ATESS EVD-80D

DC EV Charging Station
User Manual

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Thank you for choosing ATESS

EVD series intelligent DC EV charging station is a device that provides high-efficiency, safe and stable DC power supply for electric vehicles, which has a friendly man-machine interface and integrates corresponding functions of control, billing, communication and security protection. The charging equipment uses OCPP 1.6JSON open protocol for communication with back-office server, thus to realize functions such as reservation and network payment via mobile APP. Diversified communication options, including wired Ethernet, WIFI, 4G, wireless, are provided for customers to conveniently connect the device to a charging network. This product supports CCS2. Each connector works independently. Up to 2 EV could be charged at the same time. All the above features make it most suitable for outdoor charging.

We sincerely hope that this product can meet your needs, and we welcome and value your feedback and suggestions on the performance and function of the product. We will continuously improve the quality of our products and services.

Contents

1 Product Description

1.1 Product summary

1. HMI.
2. Charging connector holder.
3. RFID reader.
4. LED indicators.
5. WIFI/4G antenna.
6. POS (opt, refer to Chapter 7.1 for installation)
7. Emergency Stop button.
8. Mounting bracket.
9. Air intake.
10. Charging connector holder.

Explanation of LED indicators behaviors:

Blue - Standby (The charging equipment can only be used when the blue light lit).

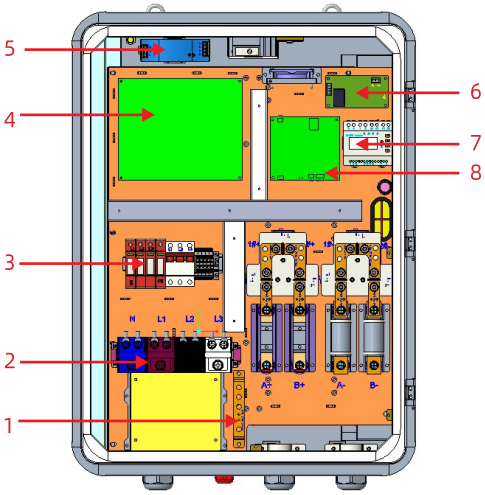
Red Steady on/Flashing - Fault.

Green Steady on - Charging in process.

Green Flashing - Establishing communication.

Yellow Flashing - System initializing.

1.2 Internal view and terminal definition



1. PE terminal
2. AC input terminal block.
Terminal definition is (L1/L2/L3/N).
3. SPD
4. Main board
5. Auxiliary power supply
6. Insulation detection board
7. Power meter
8. SECC communication board

Fig: AC Surge protection device

Note: The charging equipment will detect the current status of the lightning arrester module in real time. When the lightning protection module is damaged, the display will have an alarm indicating that the lightning protection device is faulty. When repairing and replacing the lightning protection module. Then the maintenance person can operate the breaker in the surge protection circuit and replace the lightning protection module. (When the indication window indicates green, the lightning protection module is normal; when the indication window indicates red, the lightning protection module has been broken and damaged, and the lightning protection module needs to be replaced.)

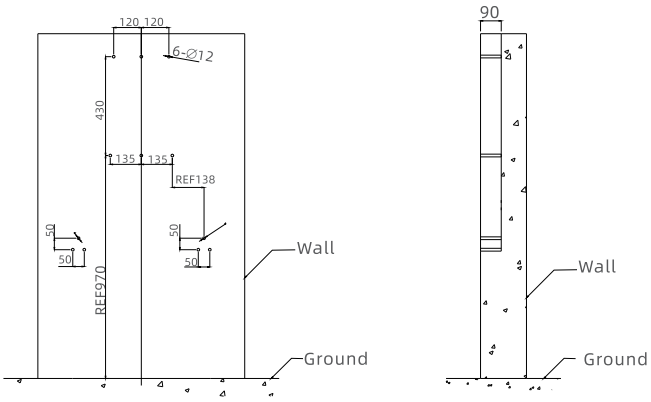
2 Packaging List

No.	Items	Qty	Remark
1	DC EV Charging station	1	
2	User manual	1	
3	Certificate of quality	1	
4	User card	2	
5	Mounting bracket	1	Already installed on the rear side of the charging equipment.
6	Cable holder	2	
7	Cable socket	2	
8	Hex head expansion bolt, M8*80/304 stainless steel.	12	
9	Hexagonal socket head screw, M6*16/304 stainless steel.	8	
10	Standard spring washer,D6/304 stainless steel.	8	
11	Flat washer, D6/304 stainless steel.	8	
12	L-shaped Anti-theft Wrench for Plum Blossom Stud Screws, Size M6.	1	
13	L-shaped Anti-theft Wrench for Plum Blossom Stud Screws, Size M4.	1	

3 Installation and Wiring

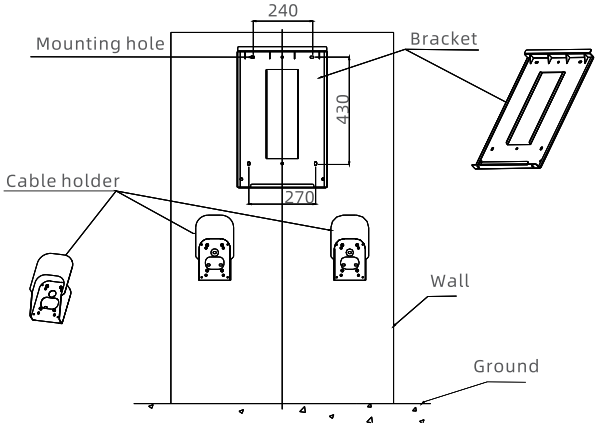
3.1 Installation on the wall

3.1.1 Firstly, according to the specific installation height requirement of the user, determine the installation height of the charging equipment and the installation height of the cable holder. According to the dimensions in the following drawings, drill 4 holes for bracket mounting and 3 holes for cable holder mounting on the wall. Take out the expansion bolts in the packing accessory bag, hammer the expansion bolts into the holes. Remove the nuts and washers for later use.



