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ATESS REVO EVD-400~480D

**DC EV charging station
User Manual**

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Thank you for choosing ATESS

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

2 Packaging list

3 Installation and wiring

- 3.1 Installation conditions
- 3.2 Cable connection
- 3.3 Cable balancer installation

4 Parameter configuration

- 4.1 System Parameters
- 4.2 Network parameters
- 4.3 Protection parameters

5 Operation instruction
and LCD introduction

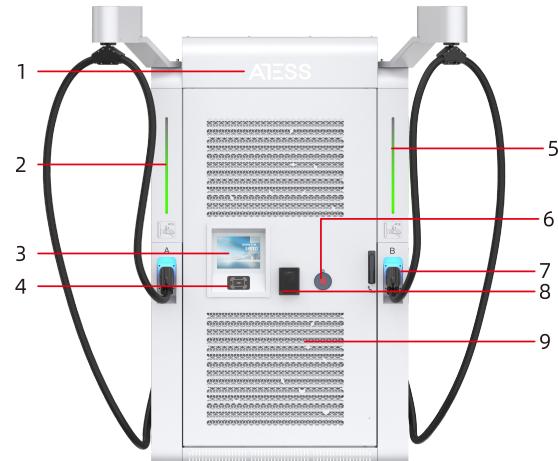
- 5.1 Charging mode and operation
- 5.2 LCD interface introduction
- 5.3 Troubleshooting

6 Specification

7 Appendix

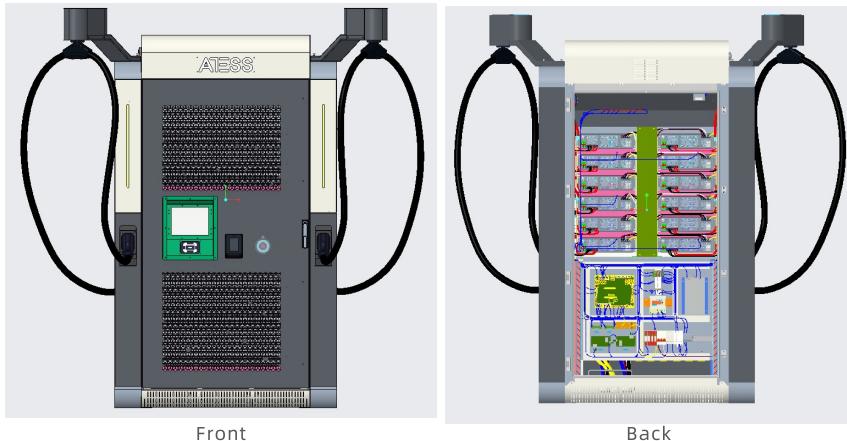
- 7.1 POS installation
- 7.2 Electric diagram
- 7.3 Module installation
- 7.4 Warranty
- 7.5 Contact

1 Product Description

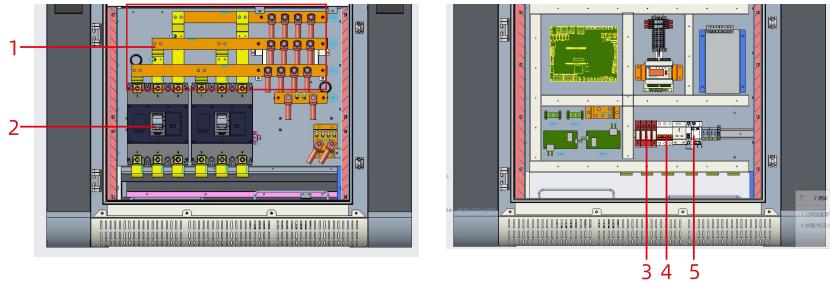


- 1. LOGO and Power indicator
- 2. CCS2-A connector indicator(charging green/fault red)
- 3. HMI
- 4. RFID reader (OPT)
- 5. CCS2-B connector indicator(charging green/fault red)
- 6. Emergency stop button
- 7. Charging connector holder
- 8. POS (opt, refer to Chapter 7.1 for installation)
- 9. Air inlet

Internal view and terminal definition



Crimp the below shown ring terminals on the end of the AC input wires and PE wires. Connect the wires into the terminal block of the chargepoint as below. Check the wiring, then close the switch and the door.



- 1. AC input copper bar.
- 2. Main power control breaker.
- 3. SPD.
- 4. Breaker in surge protection circuit.
- 5. Auxiliary power control breaker.



