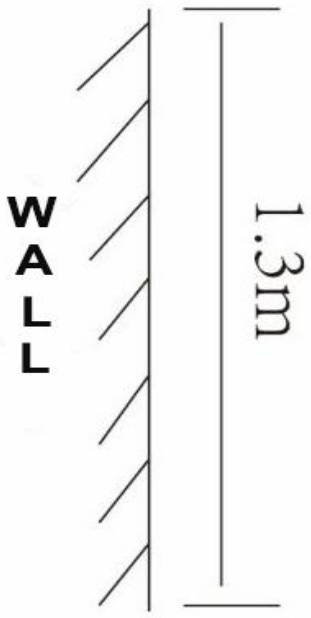
❖ General assembly drawing



PictureA-1 Charging pile size

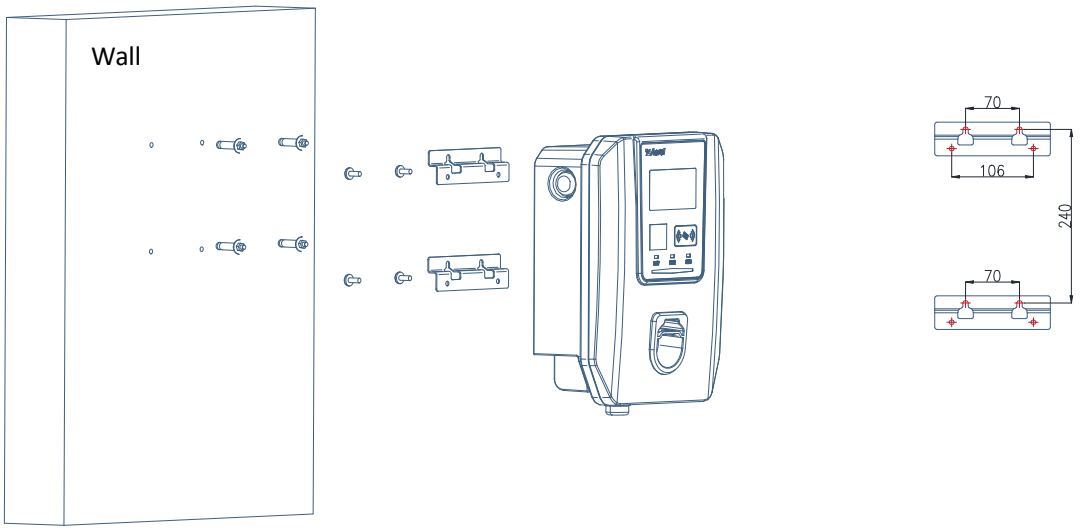
- **Wall Mounted charging pile**

1. please confirm the installation position and mark it.Use an electric drill to align the marks and drill holes respectively. The center position of charging pile is at least 1.3m away from the ground, as shown in Picture A-2.



Picture A-2 Installation height of wall

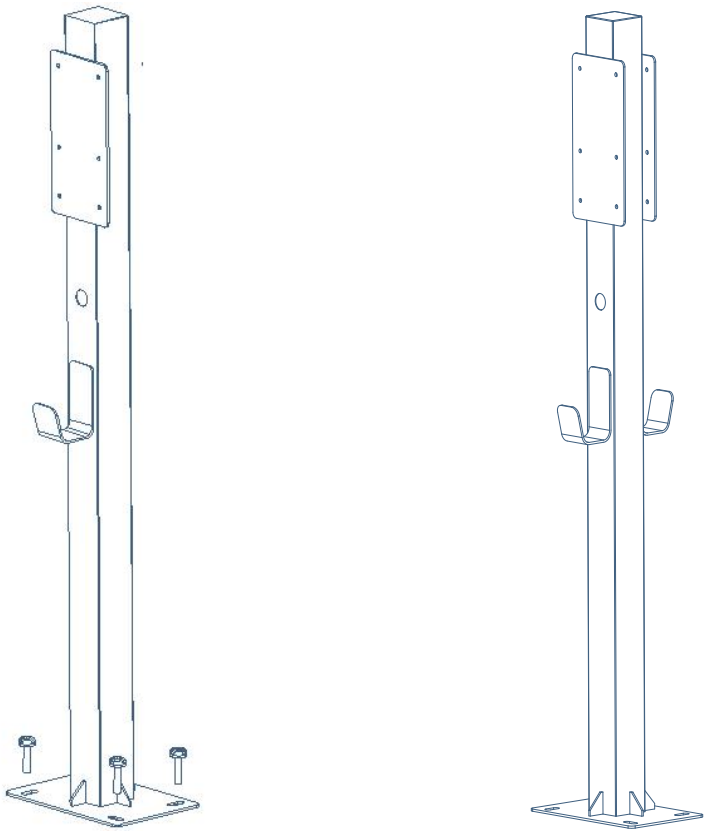
2. Install the M6 standard expansion bolt into the drilled hole and knock the expansion pipe into the wall with an iron hammer , Then fix the metal bracket on the charging pile with M6 screw,hang the charging pile on the expansion bolt,and finally tighten the nut with 10 mm open-ended spanner ,as shown in Picture A-3.



Picture A-3

- **Column type**
  - Fixed base

    First, fasten the charging pile column with 4 expansion screws M12 * 110, as shown in Picture A-4。



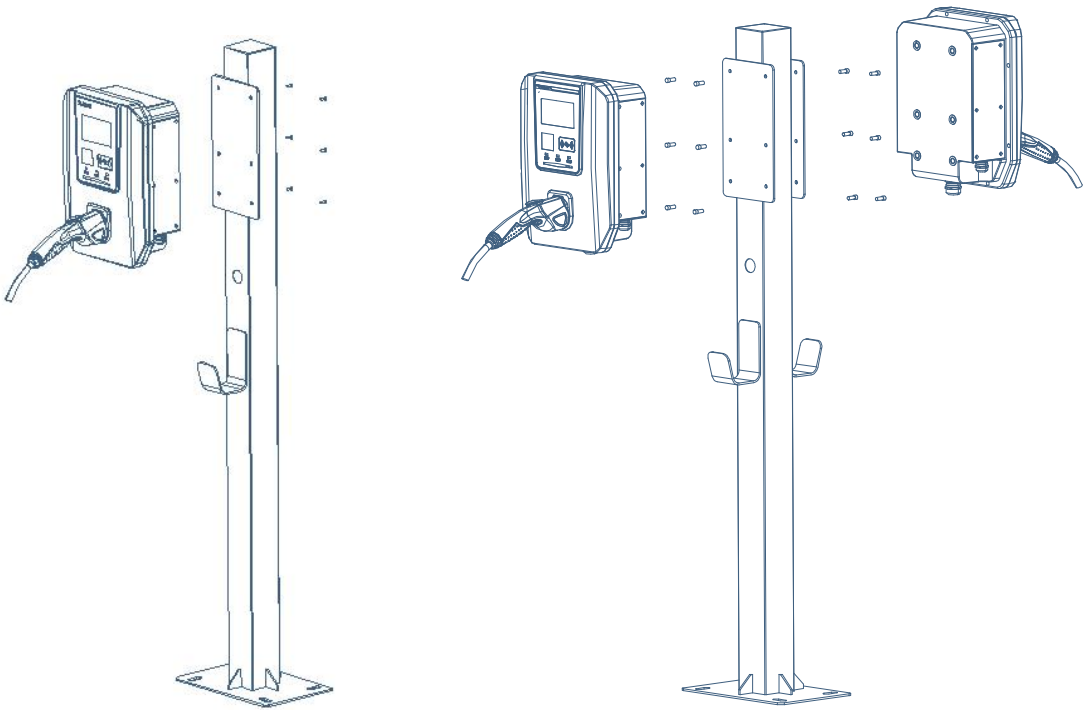
Single side installation　　Double sided installation

PictureA-4 installation of column type

- Fixed charging pile

  (1)Single side installation: Fix the charging pile on the outside of the column with 6 M6 * 16 screws through the back plate.

