

# **EVC22-001**

## **22KW EV CHARGING STATION**

### **Manual**



**EV Solution AB**

Ladegeräte für Elektroautos für Privathaushalte und Unternehmen

# Content

## Safety Guidance

### **1. PRODUCT OVERVIEW**

1.1	Product Appearance.....	4
1.2	Reference Standard.....	5
1.3	Product Specification.....	5
1.4	Product Packing.....	6
1.5	Charging Principle.....	7

### **2. Technology Index**

2.1	Environmental Performance.....	8
2.2	Electrical Properties.....	9
2.3	Mechanical Properties.....	10
2.4	Product Function.....	11
3.	Instructions and Status Display.....	12
4.	Troubleshooting.....	13
5.	Installation Instructions.....	14

# Safety Guidance

## Warning

- Strictly forbidden for non-professionals to modify, disassemble or repair the equipment.
- External wires or adapters/converters are strictly prohibited.
- Stop using the device immediately when charging failure or abnormality occurs.
- It is strictly forbidden to have water contact plugs on your hands.
- Touch charging plug pin and EV charging socket is strictly prohibited.
- Must be used at rated voltage.
- Strictly forbidden to use the equipment in case of softening, wear of charging cable, rupture of insulation layer or any other damage.
- Strictly forbidden for children to touch or use the device. Do not let children get close when using it.
- Strictly forbidden to replace the original plug or socket of the equipment. If there is a fitted plug or socket, please find a professional staff to install it.

## Precaution

- Strictly forbidden to submerge AC charging device in water.
- Strictly forbidden for objects to enter the end of charging connector and plug.
- Strictly forbidden to tread on charging cables, pull cables, bend or knot cables.
- Strictly forbidden to use the equipment in thunder and lightning weather.
- Strictly forbidden to drop charging piles or press heavy objects on their surfaces.
- Strictly forbidden to place the equipment near the object which will produce high temperature when charging.

Statement: This product is only used for charging electric vehicles, not for other purposes.

# 1.Product Descriptions

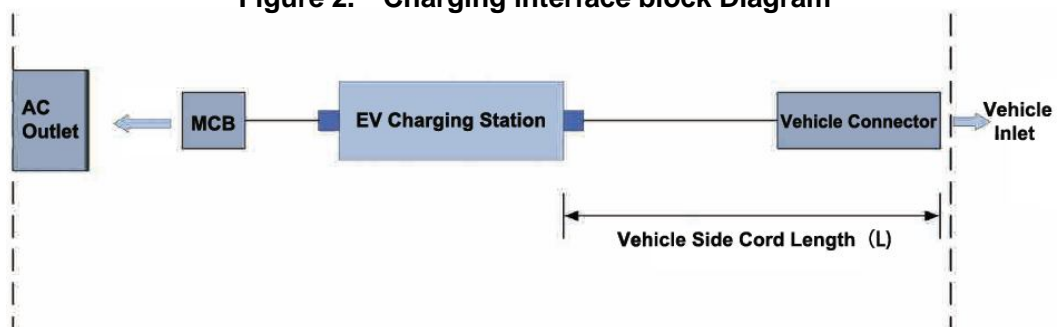
22KW AC EV CHARGING STATION is an electric car charging equipment. Its appearance is shown in Figure 1. The product meets the requirements of IEC 61851-1:2017 AC charging system. The upper end is main body, the lower is the AC socket according to EN 62196-2:2017. The maximum output current can be 32A, and press the button to start/stop charging.