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	3	
5	Hex head expansion bolt, M12*120/304 stainless steel	4	
6	REVO EVD-480D DC Charging Station cable balancer bracket Assembly - Left	1	The cable balancer assembly includes mounting brackets and the cable balancer body
7	REVO EVD-480D DC Charging Station cable balancer bracket Assembly - Right	1	The cable balancer assembly includes mounting brackets and the cable balancer body
8	M8X45 Socket Head Cap Screw Assembly (SUS304)	12	

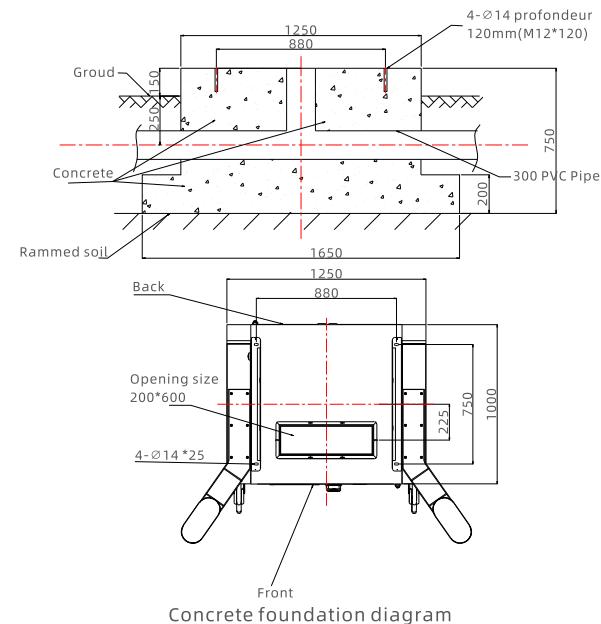
3 Installation and Wiring

3.1 Installation conditions

1) keep a minimum clearance of 1.5m all around the charger, as follows:



2) The charger must be installed on a customized concrete foundation, the foundation is as below:



Annotation:

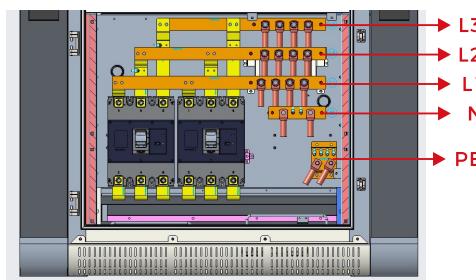
- 1.The foundation pile must be tamped. On loose and moist soil, the foundation must be reinforced. The foundation must sit at the highest point of the area to avoid flooding water.
- 2.The foundation pile is to be made of reinforced concrete, which requires for a minimum allowable bearing pressure of 1000kg/square meters for the base.
- 3.Construct main grounding busbar and electrode following the grounding regulation of transformer substation. Grounding resistance should be lower than 4Ω , 50x4 galvanized flat steel is suggested.
- 4.Cable conduit uses PVC of 300mm diameter, the direction should be determined according to the situation on site, while the quantity is according to how many HV/LV cables will be used(use redundant design) .
- 5.Level bar should be used to level the foundation ground.
- 6.Internal foundation level should slightly lean towards water collecting pit.
- 7.The figure is just for reference.
- 3) The minimum height of foundation is 100mm above ground, the vertical inclination degree should be less than 5%.

3.2 Cable connection

Connect the buried three phase four wire AC cables to the input terminal of the charger with correct color order and phase sequence. The earth cable shall be connected to the grounding bar of the charger. Wiring illustration is shown in below.

Please notice: For safety, the charger must be grounded securely.

Connect the grounding bar of the charger to the equipotential bonding bar of the installation site. The phase line cable should be **no less than 240mm²×2**, The grounding cable should be **no less than 120mm²×2**. Grounding resistance shall be less than 4Ω.



	L1	L2	L3	N	PE
Terminal					
400K	Wire 1	150mm ²	150mm ²	150mm ²	6mm ²
	Wire 2	150mm ²	150mm ²	150mm ²	6mm ²
480K	Wire 1	240mm ²	240mm ²	240mm ²	6mm ²
	Wire 2	240mm ²	240mm ²	240mm ²	6mm ²
Screws	M12	M12	M12	M12	M10
Torque	65.0 N.m	65.0 N.m	65.0 N.m	65.0 N.m	37.0 N.m