  (2)Double sided installation: Fix the charging pile on the outside of the column with 12 M6 * 16 screws through the back plate, as shown in Picture A-5.

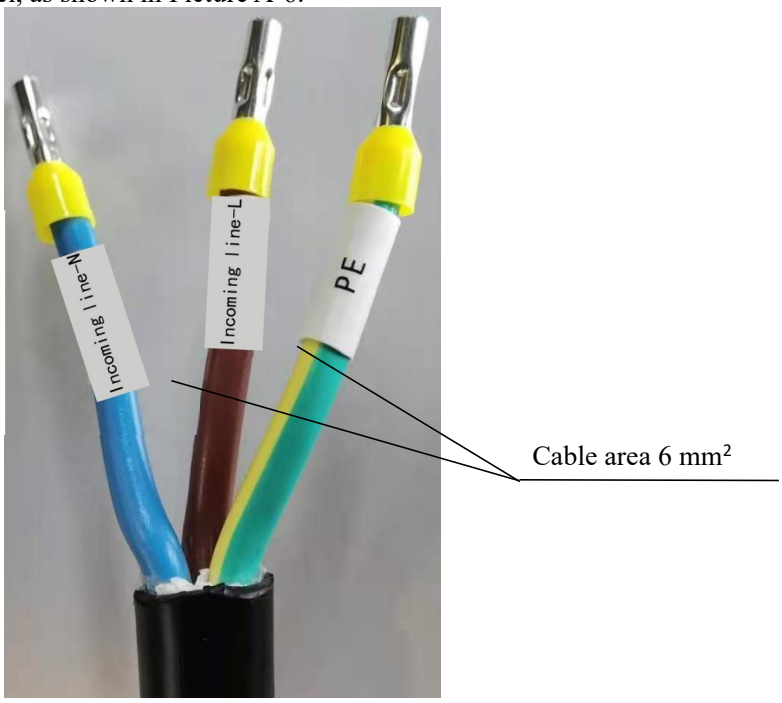


Single side installation Double sided installation

Picture A-5 Fixed charging pile

- Connect the power line

Connect the power cord of the equipment to the back end of the field micro break according to the line label, as shown in Picture A-6.



PictureA-6 Connect the power cord

- Inspection after installation

1. **Seal up**

   According to the requirements of design and protection level, the joint between the cabinet bottom and foundation must be sealed with gasket to prevent insects or dirt from entering the cabinet.

2. **Clean**
   - Dispose of all transport and packaging materials properly in accordance with local regulations.
   - Clean up the sundries in and around the cabinet, such as small section of cable, binding tape, screw / nut, etc. do not leave installation tools in the site or pile body (record the type and quantity of tools to prevent omission).
   - Use antistatic cloth to clean the insulation. Do not use any corrosive solvent.

3. **Inspect**
   - Check whether the base is fixed and sealed.
   - Check whether the internal devices of the equipment are tight and reliable.
   - Check whether the electrical connection and wiring are correct and complete, whether the connection is reliable, and whether the grounding is reliable.
   - Check whether the protection level of the equipment meets the requirements, especially at the cable entrance at the bottom of the pile.Check appearance, marking, integrity, cleanliness.

Appendix

❖ The company name of the charging pile will appear on the page when the machine is started, As shown in the picture 3-12-1.

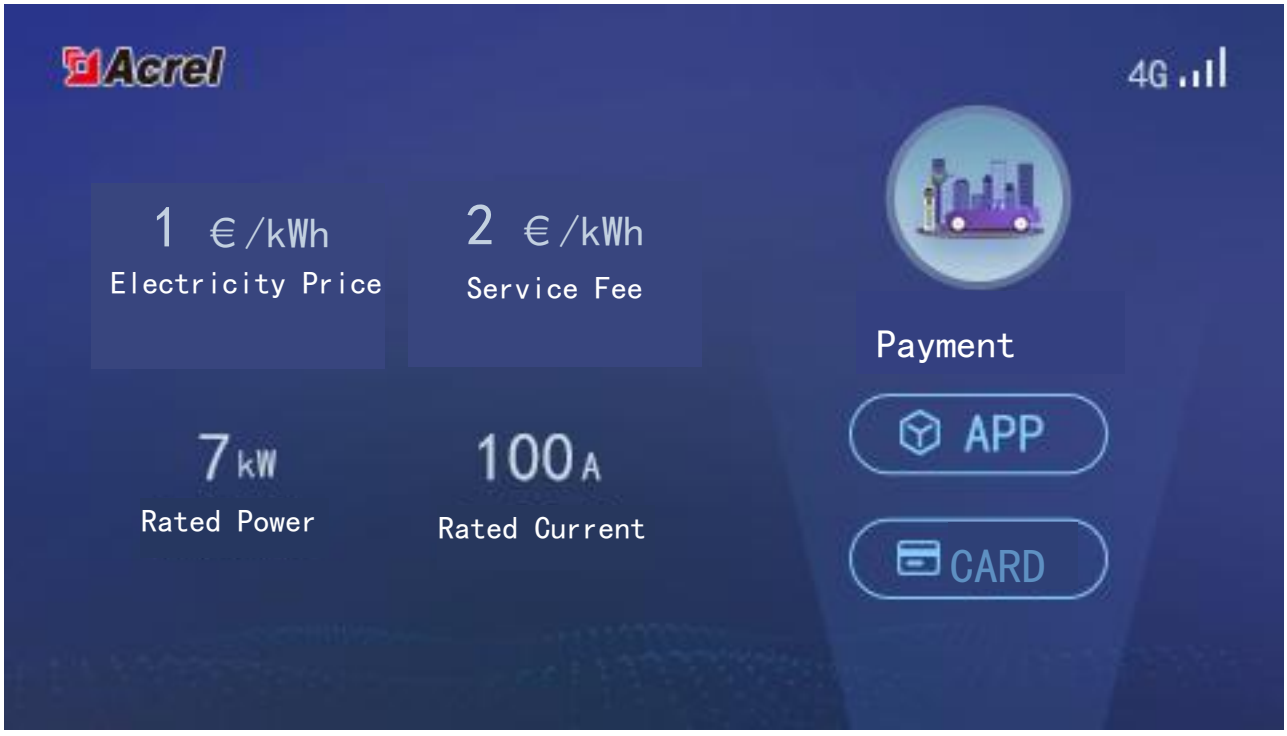
Acrel

Acrel Co., Ltd.