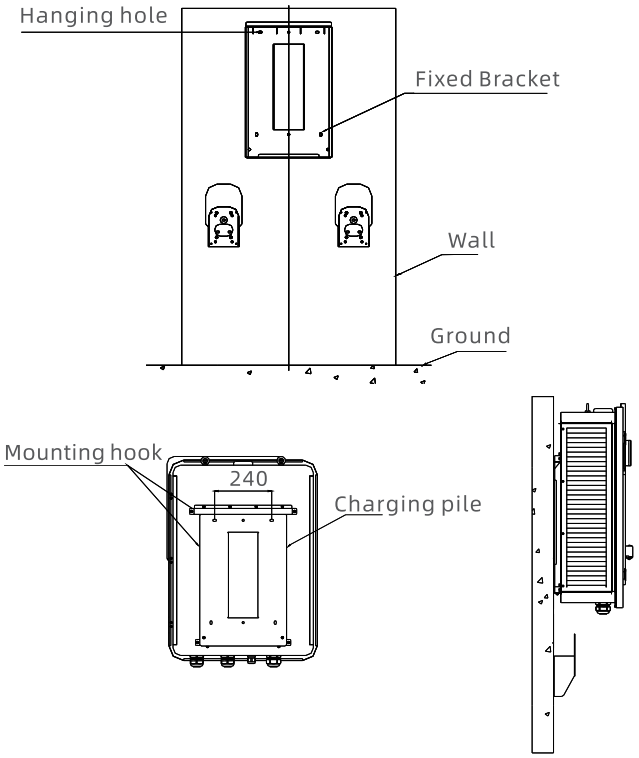
Drill holes on the wall

3.1.2 Loosen the 2 screws at the bottom of the charging equipment that fixes the mounting bracket, keep them properly for later use. Place the mounting bracket onto the bolts just installed and screw the nuts and washers. Take out the cable holder and fix it using the same procedure.



Mount the bracket and cable holder

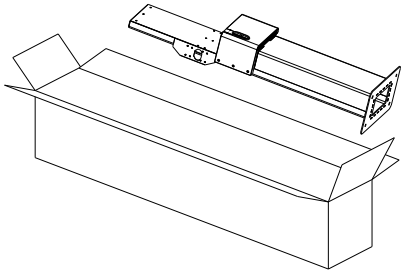
3.1.3 After the mounting bracket and cable holder is fixed, place the charging equipment onto the mounting bracket, with the outward bent part inserted to the slot on the rear side of the charging equipment. Lock the charging equipment onto the bracket at the bottom using the 2 screws. The installation is done.



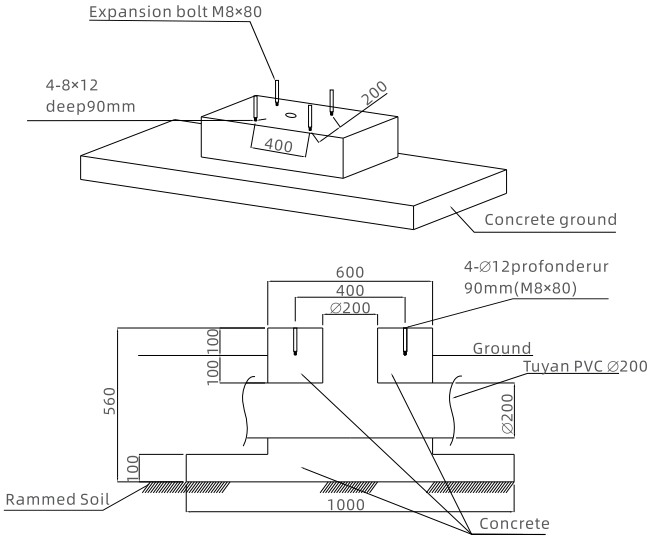
Insert the hanging hooks of the charging pile into the hanging holes and install in place

3.2 Installation on a pole

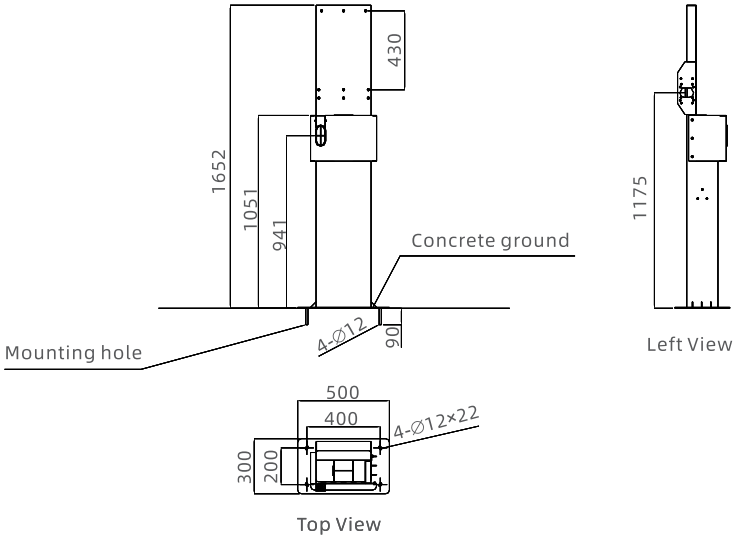
3.2.1 Open the packaging of the pole, take out the pole and mounting accessories.



