Electric Vehicle AC Charging Station 3.5kW / 7kW / 11kW

Instruction Manual

Note: Please read this instruction manual carefully before using the product.

Contents

Chapter 1 Product Overview

The arrival of the large-scale industrialization of electric vehicle charging stations has opened a new era in the era of new energy and energy saving. To adapt to the development and demand of the country's new energy electric vehicle charging stations, our company took the lead in developing a series of new products supporting electric vehicle charging stations. This AC charging station is based on the relevant requirements of IEC 61851-1: 2017 " Electric vehicle conductive charging system - Part 1: General requirements" and ICE 62196-2: 2016 " Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 2: Dimensional compatibility and interchangeability requirements for a. c. pin and contact-tube accessories", and refer to "Electric Vehicle Charging Facilities Part of the function of "Typical Design" is designed. Design according to the functions of: EN IEC 62196-1:2022, EN IEC 62196-2:2022, EN IEC 61851-1:2019, EN IEC 61851-21-2:2021, EN IEC 61000-6-1:2019, EN IEC 61000-6-3:2021, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021; TÜV (DIN SPEC 70121/12.14, DIN SPEC 70122/11.18).

Chapter 2 Scope Of Application

The AC charging station provides a 220V single phase AC 60Hz, power supply for charging electric vehicles with on-board chargers. It is mainly suitable for the following places:

1. Large, medium and small electric vehicle charging stations;
2. Urban residential areas, shopping squares, electric power business places and other public places with electric vehicle parking spaces;
3. Motorway service area, station wharf and other transportation hub areas;
4. Real estate and project construction acceptance needs.

Chapter 3 Working Environment

1. The ambient air temperature during operation is -35℃~+55℃, 24h daily average temperature 35℃ (Too high or too low temperature will affect the life of the product);
2. The average relative humidity ≤90% (25℃), no condensation on the surface;
3. Air pressure: 80 kpa~110 kPa;
4. Installation vertical inclination ≤5%;
5. Experimental level of Vibration and shock in use ≤ I;
6. Level, Inductive strength of an external magnetic field in either direction ≤1.55mT;
7. Housing material: UV resistant thermoplastic, flame retardant grade UL94 V-0;
8. There should be no explosive medium in the place of use, and the surrounding medium does not contain harmful gases and conductive media that corrode metals and damage insulation, and are not allowed to be filled with water vapor and serious mold bacteria;
9. The place of use should avoid direct sunlight. When installing outdoors, it is recommended to add sunshade facilities to the charging station to prolong the service life of the equipment;

NOTE: When users have special requirements, please negotiate with our company.

Chapter 4 Functional Characteristics

1. Two installation method: wall-mounted and floor-standed;
2. Adopt AC 220VAC input;
3. The main control board uses a single-chip microcomputer with an embedded operating system;
4. The charging mode is plug and play;
5. Using LED lights with different colors and different flash frequencies to indicate the current state of the charger;
6. Using the WIFI module to interact with the user's mobile phone or laptop and other devices

through wireless communication;
7. Use the web and app to set the charging current, remotely stop charging, and monitor charging data
8. The shape adopts ABS plastic structure.

Chapter 5 Product Parameter

5.1 EV AC Charging Station Parameter Table

Product Name		**AC Charging Station (Plastic Type)**		
Model		Home Use		
		AF-AC-3.5-B-A-O-1/2/5-SF	AF-AC-007-B-A-O-1/2/5-SF	AF-AC-011-B-A-O-1/2/5-SF
Specification	Rated Power	3.5kW	7kW	11kW
Charging Device	Installation Method	Wall mounted		
	Feeding Method	Bottom in and bottom out		
	Equipment Dimension	304*191*95 (mm)		
	Equipment Weight	3.5 kg		
	Cable Length	5m		
Electrical Indicators	Input Voltage	AC 220V±20%		
	Input Frequency	50/60 Hz		
	Output Voltage	AC 220V±20%		
	Output Current	Type2: 16 A/1P	Type2: 32 A/1P	Type2: 16 A/3P
	Current Limit Protection Value	≥110%		
	Metering Accuracy	2.0 Level		
Functional Design	HMI	LED indicator strip		
	Charging Mode	Automatic full charge		
	Charging Method	Plug and charge, Swipe the card, APP		
	Mode Of Payment	/		
	Network Way	Bluetooth / WIFI / APP		
Safety Design	Operative Norm	EN IEC 62196-1:2022, EN IEC 62196-2:2022, EN IEC 61851-1:2019, EN IEC 61851-21-2:2021, EN IEC 61000-6-1:2019, EN IEC 61000-6-3:2021, EN IEC 61000-3-2:2019+A1:2021, EN 61000-3-3:2013+A1:2019+A2:2021; TÜV (DIN SPEC 70121/12.14, DIN SPEC 70122/11.18)		
	Safety Function	Over-voltage protection, under-voltage protection, overload protection, grounding protection, over-current protection, emergency stop protection, leakage protection and over temperature protection.		
Environmental Indicators	Working Temperature	-35℃~+55℃		
	Working Humidity	5%~95% non-condensing frost		
	Working Altitude	<2000m		
	Ingress Protection	IP54 (IEC 60529)		
	Cooling Method	Natural air cooling		
	Noisy Control	≤40dB		
	MTBF	17520 hours		