Picture 3-12-1

❖ Enter the home page

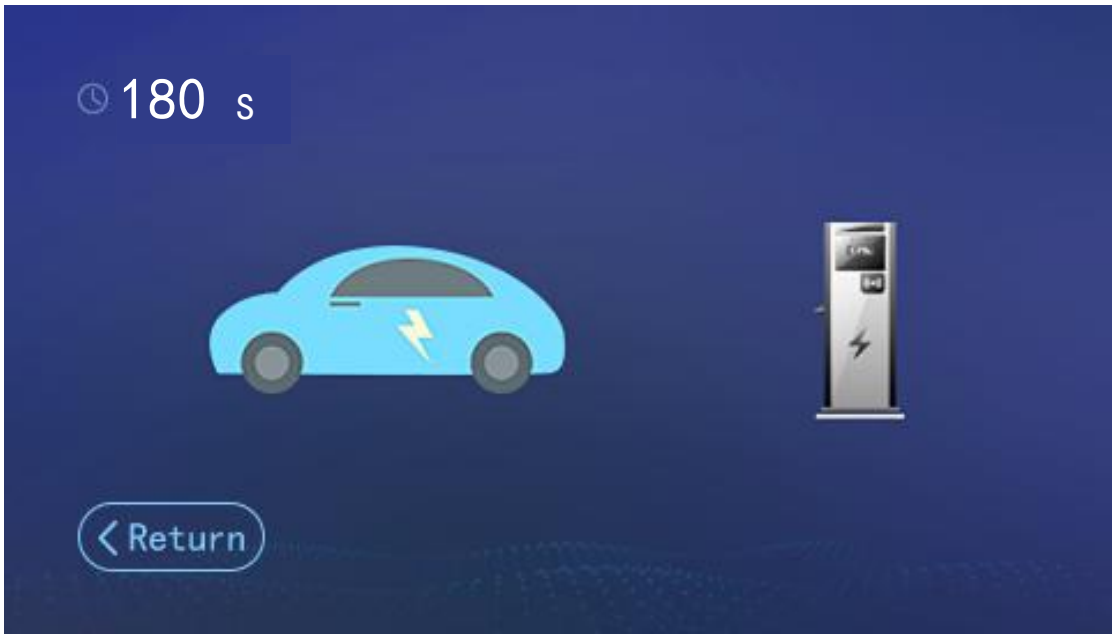
On the home page, you can see the basic parameters of unit price, service charge, rated power and rated current. You can also choose the payment method and view the communication method, as shown in the picture 3-12-2.



Picture 3-12-2

❖ Choose the payment method

a、select the payment method, select app payment, and the animation picture of inserting plug will appear in the interface to remind the user to insert plug,as shown in the picture 3-12-3.

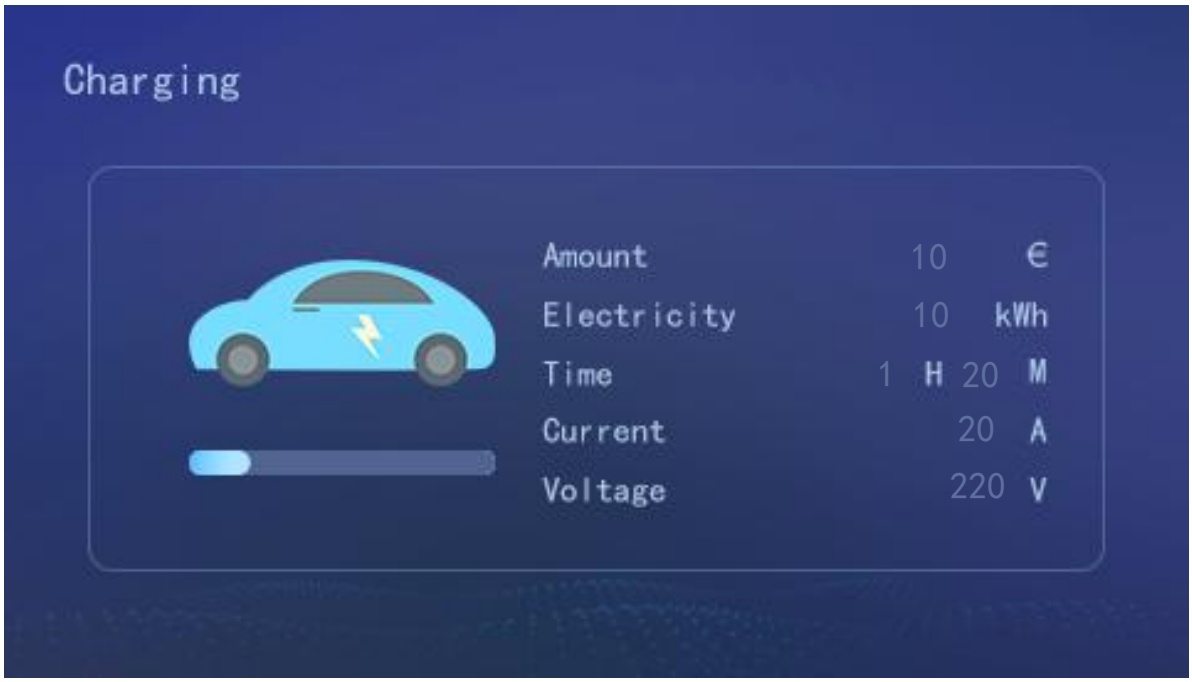


Picture 3-12-3

When a single plug is inserted, a two-dimensional code will appear,as shown in the picture 3-12-4.

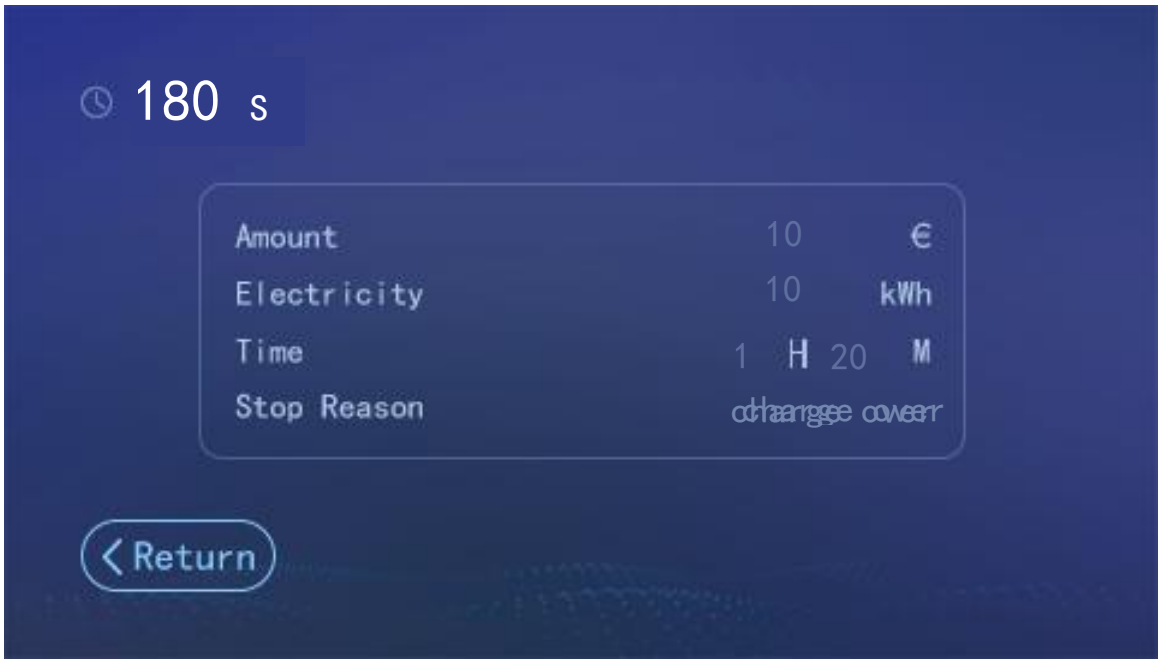
Picture 3-12-4

Scan the QR code, pay the fee, and then start. At this time, the page will jump to the display charging. At this time, the user's consumption amount, charging power, charging time, charging current and charging voltage basic parameters will appear on the page,as shown in the picture 3-12-5.