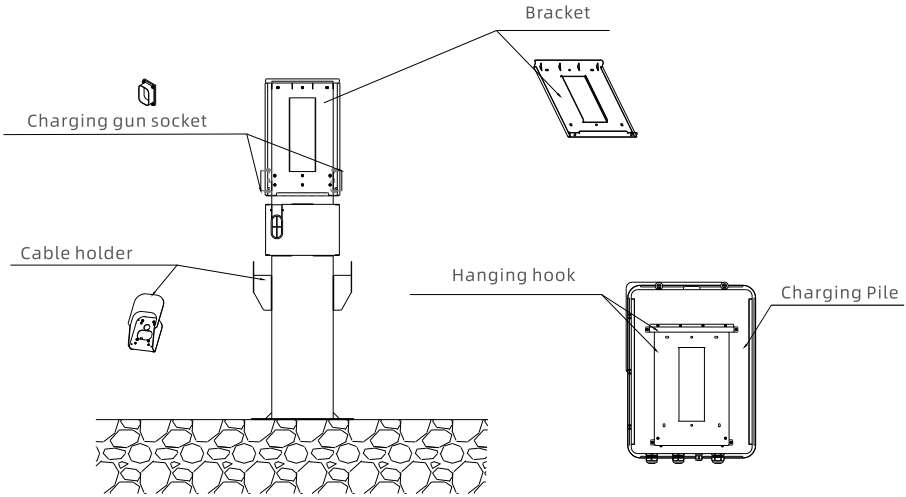
3.2.2 The pole must be installed on a hard surface, concrete surface is recommended, it can also be mounted on a solid ground. Drill holes according to the requirements marked on the illustration for fixing expansion bolts.



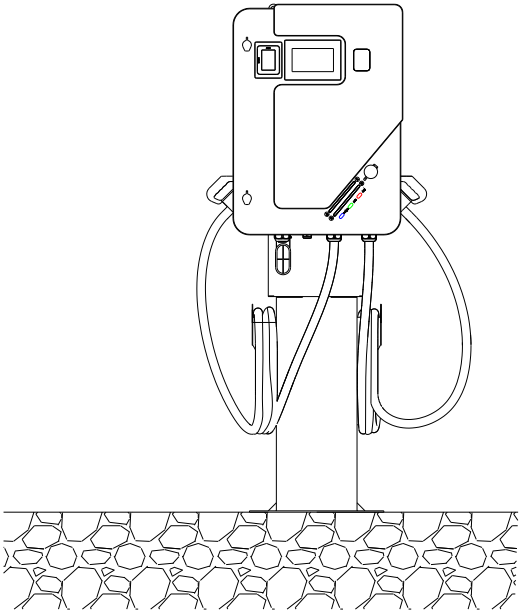
3.2.3 Fix the pole onto the holes with expansion bolts. The input cables shall go into the pole from the bottom middle area and come out of it from the area below the cable holder.



3.2.4 Fix the mounting bracket onto the pole.



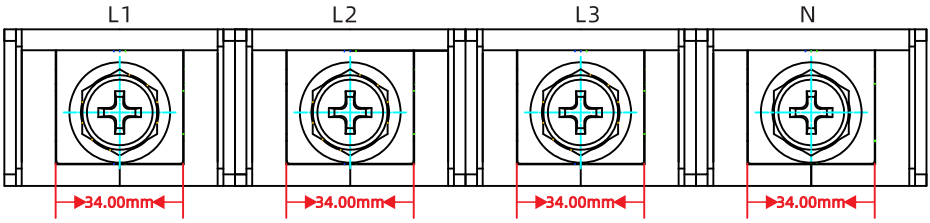
3.2.5 Position the charger onto the bracket and secure it on the bracket with the 2 screws.



3.3 Wiring

Now prepare for wiring. Use 4 power cables and 1 PE cable, it is suggested to use a 5-core cable(with PE included) for the convenience of using the water-proof cable gland. The live wires shall be at least 50mm², PE shall be greater than 25mm². The terminals for L1, L2, L3, and N wires are all secured with M10 screws. The terminal for PE wire is secured with M8 screw. Open the 2 locks at the left side of the upper front cover and open it. Connect the AC input cables into the corresponding terminals through the cable gland on the bottom left side and fasten them(Refer to the Internal view and terminal definition part for wire connection), put the transparent cover on the terminal block for safety purpose. Connect the network cable through the hole in front of the AC input cable gland to the RJ45 socket and fasten the water-proof gland. Turn on the MCB. Close and lock the upper cover after checking internal wiring and breaker position. The wiring is then finished.

	L1	L2	L3	N	PE
Terminal					
Wire	≥50mm² ≥AWG1/0	≥50mm² ≥AWG1/0	≥50mm² ≥AWG1/0	≥50mm² ≥AWG1/0	≥25mm² ≥AWG3

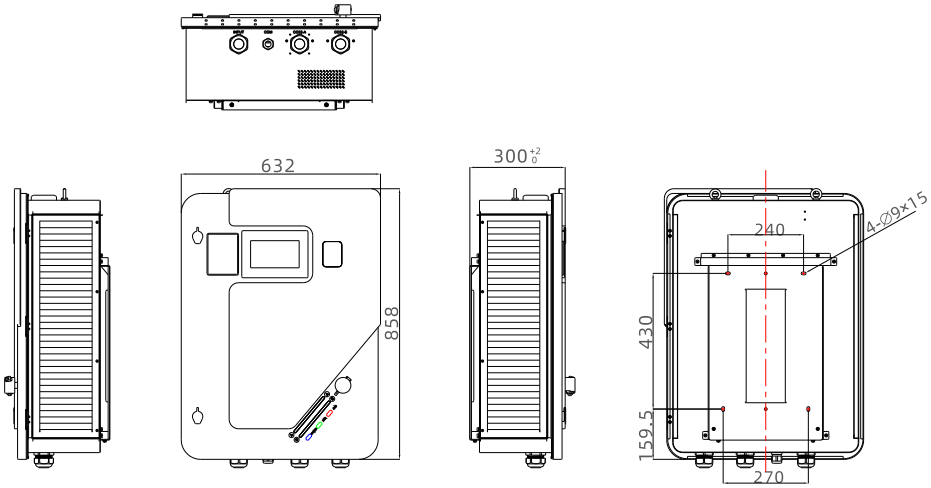


Mechanical and Installation Specifications:

①Copper strip width: 34.00mm

②Screw torque: 45 lbf·in

③Wire crimping range: 50mm² (incoming wire)



Note:

1.Only professional personnel can do the wiring, connect the AC input wires in correct phase order according to the markings on the terminal block.