Function Name	Function Description
Output Over-current Protection	Determine whether the sampling current is greater than the maximum allowable current + 2A, and count for 5s. If the current is still greater than the maximum current + 2A after 5s, it is determined to be an over-current fault. Disconnect the output circuit within 5S~10S after an over-current fault occurs; Store and upload the information of over-current fault; Change the display status of the AC single Station to failure; Recovery method: User draws the gun
Input Over-voltage Protection	AC single Station over-voltage, the protection point is fixed, and the input voltage is detected to be greater than 264Vac for 5 seconds: Timely upload the information of over-voltage fault; Timely change the display status of the AC single Station to failure; Disconnect the output voltage within 5S~10S after the over-voltage fault occurs, and the output voltage should drop below the AC peak value of 42.4V within 100ms; Charging is not allowed when the fault is not repaired, and the display status is always faulty. Restoration feature: Repair over-voltage fault when the voltage is lower than 254Vac. It can automatically resume charging within 10 minutes.
Input Under-voltage Protection	AC single Station, the under-voltage protection point is fixed, and the input voltage is detected to be less than 176VAC for 5 seconds: Timely upload the information of under-voltage fault; Timely change the display status of the AC single Station to failure; Disconnect the output voltage within 5S~10S after the under-voltage fault occurs, and the output voltage should drop below the AC peak value of 42.4V within 100ms; Charging is not allowed when the fault is not repaired, and the display status is always faulty. Restoration feature: Repair under-voltage fault when the voltage is higher than 186Vac. It can automatically resume charging within 10 minutes.
Relay Over Temperature Protection	When the AC single Station is in operation and it is detected that the temperature of the relay is higher than the over-temperature protection threshold (125°C): Timely upload and save the information of relay over-temperature fault; Timely change the display status of the AC single Station to failure; Recovery method: User draws the gun
CP Failure Protection	Timely cut off the output when charging, and the output voltage should drop below the AC peak value of 42.4V V within 100ms; Timely change the display status of the AC single Station to failure; Timely upload the information of electronic lock signal failure; Restoration feature: It can be restored after drawing the gun.
Metering Communication Failure	If the communication between the MCU and the metering chip is abnormal for 10 seconds continuously: Timely upload the information of metering communication failure; Timely change the display status of the AC single Station to failure; Restoration Feature: Restoring Communications
Relay Sticking Protection	It is necessary to perform a relay adhesion detection before the AC single Station is charged, in the case of a relay failure: Timely upload and save the information of relay adhesion failure; Timely change the display status of the AC single Station to failure;
Residual Current Leakage Protection	In case of leakage of AC single Station: Timely upload and save the information of residual current protection failure; Timely change the display status of the AC single Station to failure; The leakage protection range is 15mAac~30mac or greater than 5mAdc, and a fault is reported, and the leakage protection judgment time is less than 100ms. Restoration feature: failure disappears, gun drawn.
Ground Fault Protection	In the event of a fault that the grounding wire is disconnected during the operation of the AC single Station:

	Timely upload and save the the information of ground fault; Timely change the display status of the AC single Station to failure; Timely cut off the output when charging, and the output voltage should drop below the AC peak value of 42.40V within 1s; Restoration characteristics: reliable grounding, power on again.
Short Circuit Protection	If there is a short circuit at the output muzzle, it needs to rely on the power distribution of the upper level of the Station body for short circuit protection;

5.2 Security Function List

Chapter 6 Installation Method And Drawing

6.1 Overall Dimensions Of The Equipment

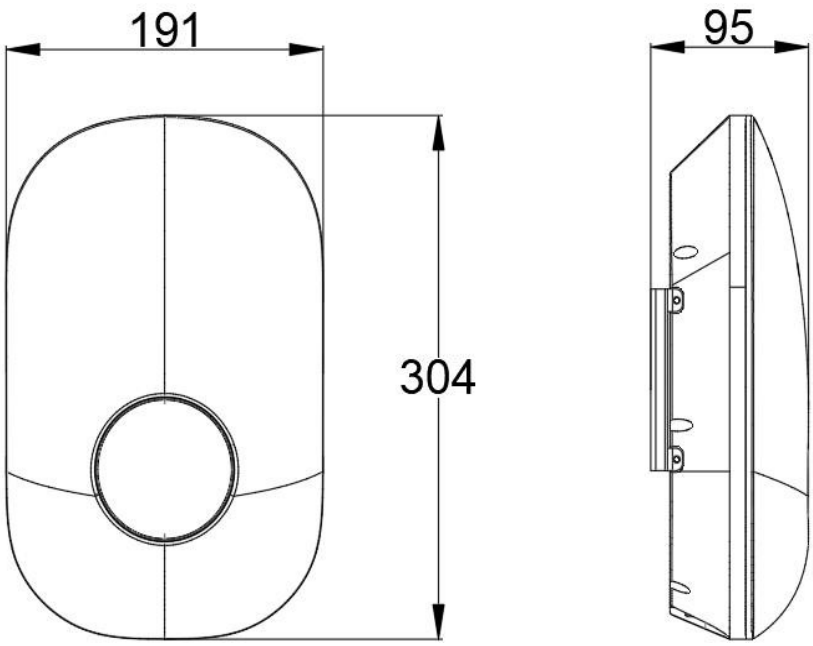


Figure 6-1-1 Overall Dimensions Of The Wall-Mounted Device

6.2 Installation Of Equipment

6.2.1 Packing List

Check the packing box for the following items before installation (subject to the packing list)