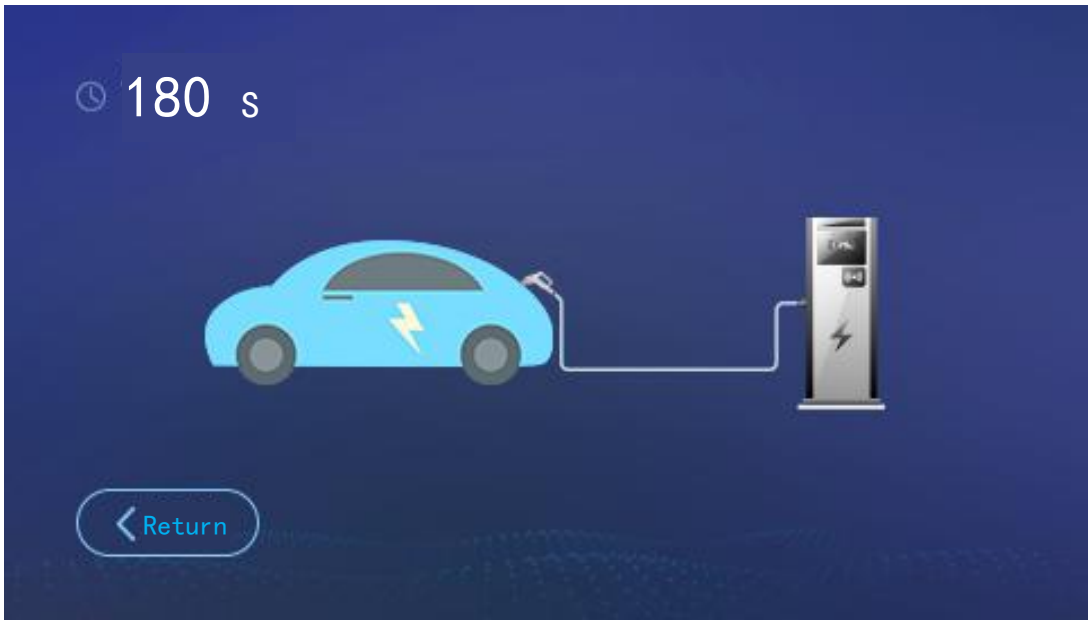
Picture 3-12-5

When the charging is finished, the page will prompt that the charging is completed. At the same time, the consumption amount, charging power, charging time and stop reason will appear on the page， as shown in the picture 3-12-6.



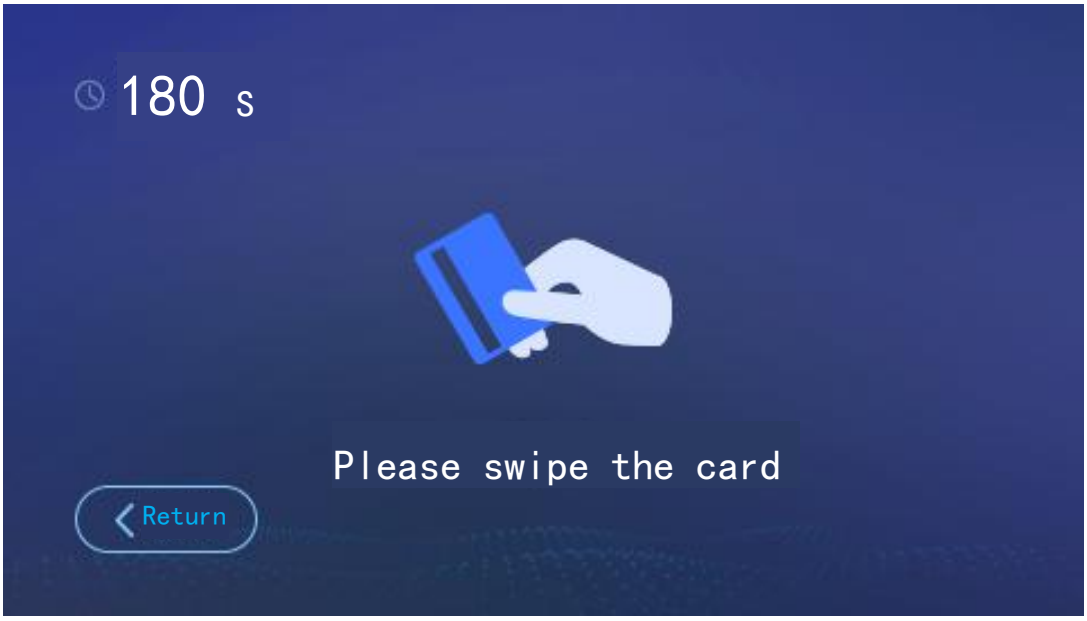
Picture 3-12-6

b、If you choose to pay by swipe card, the animation picture of inserting plug will appear in the interface to remind the user to insert plug， As shown in the picture 3-12-7.



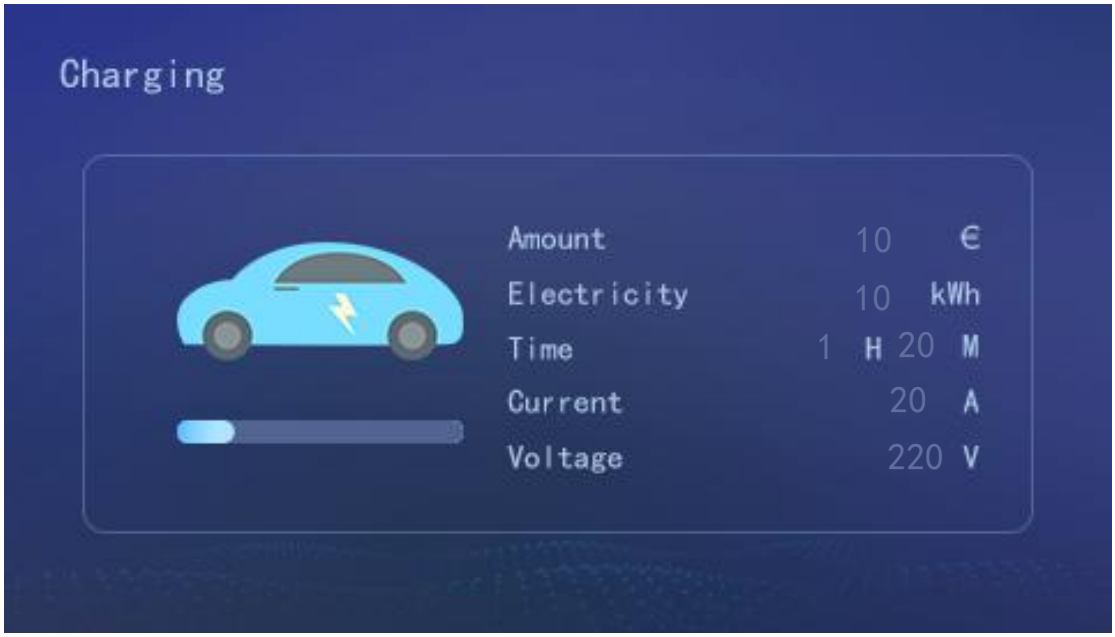
Picture 3-12-7

When the user inserts the single plug according to the prompt, the page will prompt to swipe the card， as shown in the picture 3-12-8.