Max. Cable size: 240mm²

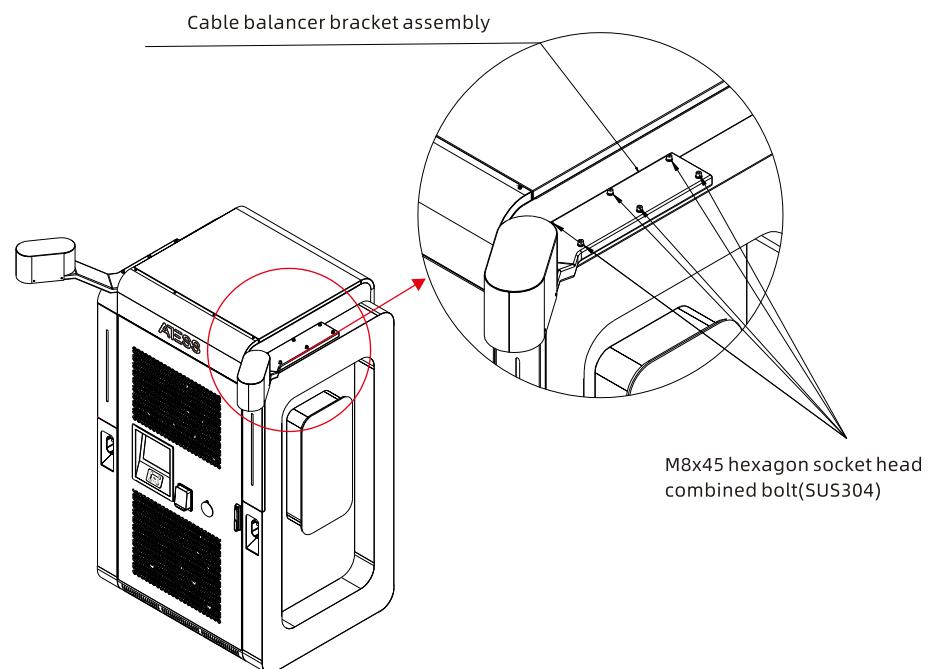
Notice:

- Only professional personnel can do the wiring, connect the AC input wires in correct phase order according to the markings on the terminal block.
- The PE terminal shall be connected to the Earth firmly and reliably.
- No live work! Turn off the upstream breaker in the distribution panel and the breaker inside the charging equipment before repairing or maintaining.
- Please do not disassemble the unit unless authorized.

3.3 Cable balancer installation

Operation steps:

- Preparation of parts: confirm that the left and right cable balancer brackets, M8 * 45 screws and other installation parts are complete and in good condition;
- Bracket placement: stably place the left and right cable balancer brackets on the top side frame of the charging station;
- Preliminary positioning: adjust the position of the cable balancer brackets to make it accurately aligned with the installation position;
- Fasten the bracket: use M8 * 45 screws to lock the external bracket of the cable balancer brackets from the outside.

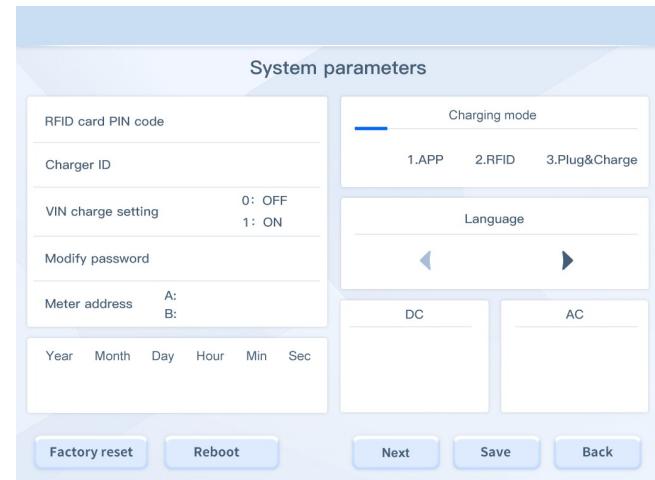


4 Parameter configuration

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



4.1 System Parameters



System Parameters page

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	Charger ID	Suggested to use serial number as charger ID.
3	VIN charge setting	Custom function
4	Modify password	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.

No.	Parameters	Function description
7	Charging mode	Charging mode setting. 1 is APP mode; 2 is RFID mode; 3 is Plug&charge mode
8	Language	Language setting. Currently support English and France dual language display.
9	DC	Charge model (already preset in factory)
10	AC	Charge model (already preset in factory)

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

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 support LAN connection ,WIFI/4G.

Network parameters

Server URL1:

Server URL2:

Charger IP:

Subnet mask:

Gateway:

DNS:

MAC address:

Net mode: 0: STATIC
1: DHCP

WIFI SSID:

WIFI key:

Authentication key:

4G user name:

4G password:

4G APN:

Factory reset

Reboot

Next

Save

Back

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	Net mode	STATIC or DHCP
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
13	4G password	4G password
14	4G APN	4G APN

If the charger is connected to the server through the network cable, the Charger IP, Subnet mask and Gateway need to be set. Through WiFi, you need to set WiFi SSID and WiFi Key. With 4G, you can connect to the server by installing a SIM card.