1. Wall mounted AC charging Station (1 set)
2. Installation manual (1 set)
3. Certificate of quality (1 piece)
4. Install expansion screws (1 Bag)
5. Install back panel (1 piece) and AC gun stock (1 piece)

6.2.2 Installation Environment Requirements

1. The Ingress Protection of this series EV AC charging Station: IP54;
2. Ambient temperature: -35℃ to +55℃.

6.2.3 Installation Method

This series of EV AC charging Station can be installed Wall-mounted according to the requirements Installation size, as the Figure 6-2-1 Install panel and AC gun stock;

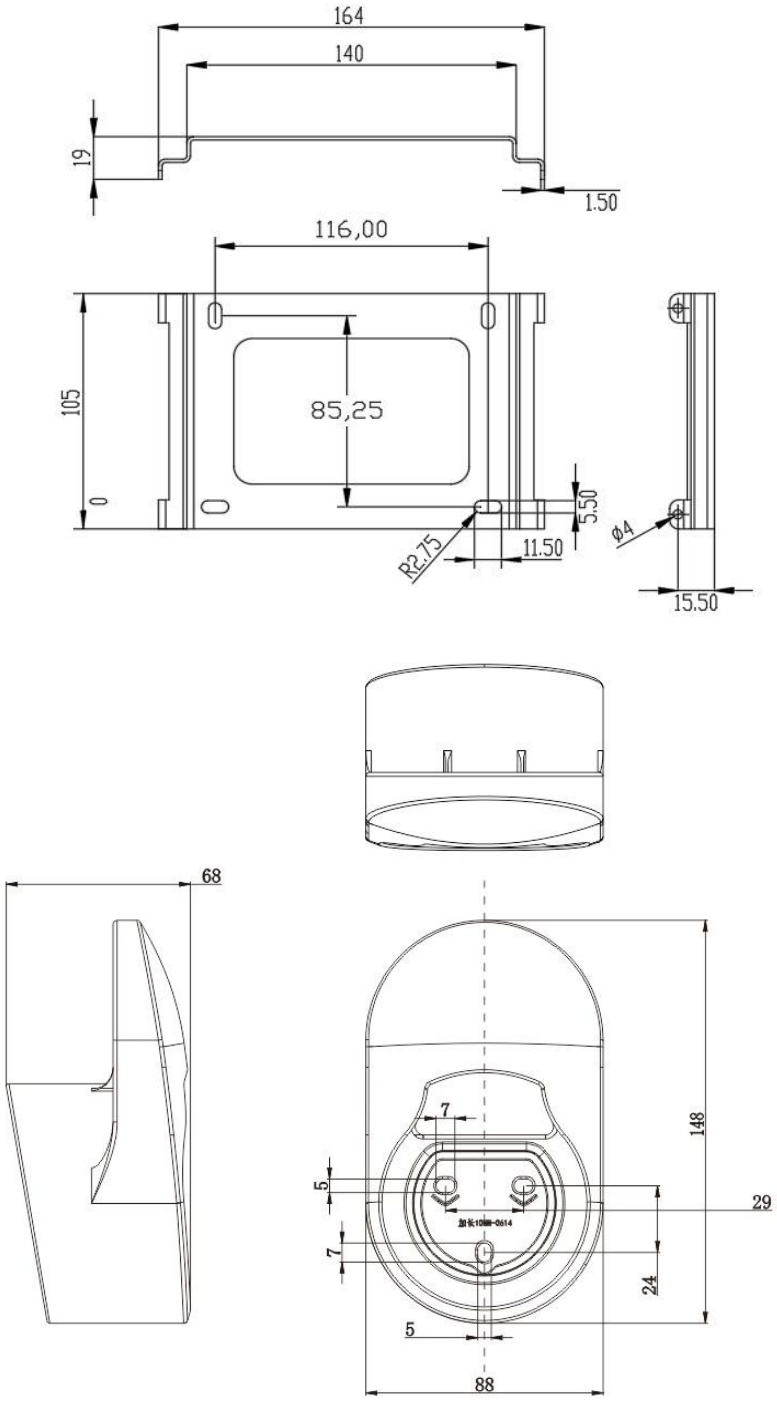
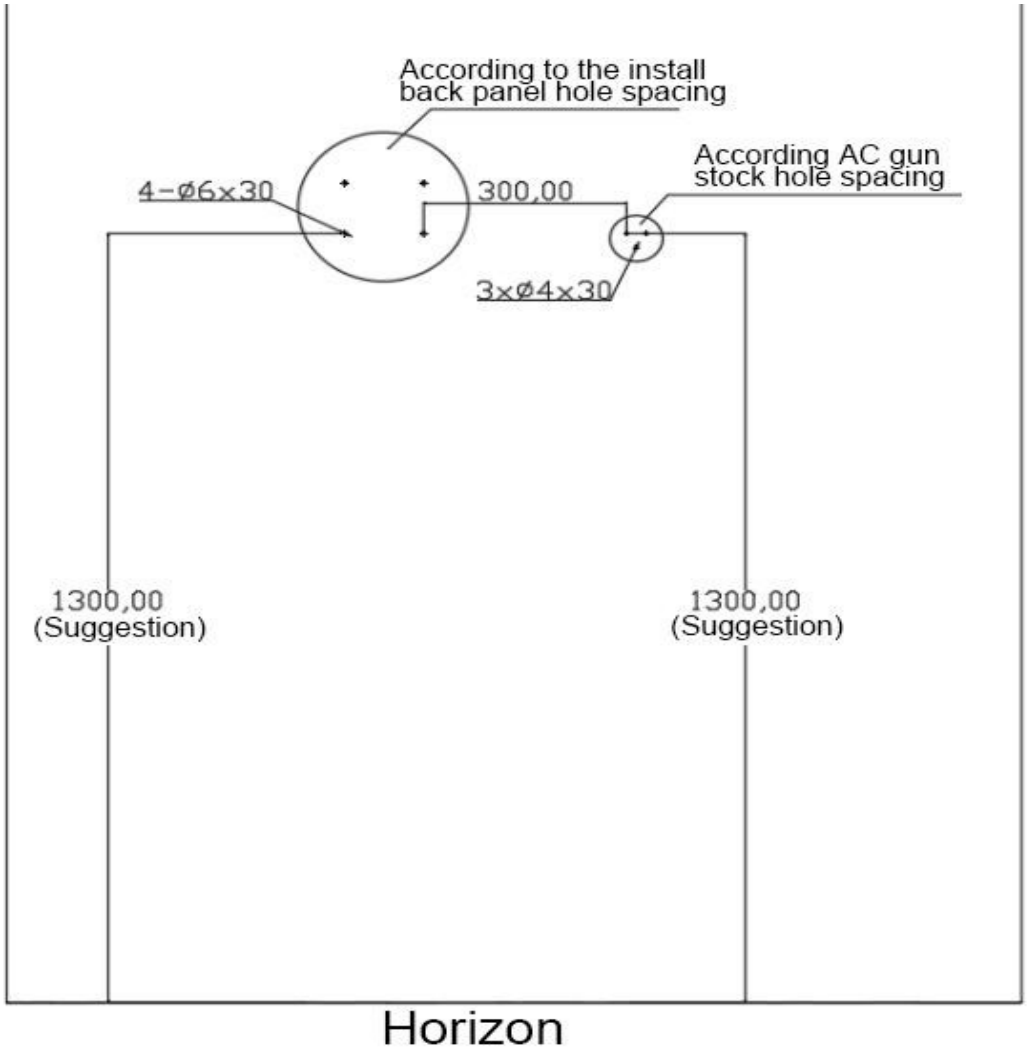
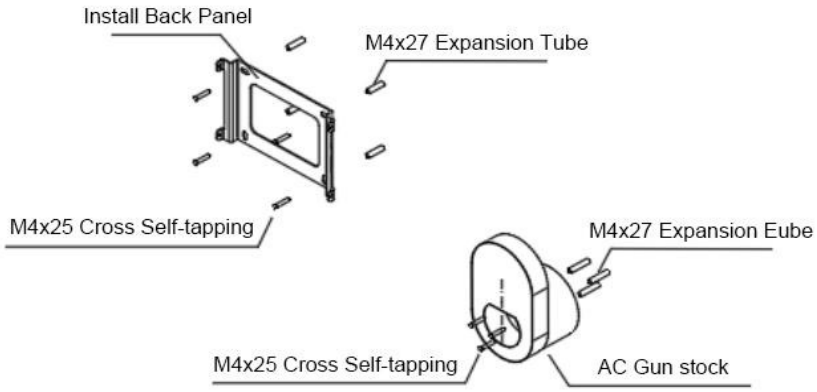