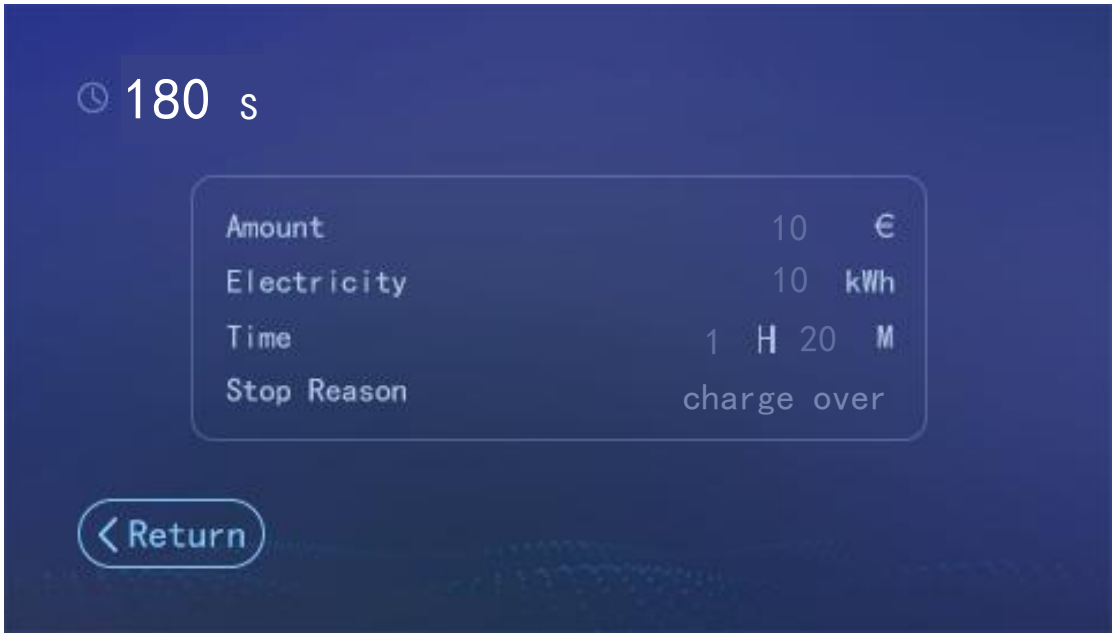
Picture 3-12-8

When the card is finished, the page will jump to display charging. At this time, the user's consumption amount, charging power, charging time, charging current and charging voltage basic parameters will appear on the page,as shown in the picture 3-12-9.



Picture 3-12-9

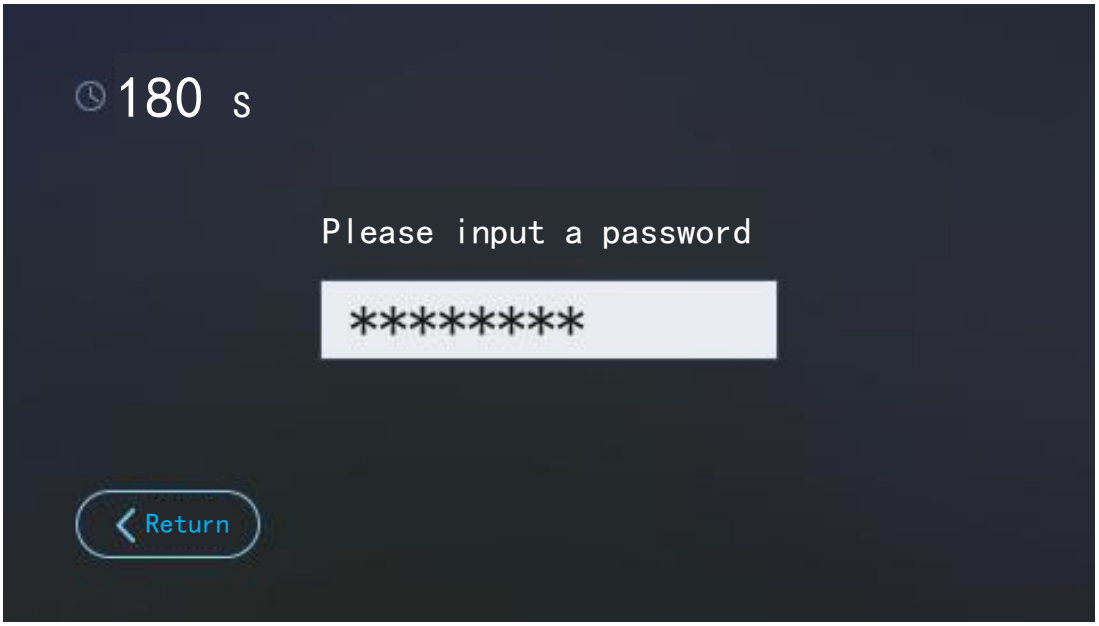
When the charging is completed, you need to swipe the card to finish charging. At this time, the page will display the basic parameters of consumption amount, charging power, charging time and stop reason,as shown in the picture 3-12-10.



Picture 3-12-10

❖ Background login

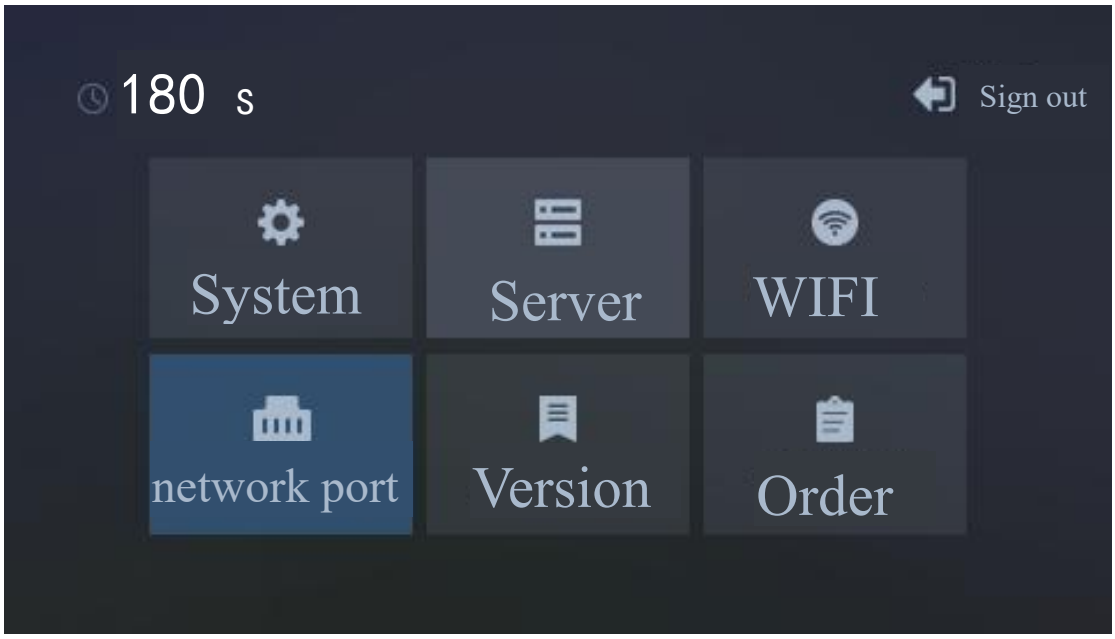
There is a hidden button in the upper right corner of the home page. Click it and you will be prompted to enter the password, as shown in figure 3-12-11. Click the small box and a small keyboard will appear. Just enter the password on the small keyboard,as shown in the picture 3-12-12.