Operation instruction and 5 LCD introduction

4.3 Protection parameters

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

DC plug protect parameters			
DC output overvoltage	V	Fan starting temperature	°C
DC output overcurrent	A	Insulation resistance	kΩ
Output limit power	kW	Module type	
DC max output voltage	V	Temperature sensor	0: NTC 1: PTC
DC max output current	A		
Charger over temperature	°C		
Charger derate temperature	°C		
<input type="button" value="Factory reset"/> <input type="button" value="Reboot"/> <input type="button" value="Next"/> <input type="button" value="Save"/> <input type="button" value="Back"/>			

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
3	Output limit power	Power limitation setting of DC output
4	DC max output voltage	DC max output voltage
5	DC max output current	DC max output current
6	Charger over temperature	Over temperature limit setting of charging connector
7	Charger derate temperature	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
10	Module type	Select the power module type
11	Temperature sensor	Charging cable temperature sensor type

5.1 Charging mode and operation

APP mode:

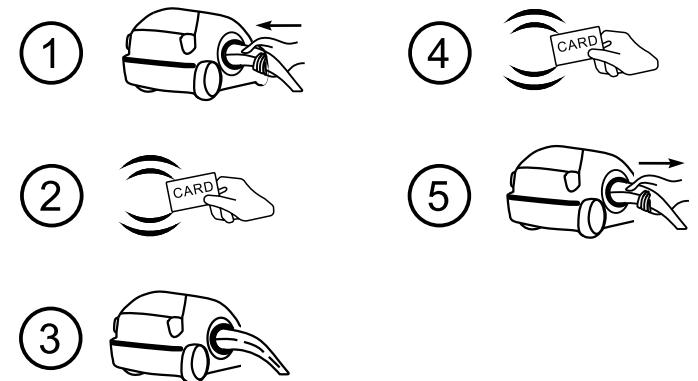
Initiate or cease charging by scanning QR code using APP or by swiping RFID card. You can also use APP for reservation and payment provided that the back-office server supports such function.



APP mode operation process flow

RFID mode:

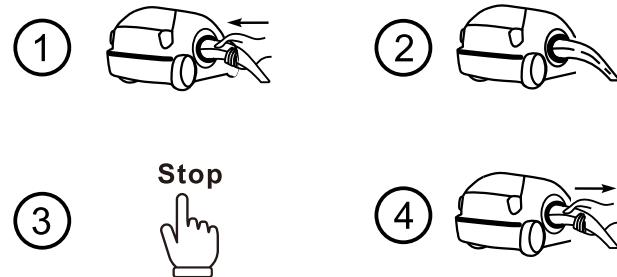
Charging can only be initiated or ceased by swiping RFID card.



RFID mode operation process flow

Plug&Charge:

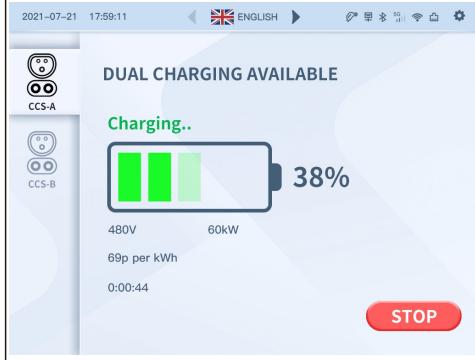
Charging will start automatically after EV plugged in. If you want to stop the charging, just press the stop icon on the screen.



Plug&Charge mode operation process flow

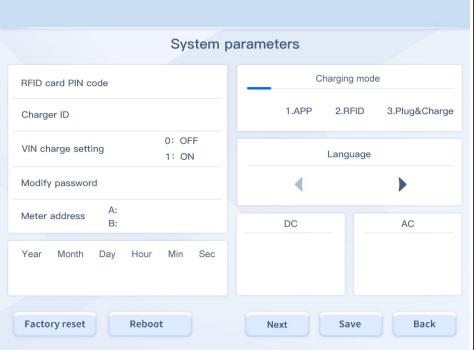
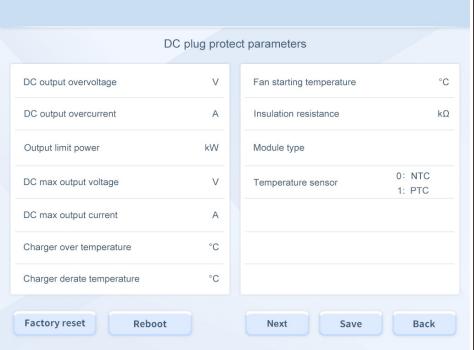
5.2 LCD interface introduction

The charging equipment is equipped with a 10.4 inch industrial-grade resistor type touch panel. The display content is as below

	When powered up, the charging equipment will show this display
	Charging information, which will show the status of the charging equipment, such as standby, charging, fault, etc.
	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. The default password for the configuration page is 1234 (Users can change this password, the password is 4 digits). The password on the query page is 88888 (Password cannot be changed). A wrong password will cause no response and action.