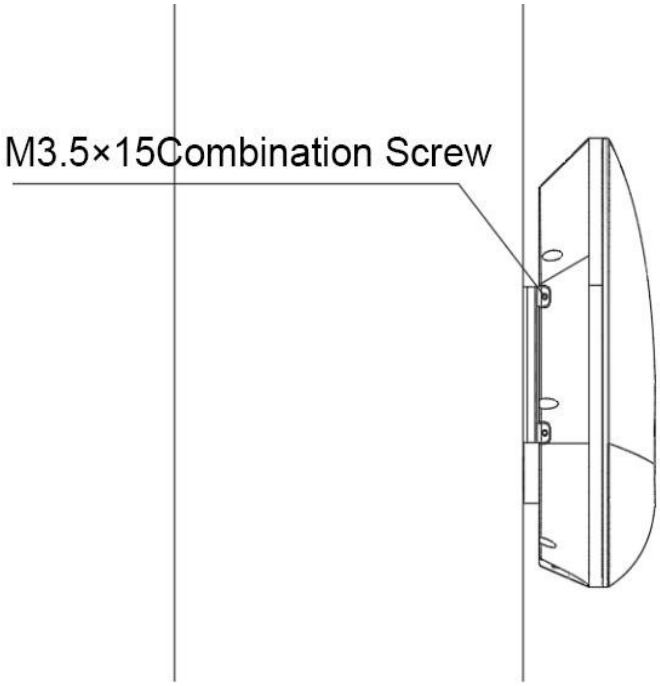
Figure 6-2-1 Install Panel And AC Gun Stock

Wall-Mounted Installation Method:

Use a φ6.0 impact drill bit to drill 30 to 40mm into the wall and insert a φ4.0x27 expansion pipe with an outer diameter of 6mm;
Use M4*25 self-tapping screws to screw into the expansion tube through the mounting holes of the Install panel;
Align the mounting holes on the side of the housing with the holes on the Install panel and take M3.5x15 screws to fix the charging station and the Install panel.




Install Back Panel
M4x27 Expansion Tube
M4x25 Cross Self-tapping
M4x27 Expansion Eube
M4x25 Cross Self-tapping
AC Gun stock


M3.5×15Combination Screw

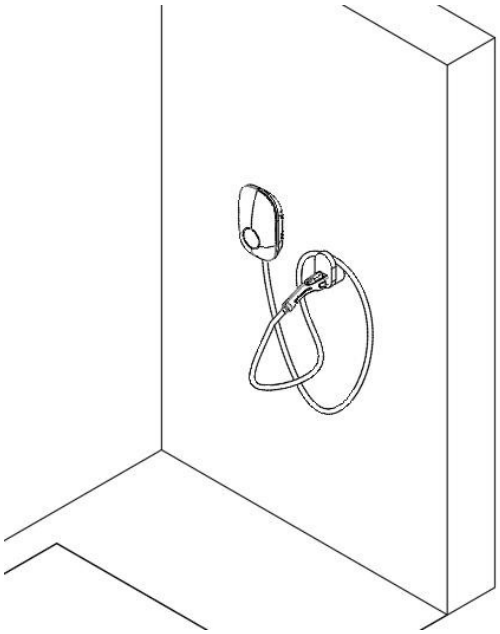


Figure 6-2-2 Wall-Mounted Installation Method

6.3 Cable Access

Connect the AC charging station input cable to the main box wiring terminal;

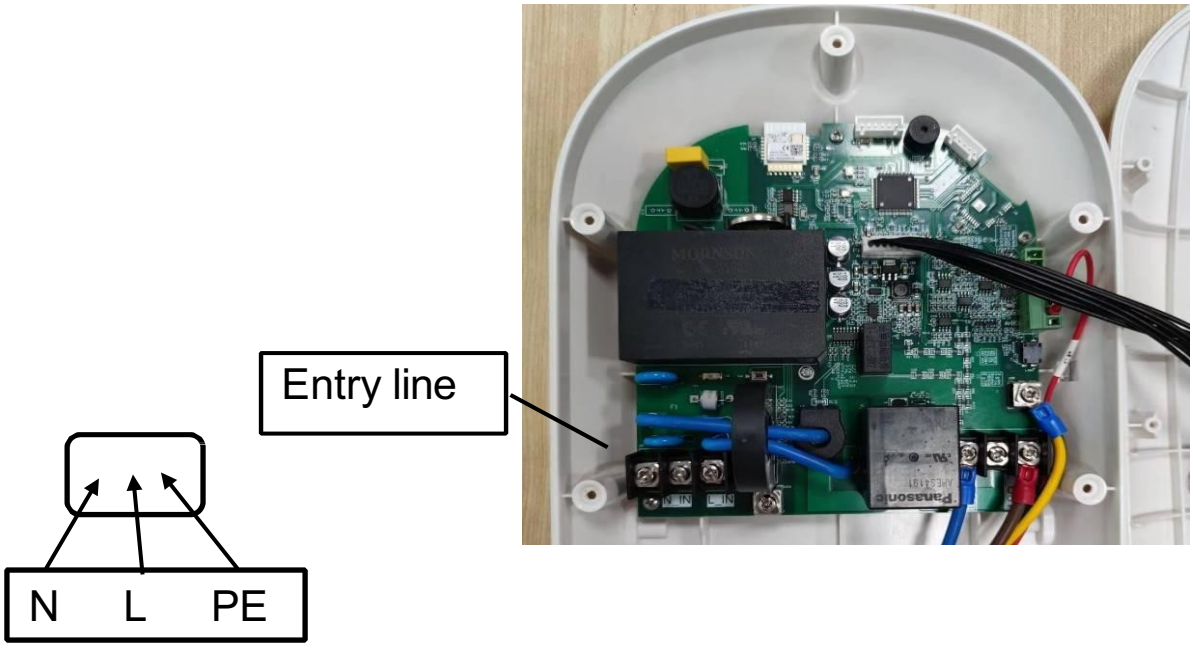


Figure 6-3 Wiring diagram

Chapter 7 Lights Meaning

Meaning of LED indicator
The charging indicator light indicates the status as follows:

No.	State	Led Color	Indicator Dynamics
1	Standby	Green	Breathe
2	The gun is connected but not charging	Blue	On
3	Faulted	Red	On
4	Charging	Blue	Breathe
5	Starting / Stopped	Blue	On
6	Pause	Blue	On

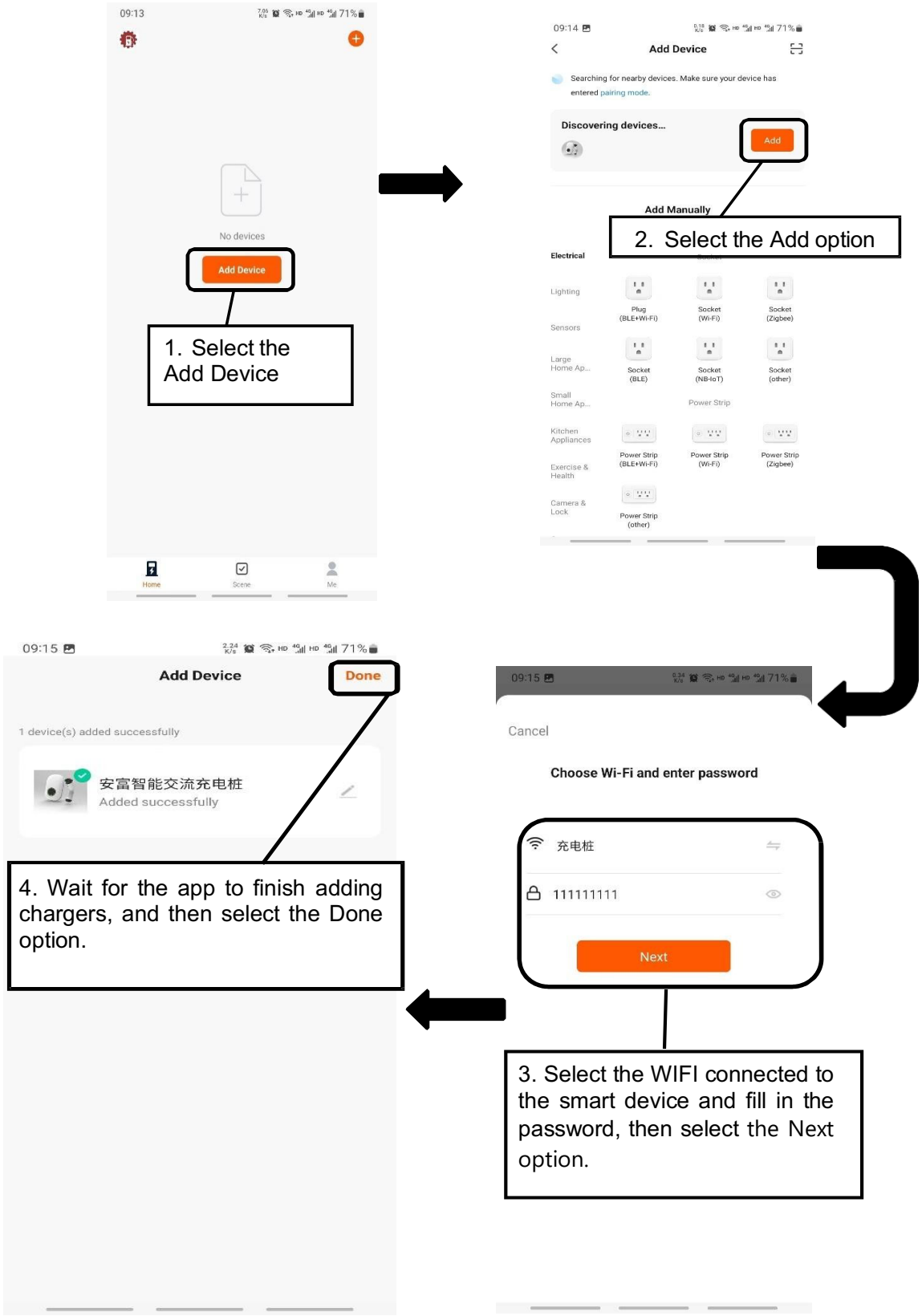
Chapter 8 App Operation Instructions

First, you need to have a wireless router and turn on the WIFI function, and have a smart device connected to this router and installed with the application of this product.