Picture 3-12-11

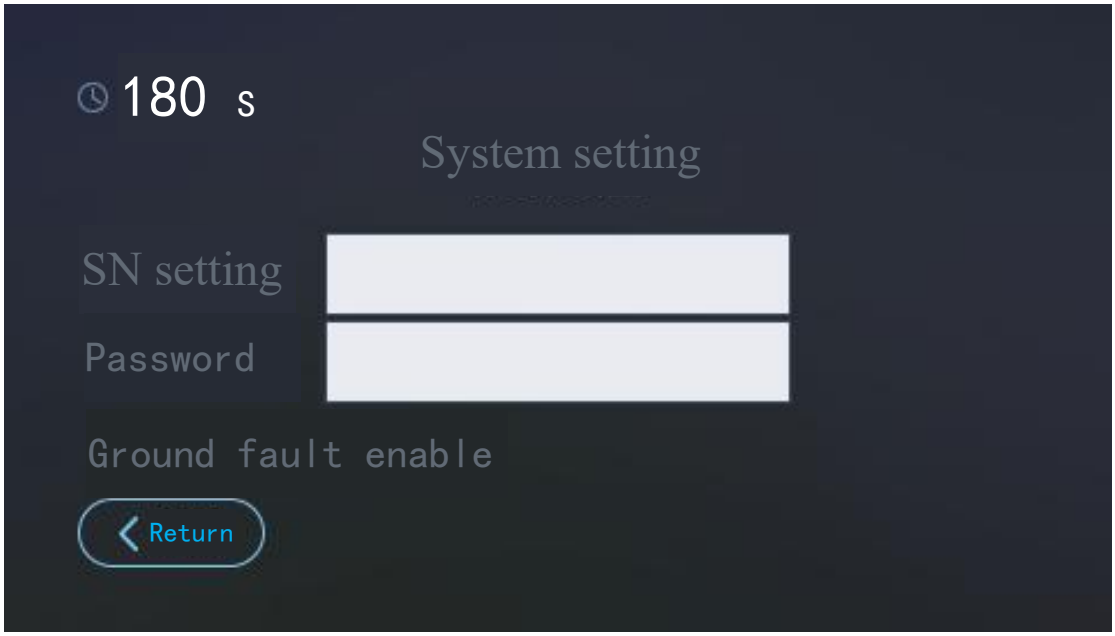
Picture 3-12-12

After entering the password, click OK to enter the background setting. Background settings include system setting, server setting, WiFi setting, network port setting ,order information and version information, as shown in figure 3-12-13. Note: WiFi setting is only limited to WF /BT function, so 4G and CE have no WiFi setting.



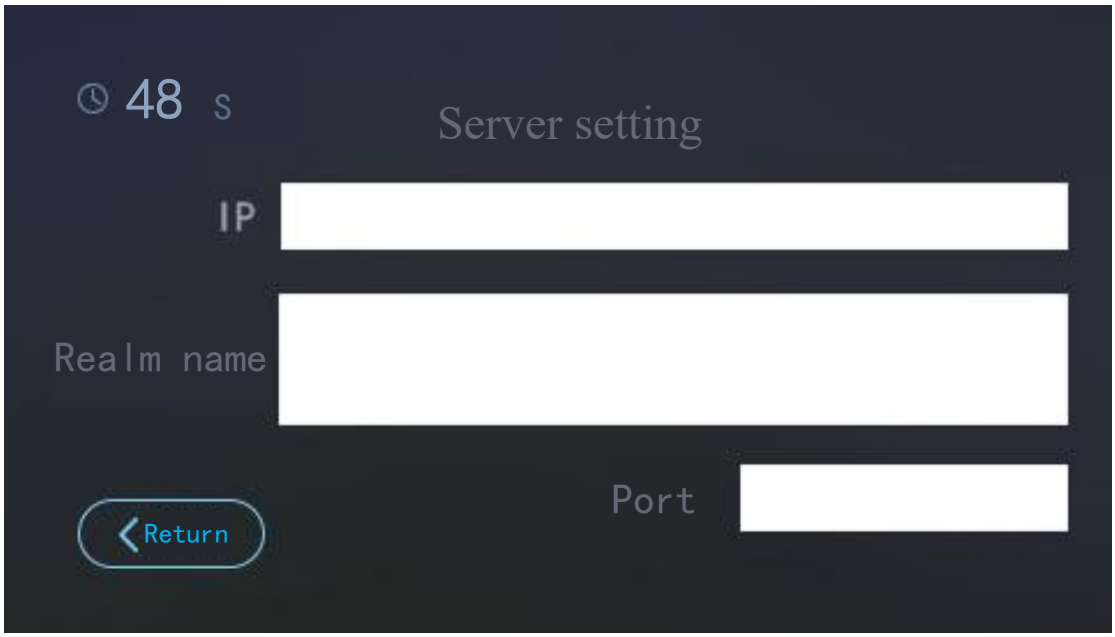
Picture 3-12-13

1) Click system setting,and the charging pile number and grounding detection enable flag will appear.The user can reset the pile number,password and grounding detection enable according to the actual situation(the charging pile number is in the lower left corner of the interface),as shown in the picture 3-12-14.



Picture 3-12-14

2) Click the server setting, the IP ,realm name and port of the charging point will appear, and the user can also set them by himself,as shown in the picture 3-12-15.

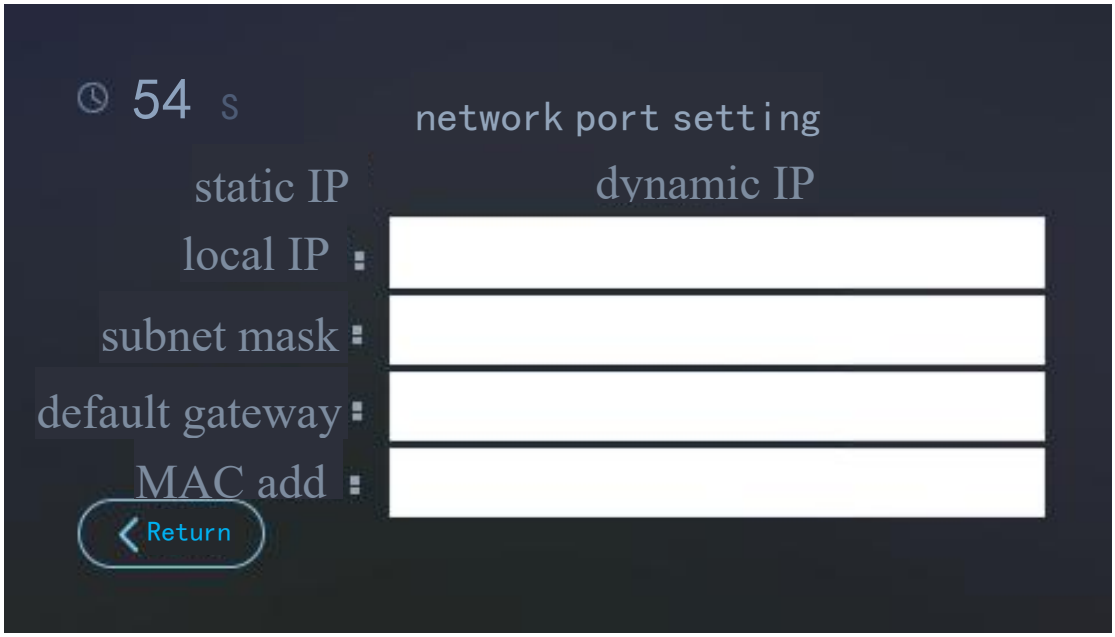


Picture 3-12-15

3) Click WiFi settings and enter the name and password,as shown in the picture 3-12-16.