5.3 Troubleshooting

No.	Fault description
1	Emergency stop is pressed!
2	Meter communication fault!
3	Over temperature fault!
4	Please close the door!
5	Main output relay sticking fault!
6	DC output overvoltage fault!
7	DC output overcurrent fault!
8	Lightning protection fault!
9	Insulation detection fault!
10	CP short circuit fault!
11	PE disconnected fault!

 <p>System parameters page.</p>
 <p>Network parameters page, used to set network related parameters of back-office server and the charging equipment.</p>
 <p>Protection parameters page of DC output, used to set limit value of voltage, current, power, temperature, etc.</p>

6 Specification

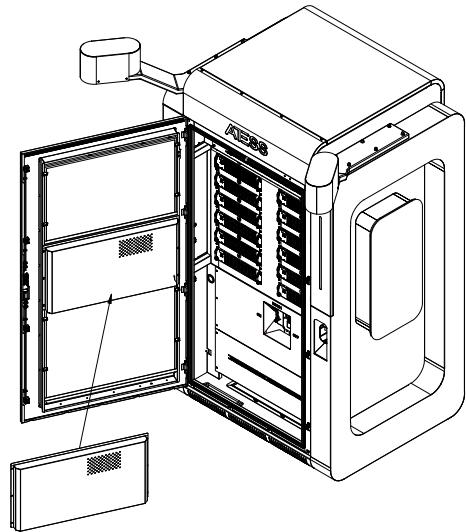
Model	REVO EVD-400~480D	
Dimension(mm)	1250*2100*1000(W*H*D)	
Weight(kg)	675~720kg	
Display	10.4 inch touch screen	
Casing material	Stainless steel&acrylic sheet	
AC input		
Grid connection	400V,3 phase 5 wires	
Voltage	AC 362~438V	
Current	400k	480k
	610A	735A
Frequency	50/60Hz	
DC output		
Plug type	CCS2	
Voltage	DC150~1000V	
Current	380A (Nominal), 500A (Peak, 20min), 600A (Peak, 10min)	
Voltage-stabilizing accuracy	<±0.5%	
Current-stabilizing accuracy	<±1%	
Power factor	≥0.98	
Efficiency	≥94%	

IP degree	IP54	
Working environment	-25°C~50°C	
Relative humidity	<95%	
Altitude	≤2000m, derate for higher than 2000m	
Cooling method	Forced air cooling	
Remote monitoring	Ethernet/WIFI/4G/485/232	
Payment	RFID/APP/Credit Card(opt)	
Standby power	400k	480k
	170W	190W
Standards	IEC-62196-3;EN61851	
Mounting	Ground	
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°C; Stop at 75°C	
Short circuit protection	YES	
Emergency stop protection	YES	
Leakage protection	Type A	
Lightning protection	Type II	