2.The PE terminal shall be connected to the Earth firmly and reliably!

3.No live work! Turn off the upstream breaker in the distribution panel and the breaker inside the charging equipment before repairing or maintaining.

4.It is recommended to install at least TypeA circuit breaker protection at the front of the charger input.

Distribution end RCBO Selection Recommended:

Rated power P: 80kW

Rated voltage Ue: 400Vac

Working voltage U: 320Vac~457Vac

Efficiency η : 95%

Power factor PF: COSΦ≥0.99

Rated current: Ie=P/1.732η UeCOSΦ =123A, recommended RCBO rated current :≥153A=1.25*Ie.

Maximum current: Imax=P/1.732η UCOSΦ =154A, recommended RCBO rated current :≥192A=1.25*Ie.

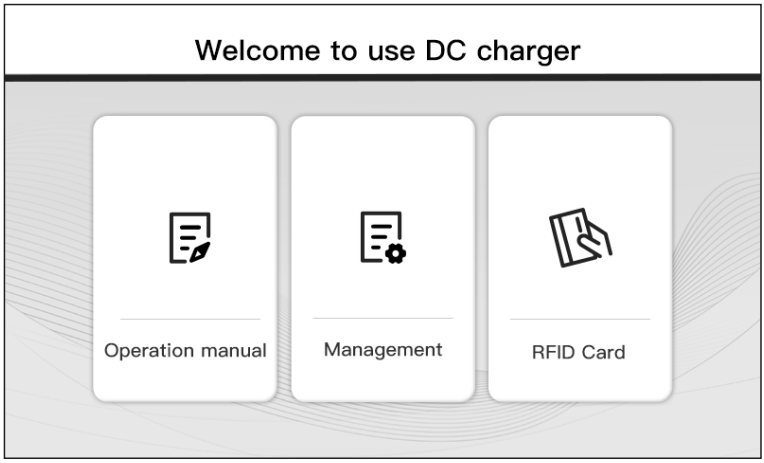
5.Adaptors of conversion adapters that are not allowed to be used

6.Extension cords that are not allowed be used

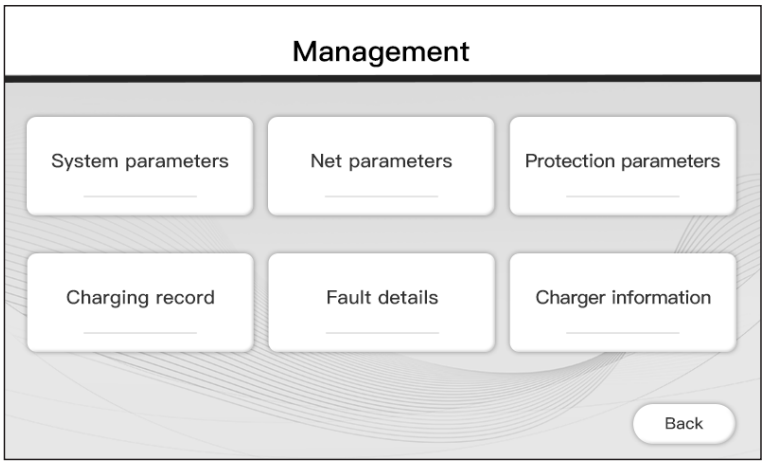
7.Please do not disassemble the unit unless authorized!

4 Parameter Configuration

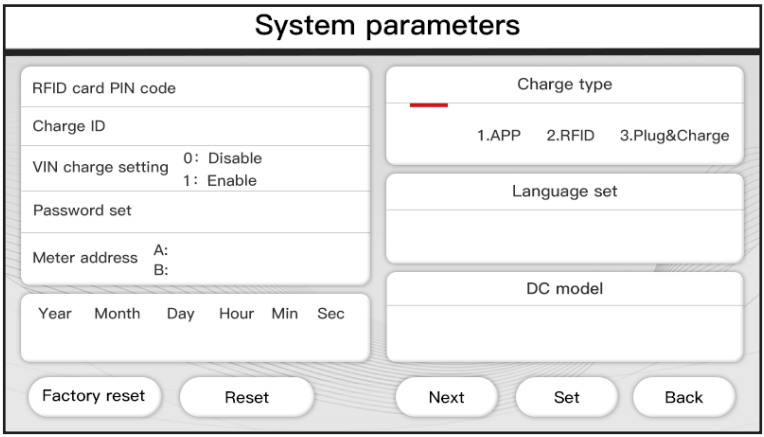
After installed and connected, the charging equipment must first be configured according to the actual needs of the user. The parametersare configured through the LCD touch screen. Save the change and exit then the charging equipment can be used normally.



After the system enters standby, click the button marked by the red rectangle in the above figure to enter the system management page, as shown below.



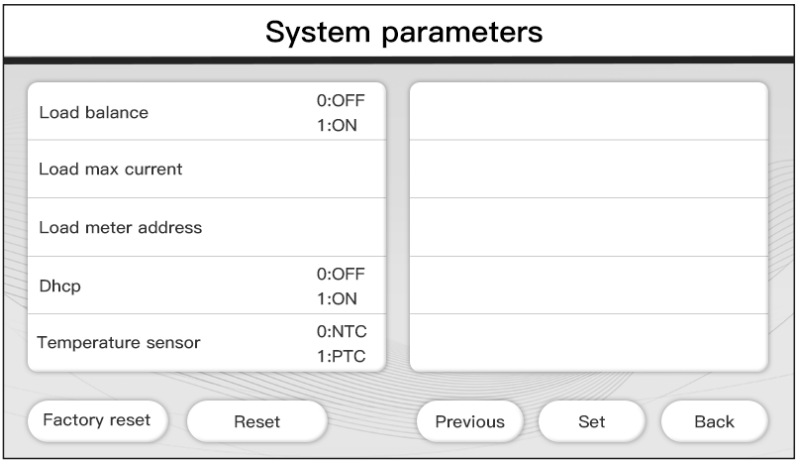
4.1 System Parameters



No.	Parameters	Function description
1	RFID card PIN code	PIN code setting of RFID reader, a 6-digit code, the default setting is 242007. It must be the same with the PIN code of user card. Users can also use other PIN code if they have card writer to change PIN code of user card.
2	Charge ID	Suggested to use serial number as charger ID.
3	VIN charge setting	Custom function.
4	Password set	Password of management page. It's a 4-digit fixed length password, default is "1234".
5	Meter address	DC meter's modbus address(already preset in factory, it is not allowed to modify)
6	Time set	System time setting. Format is Y, M, D, H, M, S. The year setting can only set the last 2 digits, e.g. use 22 for 2022.
7	Charge type	Charging mode setting. 1 is APP mode; 2 is RFID mode; 3 is Plug&charge mode.
8	Language set	Language setting. Currently support English and France dual language display.