## 1.1 Appearance



Figure 1. 22KW AC EV CHARGING STATION

Figure 2. Charging interface block Diagram



## 1.2 Standard

Serial number	standard	standard name
1	IEC 61851-1:2017	Electric vehicle conductive charging system – Part 1: General requirements
2	EN 62196-2:2017	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
3	SAE_J1772-2 017	SAE_Electric_Vehicle_and_Plug_in_Hybrid_Electric_Vehicle _Conductive_Charge_Coupler

## 1.3 Specification

Subject	Specification	
Item No.	TS-EVC22-001	
Product	22KW AC EV CHARGING STAION	
Specific ation	Charging station inlet cable	Recommend to use cable no less than 6mm <sup>2</sup>
		Meet: IEC 61851-1:2017
	Charging station	Max size: 200mm (W) x320mm(H)x95mm(D)
	Car side cable L	5M/3*6.0mm <sup>2</sup> +2*0.5mm <sup>2</sup>
	Plug	32A,EN 62196-2:2017 / SAE_J1772-2017
Weight	≤6.47KGS	
Note: Actual size is subject to the actual product		

## 1.4 Product Package

Five-layer corrugated carton packaging is used for transportation, measured 485mm (L) x 380mm (W) x 185mm (H) . 1PC/CTN, together with a product manual in it.

## 1.5 Charging Principle

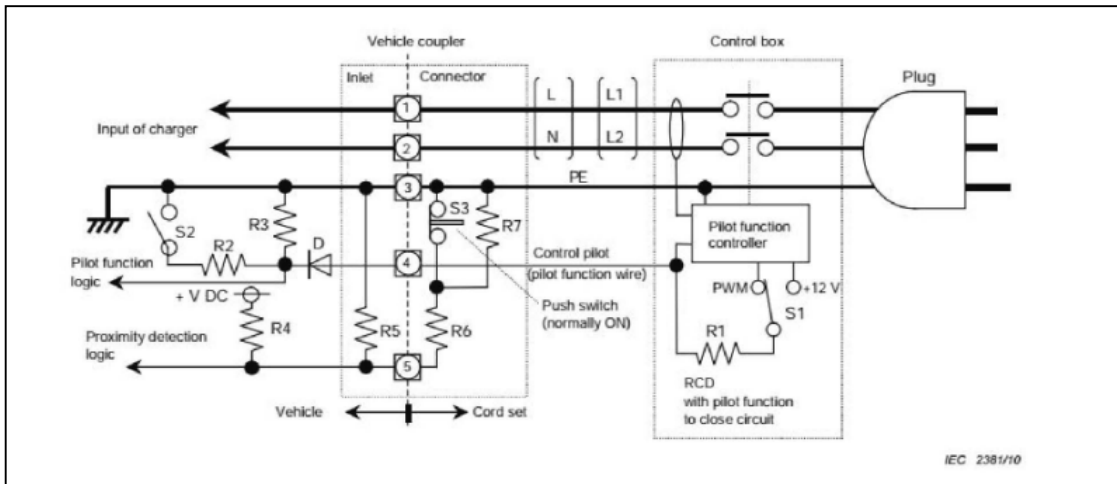


Figure3. Charging Principle

Charging status	Charging connection connected or not	S2	Successful charging or not	CP signal voltage□	Explanation
Status1	No	disconnect	No	$12 \pm 1V$	Fail to connect to the vehicle
Status2	Yes	disconnect	No	$9 \pm 1V$	S1 switches to the PWM connected state, and R3 is detected.
Status3	Yes	connect	Yes	$6 \pm 1V$	Both OBS and power supply are in working condition

Figure4. CP signal control

Note: ①According to IEC 61851-1: 2017, high level maximum error  $\pm 1V$ ;

## 2. Technology Index

### 2.1 Environmental Performance

Item	Specification
Working temperature	-30℃~60℃
Storage temperature	-40℃~80℃
Working humidity	5%~95%, No condensation
IP	Charging station IP65
	Plug (unconnected) IP54
	Plug (connected) IP55
Altitude	≤2000m
Salt spray test	Meet: IEC 61851-1: 2017
Atmospheric pressure	80kPa~101kPa
Temperature and humidity cycle	Meet: IEC 61851-1: 2017
<b>Note:</b> Avoided being used in the environment of corrosive liquids, flammable dust, strong corrosive environment	