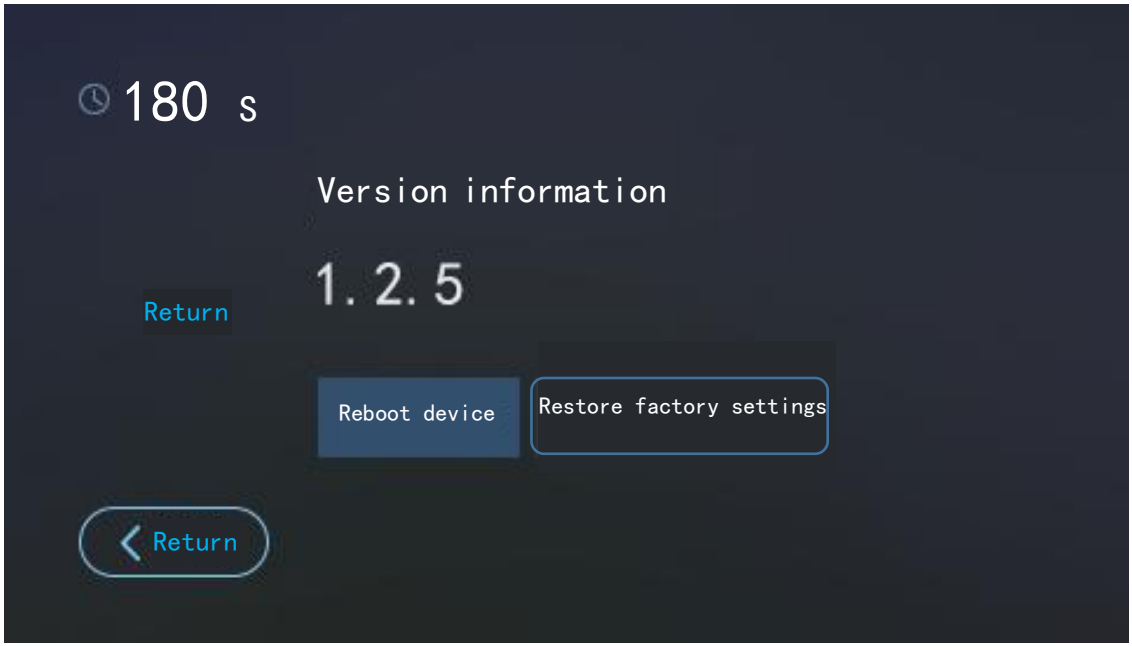
Picture 3-12-16

4) Click network port setting.The user view and set DHCP(dynamic/static IP selection),local IP,subnet mask,default gateway and MAC address.Local IP,subnet mask and default gateway are only effective in static IP mode,as shown in the picture 3-12-17.



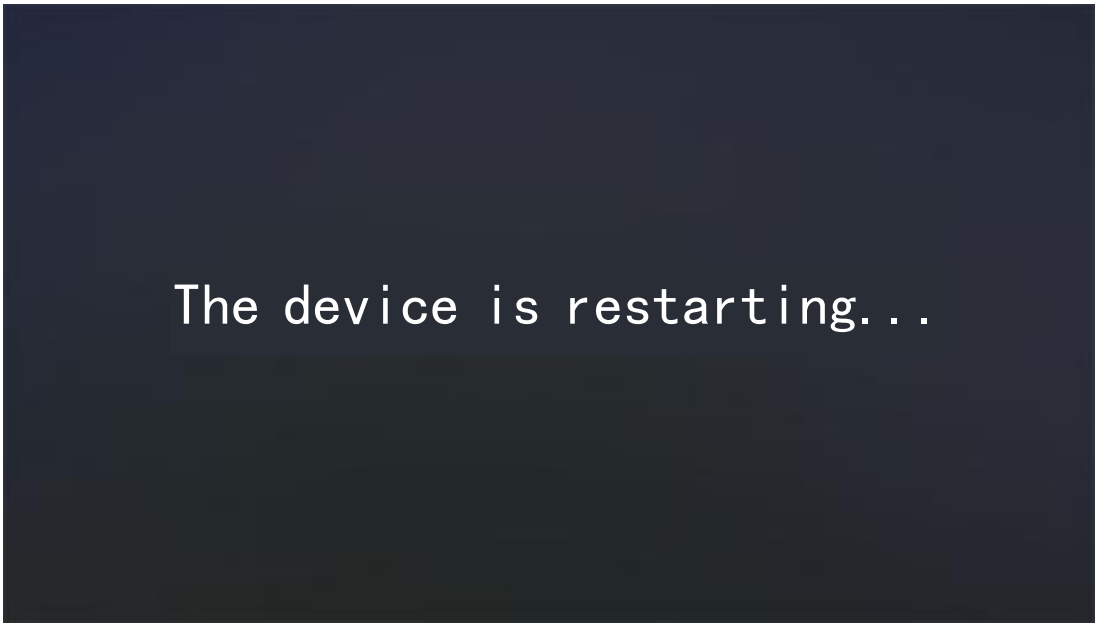
Picture 3-12-17

5) Click the version information to see the version number of the charging point. In the version information page, you can choose to restart the device and restore the factory settings,as shown in the picture 3-12-18.



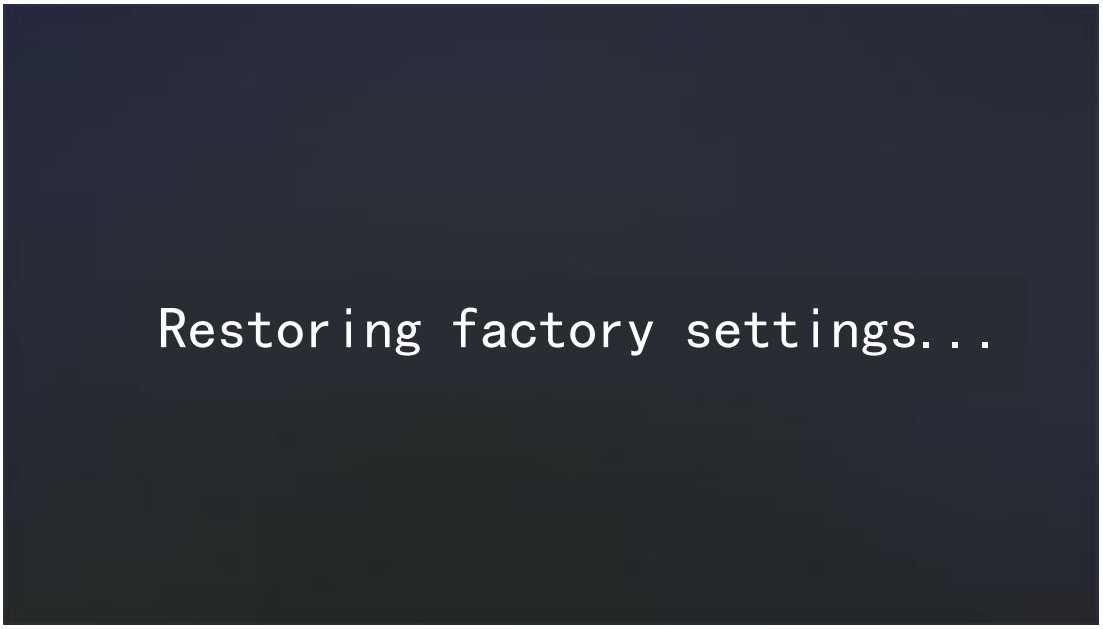
Picture 3-12-18

✧ Select restart device, and the page will prompt that the device is restarting,as shown in the picture 3-12-19.