No.	Parameters	Function description
9	DC	Charge model (already preset in factory)

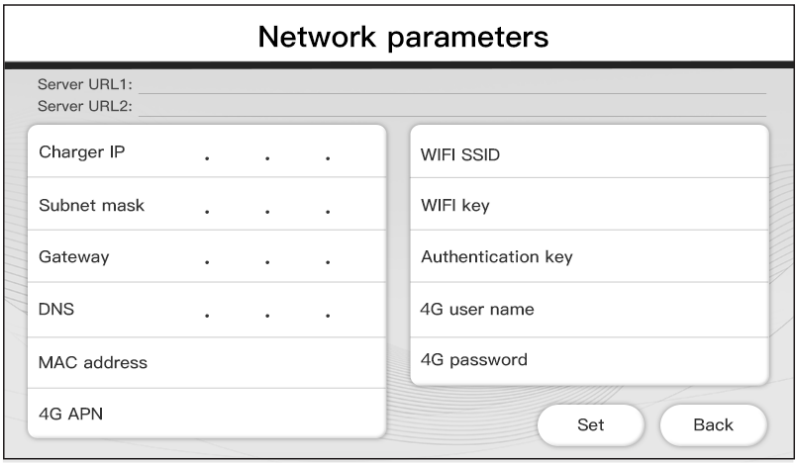
After changing parameters, click the "Set" button to save the setting, then click the "Back" button for the setting to take effect.



No.	Parameters	Function description
1	Load balance	Load balancing switch
2	Load max current	Load balancing limits current
3	Load meter address	Load balancing meter address
4	Dhcp	Automatically switch IP addresses
5	Temperature sensor	Charging cable temperature sensor type

4.2 Network parameters

Network parameters need to be configured when the charging station needs to be connected to back office server for operation and management. Network parameters include server parameters and charger parameters. Currently the charging equipment only support LAN connection, WiFi/4G is yet to develop.

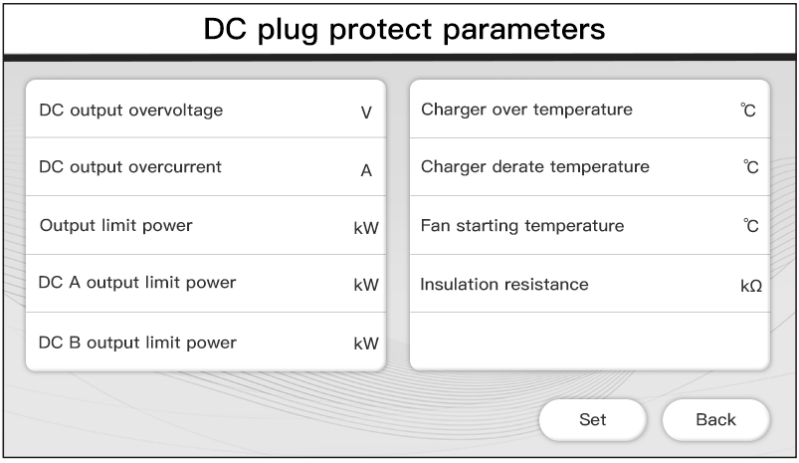


No.	Parameters	Function description
1	Server URL1	Server address setting, used to set domain or IP address of back-office server.
2	Server URL2	Address of backup server. This parameter is not available now, reserved for future use.
3	Charger IP	IP setting of the charging equipment.
4	Subnet mask	Subnet mask setting.
5	Gateway	Gateway setting.
6	DNS	DNS server address.
7	MAC Addr	MAC address.
8	4G APN	4G APN setting.

No.	Parameters	Function description
9	WIFI SSID	WIFI SSID setting, to set the name of the wireless network to which the charging equipment is to be connected. A reserved function for future use.
10	WIFI Key	WiFi password setting. A reserved function for future use
11	Authentication Key	OCPP login authentication setting
12	4G user name	4G user name setting
13	4G user pwd	4G uer password setting

4.3 Protection parameters

The protection-related parameters, such as voltage, current, temperature, power, etc.

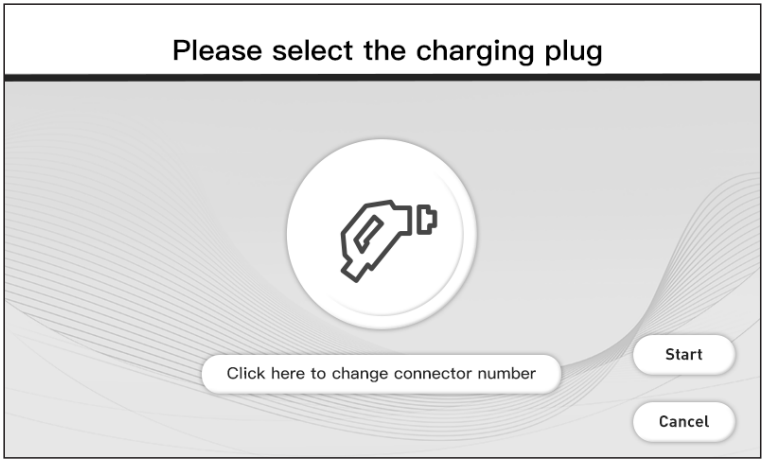


No.	Parameters	Function description
1	DC output overvoltage	Over voltage limit setting of DC output
2	DC output overcurrent	Over current limit setting of DC output

No.	Parameters	Function description
3	DC output limit power	Power limitation setting of DC output.
4	DC A output limit power	Power limitation setting of CCS-2-A output.
5	DC B output limit power	Power limitation setting of CCS-2-B output.
6	Charger over temperature	Over temperature limit setting of charging connector.
7	Charger derate temperature value	Charging connector's temperature at which the charging equipment starts decreasing output power.
8	Fan starting temperature	Fan operating temperature.
9	Insulation resistance	The min value of insulation resistance.