### 2.2 Electrical Properties

Item	Specification	
Rated voltage	480V AC	
Operating Voltage	342V~480V	
Rated frequency	50/60Hz	
Rated current	32A	
Control Pilot	IEC 61851-1: 2017	
	Duty Ratio	53.3%
	Frequency	1000Hz
Leakage Protection	Type B	
	AC leakage	30mA
	DC leakage	6mA
Insulation Resistance	> 10MΩ	

### 2.3 Mechanical Properties

ITEM	Specification	
Life of plug-in and plug-out	EV Plug over 10000 次	
Flammability	EV Charging Station	Metal material, non-flammable
	EV Charging Plug	Meet: UL94 LV: V-0
	EV Charging Cable	Meet: UL1581 LV: VW-1

<b>Cable Deflection</b>	Meet: IEC61851-1:2017
<b>Drop</b>	Meet: IEC61851-1:2017
Note: <b>Plug-in and plug-out test is under no-load condition</b>	

## 2.4 Product Function

Item	Specification
Output current	0-32A
Leakage Protection (AC 30mA+DC 6mA)	Support
Under voltage protection	Support
Over voltage protection	Support
Over temperature protection	Support
Over current protection	Support
Short circuit protection	Support
Temperature check	Support
Screen display	Support

## 3. Instructions and Status Display

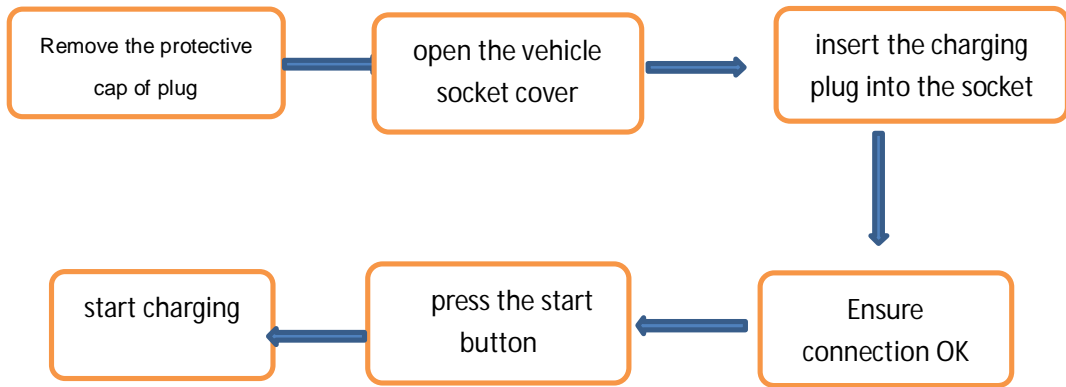
### Please check points before use

1. Ensure that the product is not scratched, rusted, broken, etc.
2. Make sure there are no objects in the power plug or socket, vehicle plug or socket
3. Do not charge if the surface of the socket or plug is damaged, rusted, cracked, or connection is too loose.
4. Please Wipe the plug or socket with a dry and clean cloth When it is dirty or wet.

### How to start charging

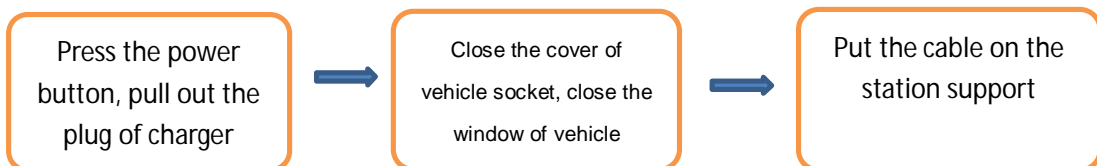
- ① Plug the power plug into the power socket firmly
- ② Remove the protective cap of the plug, open the vehicle socket cover, then insert the charging plug into the socket at the vehicle end. After the plug is in place, press the start button and start charging.