8.1 Connect The Charger

1. Press and hold the button on the right side of the charger for three seconds.

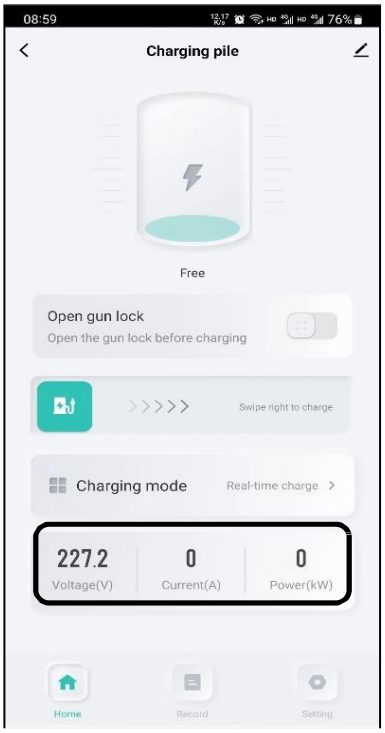
2. Turn on the Bluetooth function of your smart device and go to the app to add the charger.

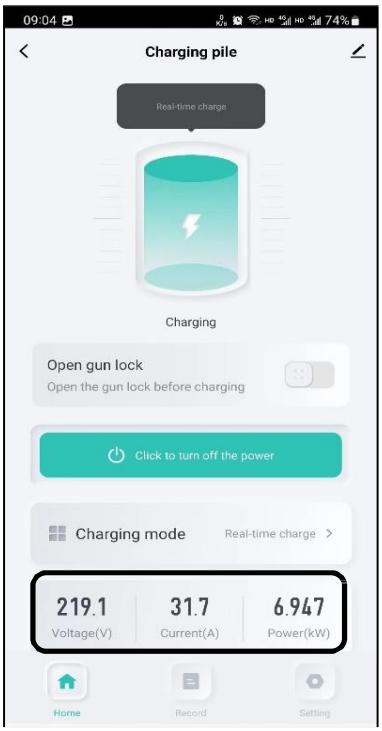


8.2 Monitor The Charger

1. Monitor charging data in real time.

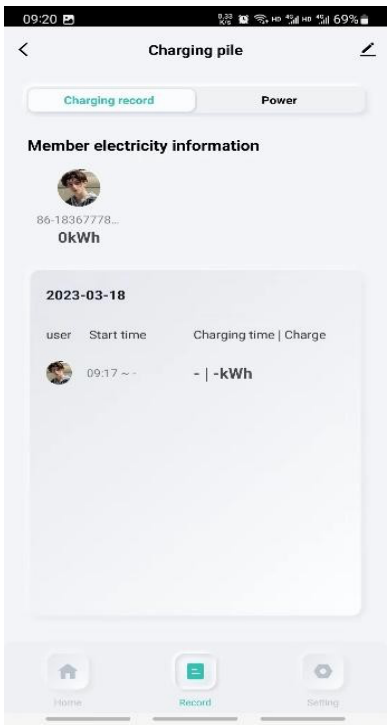
Select the “Home” tab at the bottom of the interface.





2. View charging history.

Select the “Record” tab at the bottom of the interface.



Chapter 9 Storage And Transportation

9.1 Storage And Transportation Of Equipment

There must be corresponding tightening measures during transportation. Avoid strong vibration and bumps from damaging the outer packaging of the device. Check for damage after arrival. If there is any transportation damage, please negotiate with the transporter and our company. After opening the box, check whether the contents of the box are consistent with the packing list.

Packaged equipment should be stored in a room with a relative humidity of ≤80% and an ambient air temperature of -10°C～+40°C. The storage place should be kept dry, clean and well ventilated, and can prevent the intrusion of various harmful gases. It is strictly forbidden to store it in the same place with corrosive items.

Note: Non-professionals are strictly prohibited from dismantling equipment components.

Chapter 10 Common Faults And Solutions Of EV AC Charger Station

Serial No.	Common Malfunctions	Method Of Exclusion
1	When the gun is inserted, the charger does not start charging	Please check whether the charging gun is reliably connected to the vehicle and whether the gun lock is locked.
2	When the red led flash once in 5s	Pull out the plug and check whether the charging gun is reliably connected to the vehicle and whether the gun lock is locked.
3	When the red led flash twice in 5s	Turn off the power and repair the electrical line ground fault.
4	When the red led constant lighting	Pull out the plug and consult after-sales service.

Chapter 11 Maintenance And Preservation Of EV AC Charging Station

11.1 Maintenance

Shading and rainproof measures should be taken for charging Stations, It is recommended to install canopy outdoors.

Regularly check whether all the bolts in the charging Station are tight, whether the connecting wire is loose, and the connection is not firm. Check whether there is a short circuit.

Pay attention to lightning protection and ensure the effective shielding and reliable grounding of the charging Station.

When using it, try to control the output voltage and current of the charger station within the nominal range, ensure that the charging Station works with maximum efficiency.

When the body is out of use, the charging output should be stopped first, then wind the cable and put it back in place.

Note: During the transportation of the equipment, Pack the charger station firmly and mark the direction of loading and unloading. It is forbidden to store and transport the charger station upside

down;

There must be corresponding tightening measures. Avoid strong vibration and bumps from damaging the outer packaging of the device.