4.4 Plug type

There are CCS2 two plugs optional.



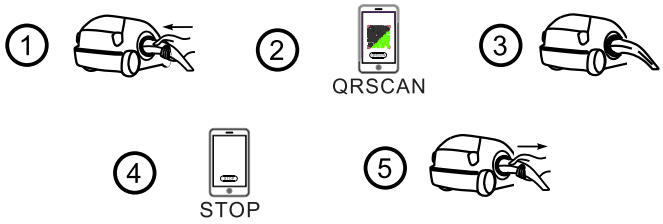
5 Operation instruction and LCD introduction

5.1 Charging mode and operation

APP mode:

Initiate or cease charging by scanning QR code using APP or by swiping RFID card.

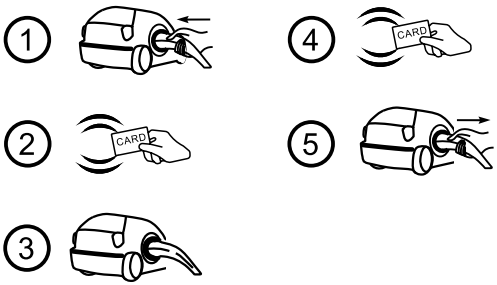
You can also use APP for reservation and payment provided that the back-office server supports such function.



APP mode operation process flow

RFID mode:

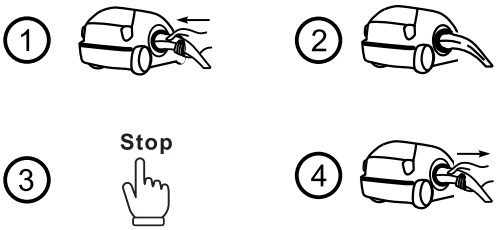
Charging can only be initiated or ceased by swiping RFID card.



RFID mode operation process flow

Plug&Charge:

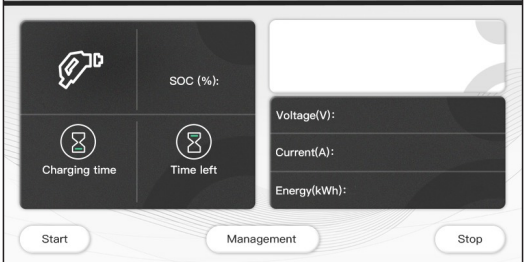
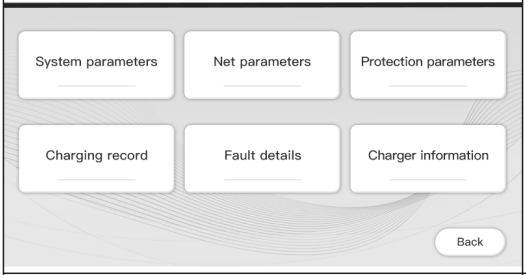
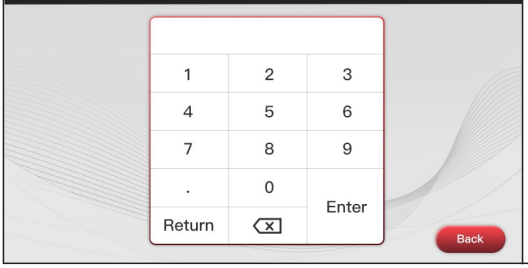
Charging will start automatically after EV plugged in. If you want to stop the charging, just press the stop icon on the screen.

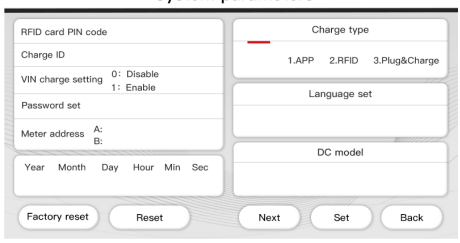


Plug&Charge mode operation process flow

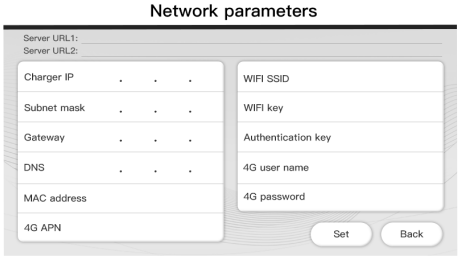
5.2 LCD interface introduction

The charging equipment is equipped with a 7 inch industrial-grade resistor type touch panel. The display content is as below.

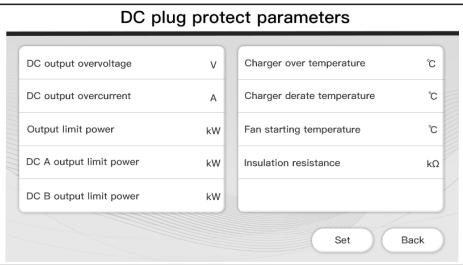
Welcome to use DC charger 	When powered up, the charging equipment will show this display.
DC connector charging information 	Charging information, which will show the status of the charging equipment, such as standby, charging, fault, etc.
Management 	Management page, user can set different kinds of parameters here. Password authentication is required when entering each parameter setting page.
Please enter password 	Password window. Before entering numeric, please first press the text display field to move the cursor there, then you can type in the 4-digit password. A wrong password will cause no response and action.