## How to stop charging

### 1. Method 1



### 2. Method 2

Turn off the start button, then follow Method 1

<b>LED Status</b>	
Waiting for charging indicator	Blue light is on constantly
Connection indicator	Green light is on constantly
Charging indicator	Green light flashes
Fault notification	Red light flashes
<b>LED display instruction</b>	
Status of waiting	<div style="display: flex; align-items: center;"> <div style="background-color: #4a86e8; color: white; padding: 5px; margin-right: 10px;">           Voltage: 220.23V Standby MaxCurrent:32A         </div> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">Voltage</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">Waiting Status</div> <div style="border: 1px solid black; padding: 5px;">Current</div> </div> </div>
Status of plug	<div style="display: flex; align-items: center;"> <div style="background-color: #4a86e8; color: white; padding: 5px; margin-right: 10px;">           Voltage: 220.23V Connecting MaxCurrent:32A         </div> <div style="display: flex; flex-direction: column; gap: 10px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">Voltage</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">Connecting status</div> <div style="border: 1px solid black; padding: 5px;">Rated Current</div> </div> </div>

Status of charging	Energy : 31.23kwh CHARGING MaxCurrent:32A	Charging capacity
	Voltage/Current 220.23V/31.23A CHARGING MaxCurrent:32A	Charging status
	Charging Time: 23:04:12 CHARGING MaxCurrent:32A	Rated current
		Voltage /Current
		Charging Time

## 4. Troubleshooting

Trouble:	Screen display:	Resolution:
Leakage Protection	Have Error: Creepage	Stop charging immediately. The relay is cut off and the red light flashes. You need to manually power on
Over temperature protection	Have Error: OverTemperature	When the temperature is higher than 85 °C, the charging will stop automatically, the relay will be disconnected, the red light will start to flash, when the temperature drops below 85 °C, and the charging condition is met, the relay will automatically pick up and start charging. When the temperature is between 75 °C and 85 °C, the control box will automatically lower one gear position. When the temperature is lower than 75 °C, the gear position will automatically recover
Over-current protection	Have Error: OverCurrent	If the maximum current is higher than the limited, the relay will be permanently cut off, the red light will start

		to flash, and it needs to be manually powered on.
Short circuit protection		The fuse is blown and then the power supply is no longer continued. A new fuse needs to be manually replaced to recharge it.
Low voltage protection	Have Error: UnderVoltage	Under the minimum voltage limit, the relay is cut off and the red light flashes. After the normal voltage is restored, manual power-on can be restored.
Over voltage protection	Have Error: OverVoltage	Above the maximum limit voltage, the relay is cut off and the red light flashes. After restoring the normal voltage, the manual power-on can be restored.

## 5.Installation Instructions

### 5.1 Tools list

Electric drill (self-prepared), tool hammer (self-prepared), marker (self-provided),  $\Phi 8$  expansion screw, mounting bracket.

### 5.2 Installation Steps

#### 2.1 Charging station inlet connection

It is recommended to use power cable no less than 5\*6mm<sup>2</sup>, no need to open the entire back cover, just open the small window on the rear cover to connect.



#### 2.2 Installation and Fixation of Charging Station

① Please confirm the installation location and mark it (using the bracket strip). The center of the charging station is 45 inches from the ground at least.



② Use the electric drill to align the position of the mark and make two holes with a diameter of  $\Phi 8$ .



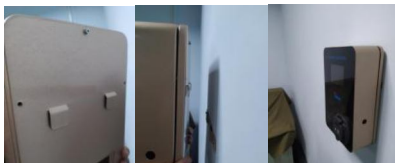
③ Use a hammer to insert expansion tube into the wall.



④ Fix the bracket strip with the  $\Phi 8$  screw.



⑤ Slowly slide the charging station onto the bracket strip. The installation is complete.



## 5.3 Installation Precautions:

- Ensure to choose the location where the charging station is installed. The charging environment needs drying, ventilation, and direct sunlight.
- The charging station should be installed close to the position where the plug and electric car are parked for future use. Need to consider the length of the charging station entry and exit.