7 Appendix

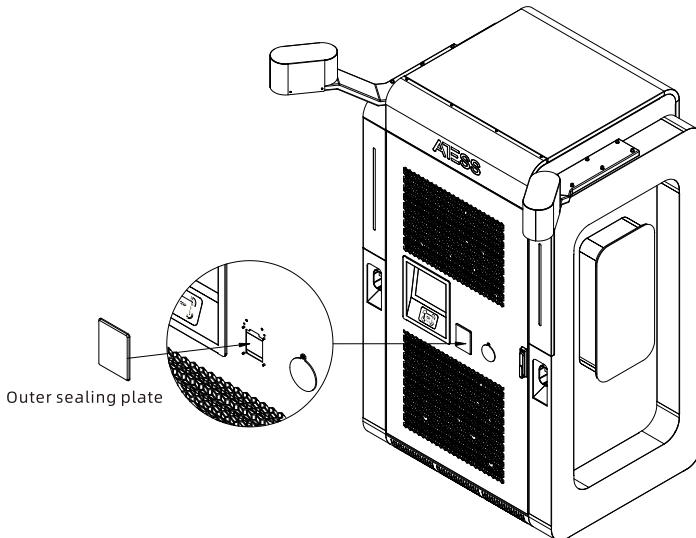
7.1 POS installation

7.1.1 Insert Card POS Terminal installation



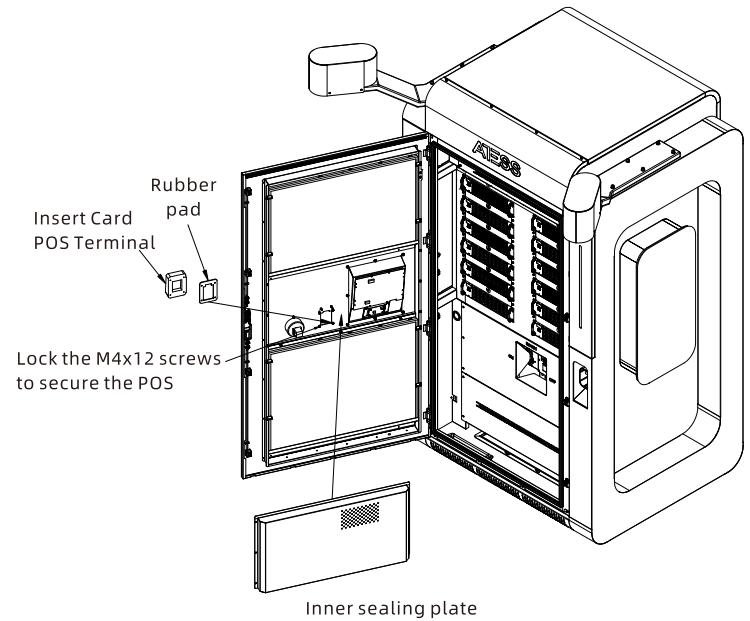
Inner sealing plate

Step1: Remove inner sealing plate



Outer sealing plate

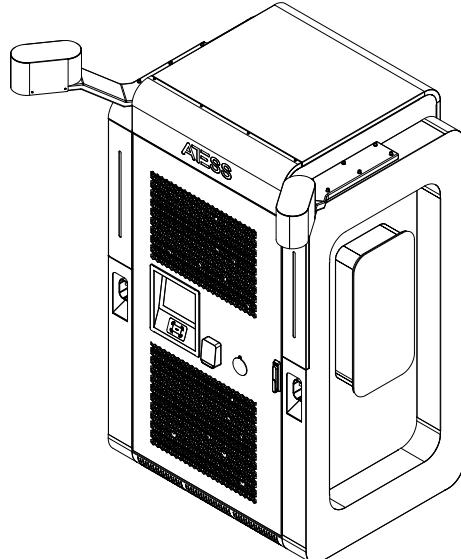
Step2: Remove the outer sealing plate



Lock the M4x12 screws
to secure the POS

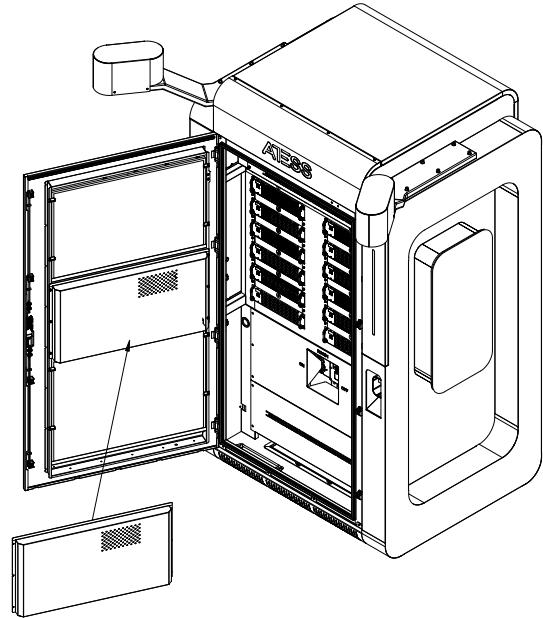
Inner sealing plate

Step3: Insert Card POS Terminal installation

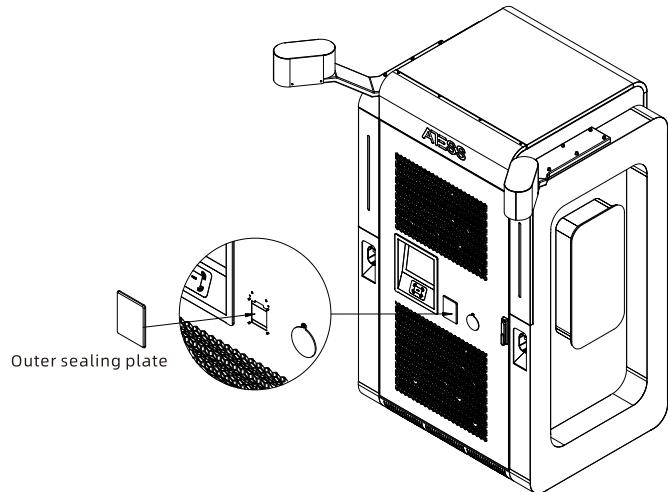


Step4: Lock the door panel

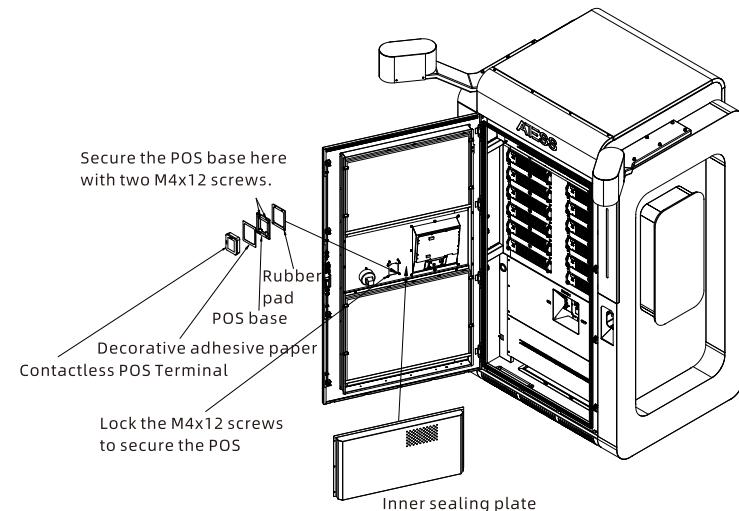
7.1.2 Contactless POS machine installation



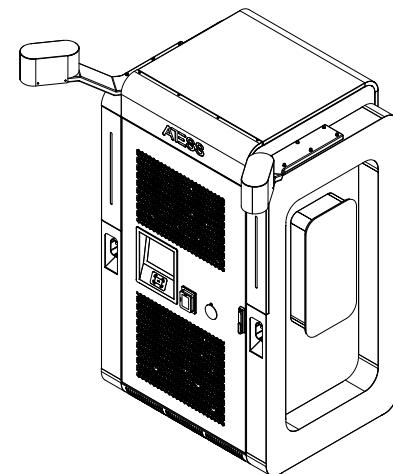
Step1: Remove inner sealing plate



Step2: Remove the outer sealing plate



Step3: Contactless POS machine installation



Step4: Lock the door panel

Operation steps:

1. Open the cabinet door with the key and remove the inner sealing plate;
2. Remove the outer sealing plate from the inside of the cabinet with a cross screwdriver;
3. Install a rubber pad on the outside, place the POS machine, and tighten and fix it from the inside with M4x12 triple screws;
Make sure the POS screws are in place to make the rubber pad waterproof, otherwise there is a risk of water leakage.
4. Lock the inner sealing plate, and close and lock the cabinet door after checking.