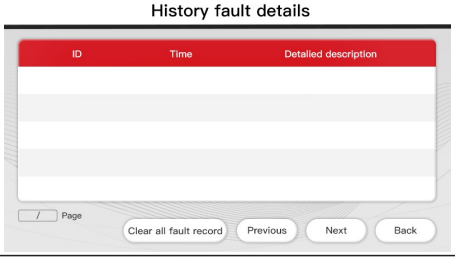
System parameters page.



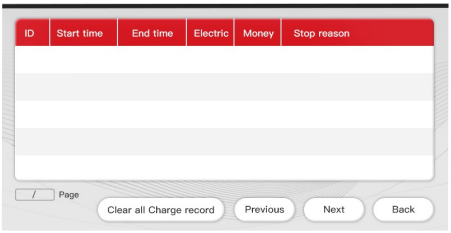
Network parameters page, used to set network related parameters of back-office server and the charging equipment.



Protection parameters page of DC output, used to set limit value of voltage, current, power, temperature, etc.



Fault record page, user can check history fault record here.



Charging record page.

5.3 Appendix: Fault code

No.	Fault description
1	Emergency stop is pressed!
2	Over temperature fault!
3	Lightning protection fault!
4	Power module communication fault!
5	Meter communication fault!
6	DC output overvoltage fault!
7	DC output overcurrent fault!
8	Waiting for BMS communication timeout!
9	Insulation detection timeout!
10	Insulation detection fault!
11	DC+ Contactor sticking fault!
12	DC- Contactor sticking fault!
13	Plug head connection over temperature fault!
14	BMS communication fault!

6 Specification

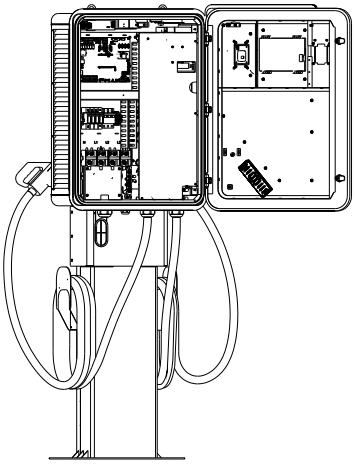
Model	EVD-80D
Dimension(mm)	632*858*300(W*H*D)
Weight(kg)	115kg
Display	LCD
Casing material	Stainless steel&acrylic sheet
AC input	
Grid connection	400V,3 phase 5 wires
Voltage	AC 320~457V
Current	122A
Frequency	50/60Hz
DC output	
Plug type	CCS2
Voltage	DC150~1000V
Current	0~200A
Voltage-stabilizing accuracy	< ±0.5%
Current-stabilizing accuracy	< ±1%
Power factor	≥0.98
Efficiency	≥95% Full Load

Ingress protection	IP54
Operating temperature	-25℃~50℃, derate since 50℃
Relative humidity	5%~95%
Altitude	≤2000m, derate for higher than 2000m
Cooling method	Forced air cooling
Remote monitoring	Ethernet/WIFI/4G/485/232
Payment	APP/RFID/Credit card
Standby power	50W
Standards	IEC 62196-3,IEC61851-1,IEC61851-23,ISO15118
Mounting	Wall or Pole
Certificate	CE
Metering accuracy	0.5
Protection features	
Over/Under voltage of AC output	YES
Over voltage of DC output	YES
Over temperature protection	Derate since 50℃
Emergency stop protection	YES
Lightning protection	Type II

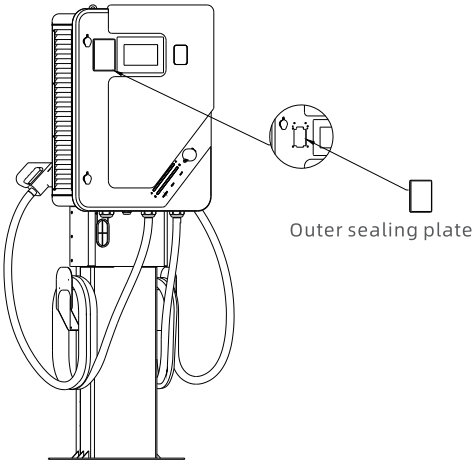
7 Appendix

7.1 POS installation

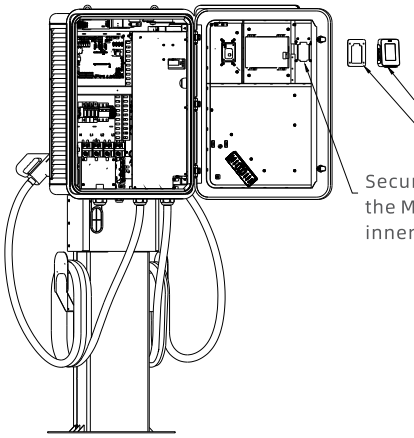
7.1.1Insert Card POS Terminal installation



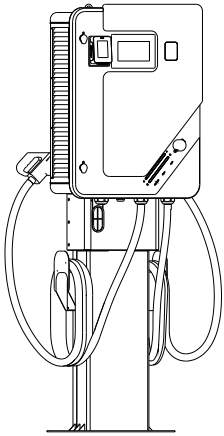
Step 1: Open the cabinet door



Step 2: Remove the outer sealing plate



Step 3: Insert Card POS Terminal installation



Step 4:
After installation completed,
Close the cabinet door

Operation steps:

1.Open the cabinet door with the key.

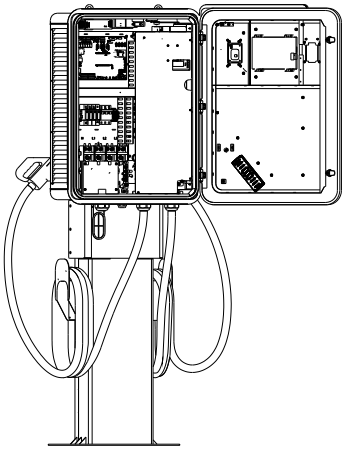
2.Remove the outer sealing plate from the inside of the cabinet with a cross screwdriver.