Note: non-professional personnel are strictly prohibited from installing the EV AC charger.

Chapter 12 Warranty Card

Warranty Regulations

1. The warranty period of this product is 2 year.

2. During the warranty period, the faults (as determined by the official staff of the company) arising from normal use according to the instructions for use will be repaired free of charge.

3. Except for the following problems, charging equipment can enjoy the above related warranty term：

3.1 Not able to provide this guarantee and valid proof of purchase;

3.2 Exceeding the warranty period specified by the manufacturer;

3.3 If there is no warranty certificate and valid invoice, or the content on the warranty certificate does not match the physical identification of the repaired product or is altered;

3.4 Failure to comply with the requirements of the product instruction manual for use, maintenance, and customs declaration resulting in damage;

3.5 Damage or malfunction caused by foreign matter entering;

3.6 Failure caused by products not manufactured by the company;

3.7 Failure to bear the damage caused by the demolition of the repairman;

3.8 Damage caused by force majeure (such as lightning, excessive voltage, earthquake, fire, flood and other natural disasters);

3.9 Failure and damage caused by other unavoidable external factors;

3.10 Improper use result to equipment intake with water or other liquid and cause damage;

3.11 Use a power supply other than specified, damage caused by voltage.

4. Only make the above warranty without any other warranty, express or implied (which includes implied warranties of merchant ability, reasonableness and adaptability to a particular and application), the Company shall not be liable for any special occasional or indirect damage, whether in the contract, civil negligence or otherwise.

For Customer

Product name: _____ Serial number: _____

Product type: _____

Date of manufacture: _____ (Subject to commissioning and acceptance)

Stamp of Manufacturer:

Customer name: _____ Tel: _____

Customer signature: _____

Customer ADD: _____

1. Warranty content: _____ After-sales service: _____

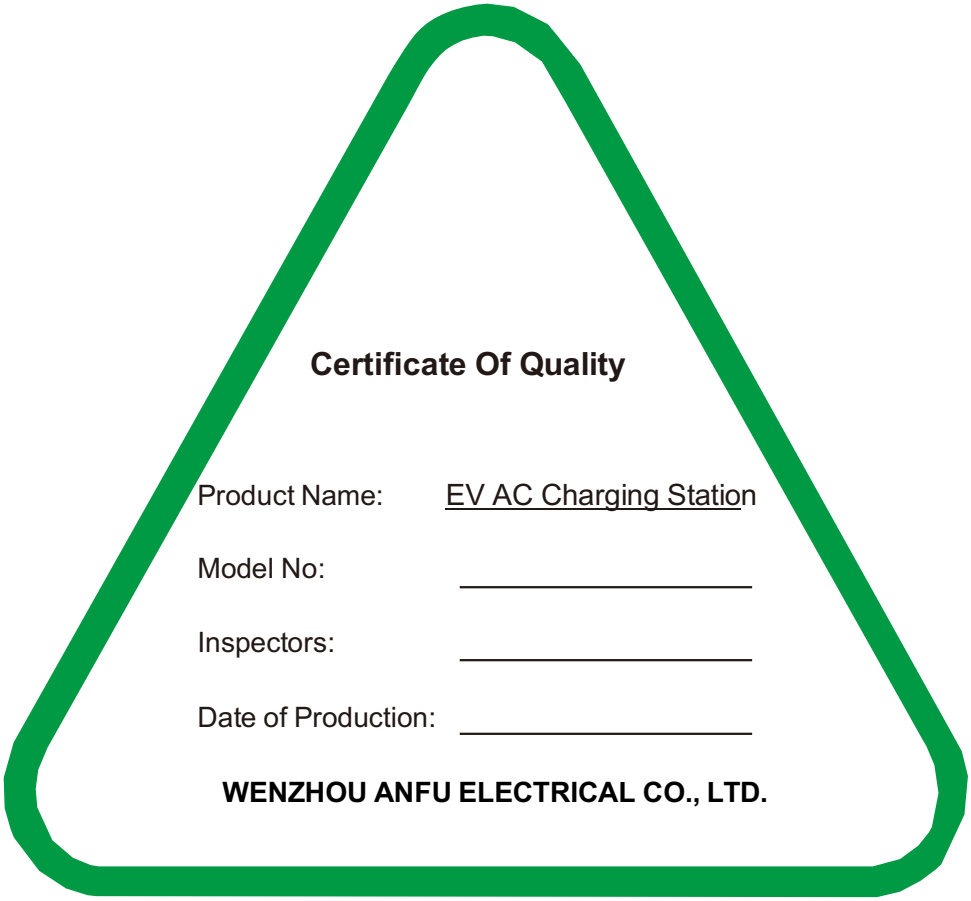
Customer signature: _____

2. Warranty content: _____ After-sales service: _____

Customer signature: _____

3. Warranty content: _____ After-sales service: _____

Customer signature: _____



Assembly and testing of the equipment are carried out by DOBRATEH, d.o.o. under the supervision of WENZHOU ANFU ELECTRICAL CO., LTD.

(date_____).

Specialist responsible for assembly and control_____