7.2 Electric diagram

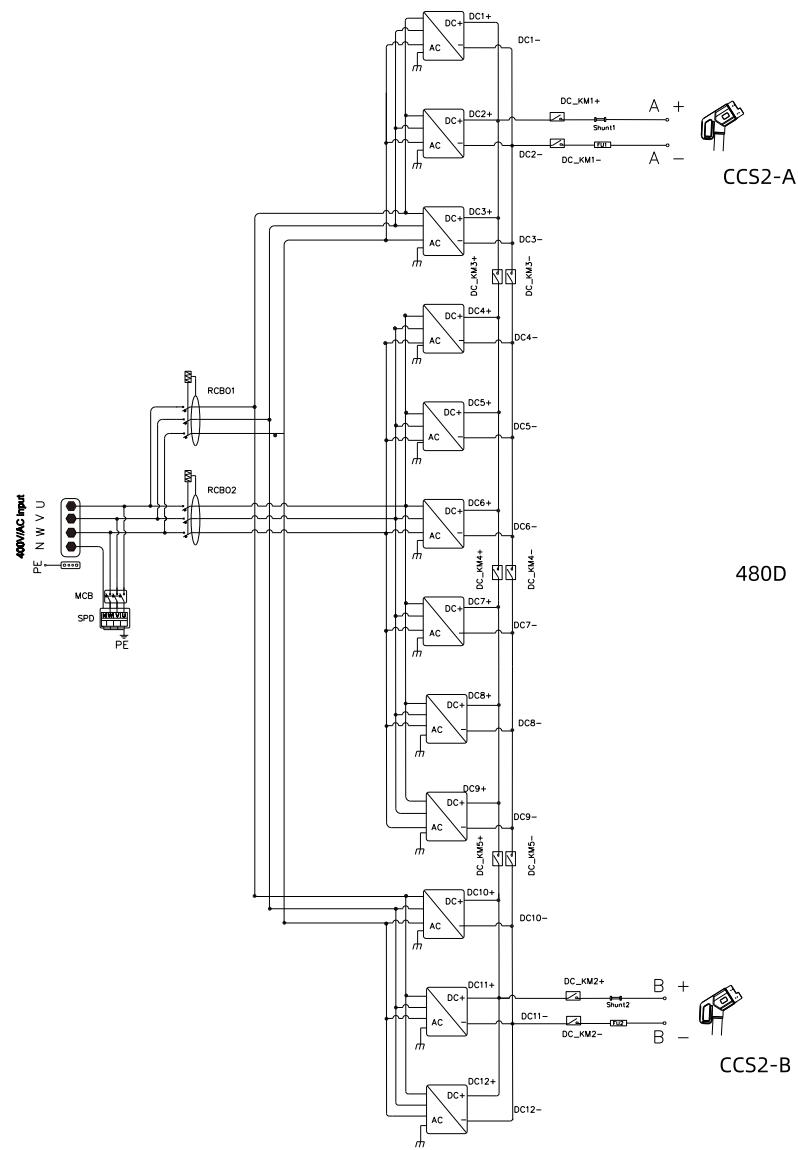


Fig7-2 Main circuit diagram

7.3 Module installation

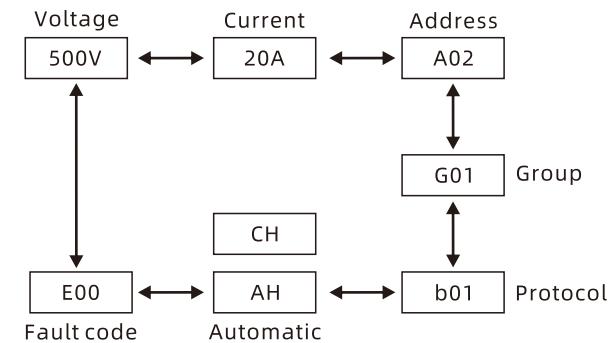
1. Module installation position

Module installation			
	1#	2#	3#
400K	4#	5#	
		8#	9#
	10#	11#	12#
	1#	2#	3#
	4#	5#	6#
	7#	8#	9#
480K	10#	11#	12#

2. Address settings

The rectifier module has two keys, the upper key (▲) and the lower key (▼). You can press buttons to view the information about the rectifier module.

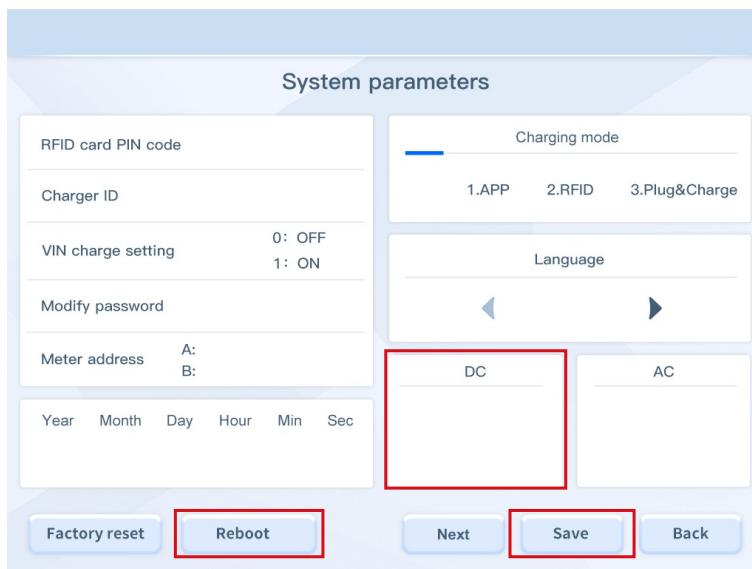
For example, the output voltage of the rectifier module is 500V, the output current is 20A, the address is 2, the group number is 1, the operation is in automatic mode or manual mode, press ▲ or ▼ will be shown as follows in turn.



- ①. Press ▲ or ▼ to switch the current display to the information interface to be changed.
- ②. Press ▲ or ▼ about 2.5 seconds after release, you can see the display flashing.
- ③. Press ▲ or ▼ to change the settings.
- ④. Press the ▼ about 2.5 seconds after release to save the data; If the change is abandoned, press ▲ for about 2.5 seconds to release and revert to the previous setting.

3. Set the charging model on the system setting interface

The steps are as follows:



7.4 Warranty

Warranty period

The warranty period of this product is 3 year. 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. At the same time, the nameplate on the product should be clearly visible, otherwise the warranty claim might not be accepted.

Warranty condition

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

Liability exemption

ATESS reserves the right not to accept the warranty claim if the conditions below happen:

- 1.No trademark 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'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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For more information, please access www.atesspower.com.

7.5 Contact

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