3. Install the POS machine base on the outer side, place the POS machine, and secure it from the inner side using M4x12 tri-grip screws.

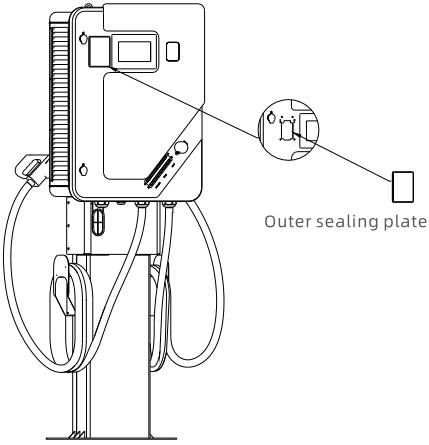
Make sure the POS screws are in place to make the rubber pad waterproof, otherwise there is a risk of water leakage.

4.Close and lock the cabinet door after checking.

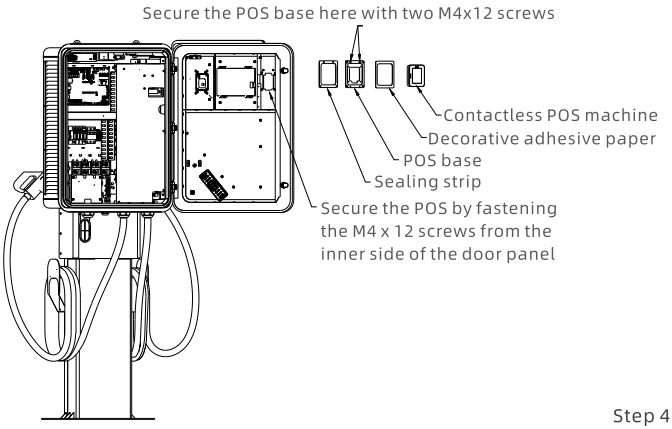
7.1.2 Contactless POS machine installation



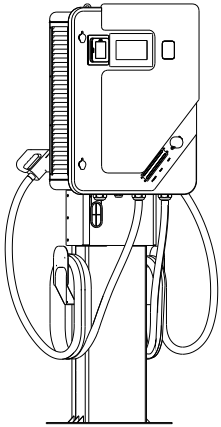
Step 1: Open the cabinet door



Step 2: Remove the outer sealing plate



Step 3: Contactless POS machine installation



Step 4:
After installation completed,
Close the cabinet door

Operation steps:

1.Open the cabinet door with the key.

2.Remove the outer sealing plate from the inside of the cabinet with a cross screwdriver.

3. Install the POS machine base on the outer side, place the POS machine, and secure it from the inner side using M4x12 tri-grip screws.

Make sure the POS screws are in place to make the rubber pad waterproof, otherwise there is a risk of water leakage.

4.Close and lock the cabinet door after checking.

7.2 Electric Diagram

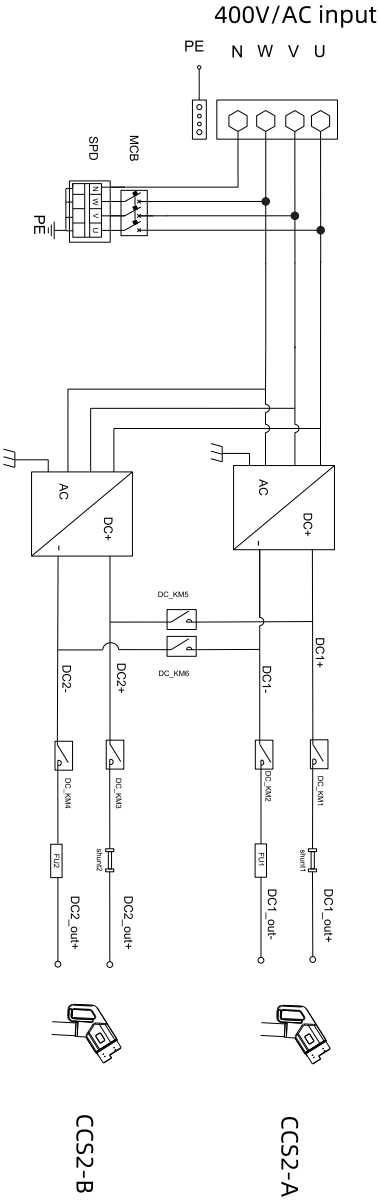


Fig7-2 Main circuit diagram

7.3 Warranty

Warranty period

The warranty period of this product is 3 years. If the contract stipulates otherwise, the contract shall prevail.

For warranty cases during the warranty period, the customer should present the invoice of the purchase of the product to the service personnel of ATESS Power Technology. At the same time, the nameplate on the product should be clearly visible, otherwise the warranty claim might not be accepted.

Warranty condition

ATESS Power Technology Co., Ltd. will repair or replace the product free of charge during the warranty period. The defective machine after replacement shall be owned by ATESS Power Technology, and the customer shall reserve a certain amount of time for ATESS Power Technology to repair the faulty machine.

Liability exemption

ATESS Power Technology reserves the right not to accept the warranty claim if the conditions below happen,

1. No ATESS logo on the product;
2. Warranty period has expired;
3. Failure or damage caused by incorrect installation, by installing the device in a not allowed environment, by improper storage or usage, etc.(e.g. too high or too low temperature, moisture or too try environment, high altitude or unstable voltage/current, etc.)
4. Failure or damage caused by the installation, repair, modification or disassembly by unauthorized service personnel;
5. Failure or damage caused by using ATESS Power Technology's genuine spare parts;
6. Failure or damage caused by accident or human cause (operational error, scratching, handling, bumping, access to inappropriate voltage, etc.), or transport damage;
7. Failure or damage caused by force majeure such as natural disasters (such as earthquakes, lightning strikes, fires, etc.);
8. Other failures or damages that are not caused by quality problem of the product or its components.

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