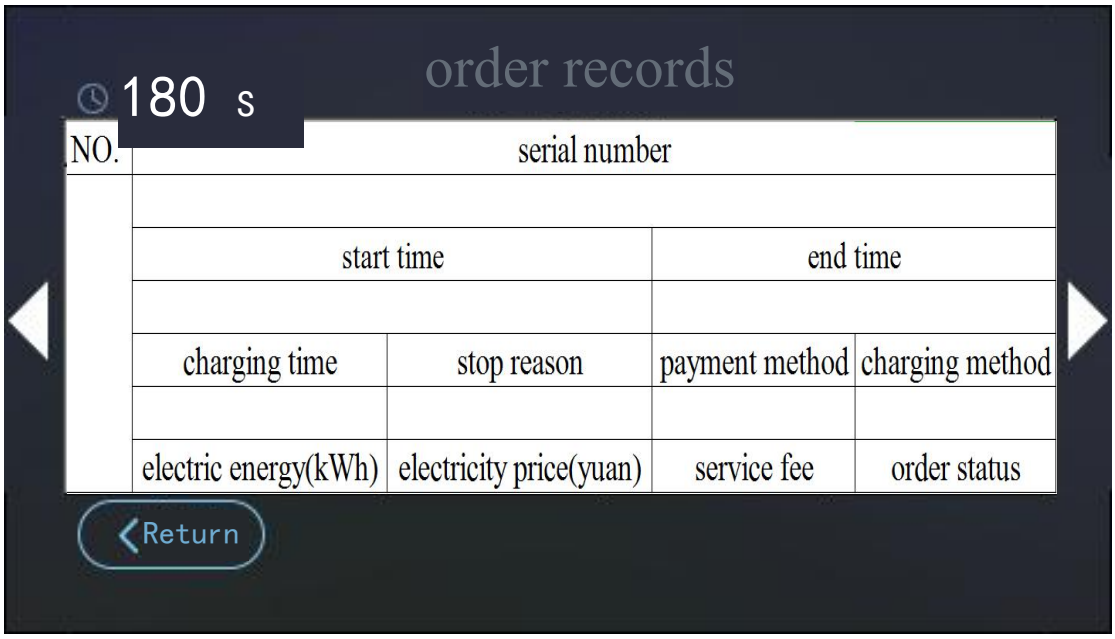
Picture 3-12-19

✧ Select restore factory settings, the page will prompt to restore factory settings， as shown in the picture 3-12-20.



Picture 3-12-20

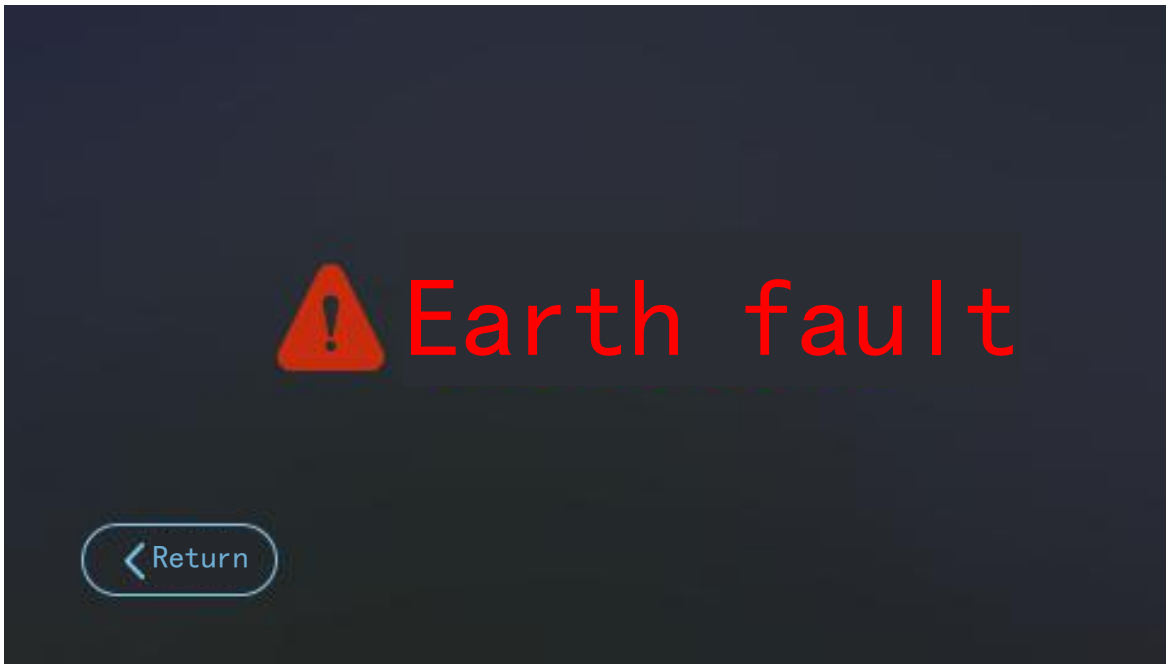
6)Click the order information to view the charging order records saved inside the charging pile.Order records include serial number,start time,end time,charging time,stop reason,payment method,charging method,electric energy,electricity price,service fee and， as shown in the picture 3-12-21.



Picture 3-12-21

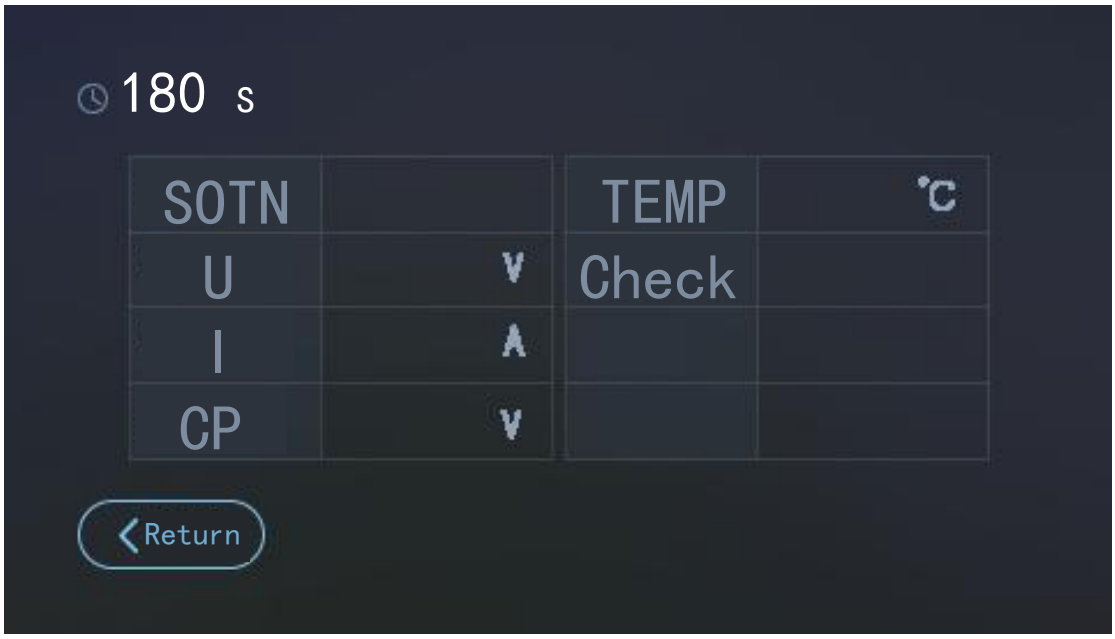
❖ Fault prompt

If the charging point fails, an alarm will appear on the page, as shown in picture 3-12-22. The user can deal with it according to the usual fault handling method.



Picture 3-12-22

If the user can't handle it, he can contact the manufacturer. The staff can log in to the background settings, enter the version information, and click the hidden button in the upper right corner. At this time, the parameters of the charging pile will appear, as shown in figure 3-12-23. The staff can debug according to this information.



Picture 3-12-23

Headquarters: Acrel Co., LTD.

Address: No.253 Yulv Road Jiading District, Shanghai，China

TEL.: 0086-21-69158338　0086-21-69156052　0086-21-59156392　0086-21-69156971

Fax: 0086-21-69158303

Web-site: www.acrel-electric.com

E-mail: ACREL008@vip.163.com

Postcode: 201801

Manufacturer: Jiangsu Acrel Electrical Manufacturing Co., LTD.

Address: No.5 Dongmeng Road,Dongmeng industrial Park, Nanzha Street,Jiangyin City,Jiangsu Province,China

TEL：0086-510-86179966

Fax：0086-510-86179975

Web-site: www.jsacrel.com

Postcode: 214405

E-mail: sales@email.acrel.cn