

DLB Box Manual

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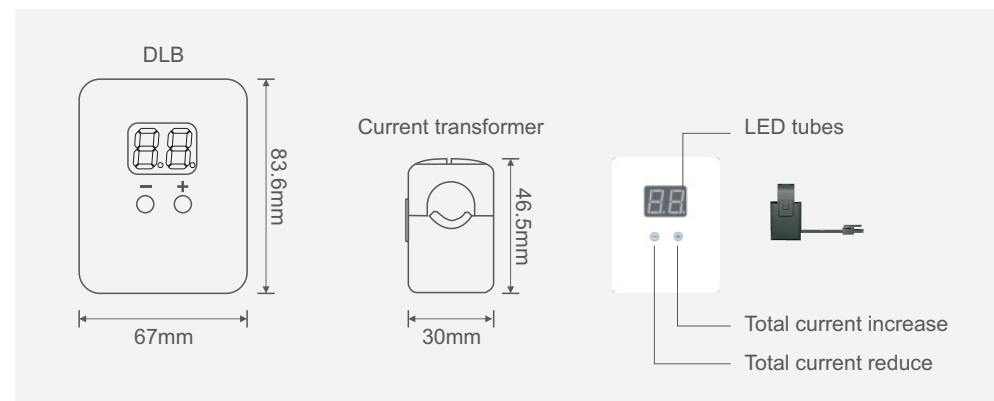
DLB box for solar PV

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Description

Introduce

DLB (Dynamic Load Balancing) is available in the BCP series AC EV Charger for home use, when the EV charger is working with other household appliances at the same time, the DLB box can maintain the dynamic balance of the total household current and ensure the safety of electricity to avoid home over load. The DLB box with LED tubes to display the current data, and press buttons to set the total current to be limited. (As picture below)

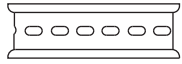


Performance

Set the Max current value of the main line on the DLB box. The charger will read this current value and automatically adjust the charging current (6A-32A) according to the idle load quota, so that the total household current will not be overloaded due to charging. This function can effectively use the power supply without providing additional power for the charging or home line update.

Note: If the household appliances are used too much and the current used has reached the max household current value, the charger will work with a minimum current of 6A to ensure normal charging.

Installation Instructions



Din rail 105mm



Din rail fixing parts



M4*30 expansion screw kit



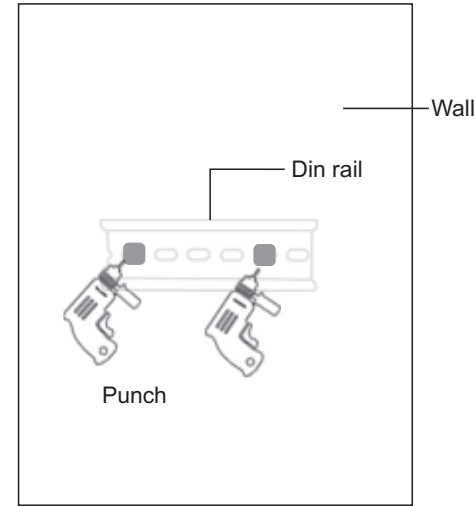
Current Transformer



Network cable

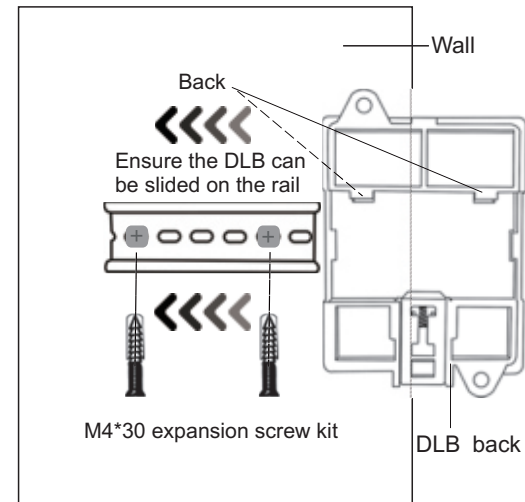
Installation Instructions

NO.1 Installation with Din Rail



Step 1

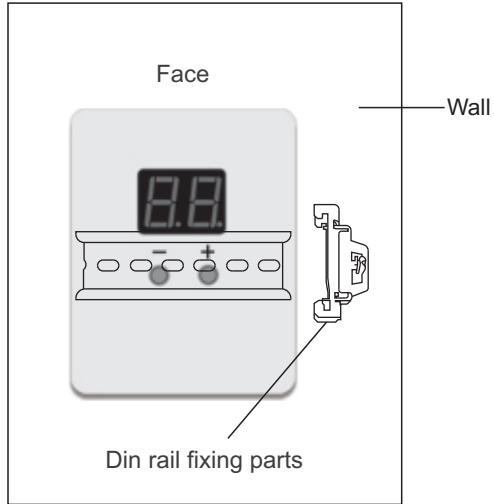
Place the rail horizontally on the wall to trace the hole. Place the rail horizontally and trace the hole. Use an electric drill to drill holes.



Step 2

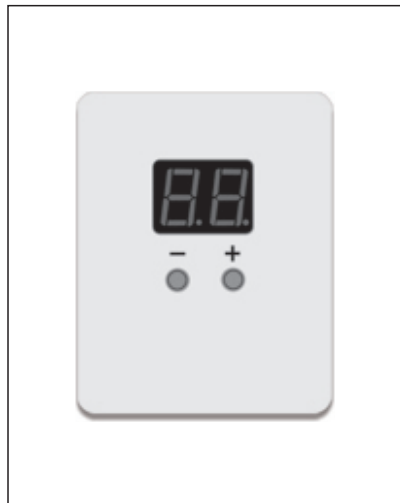
Fix the guide rail with M4*30 expansion screw kit and then clamp the groove on the back of the DLB box to the guide rail. Note that the slot on the back of the DLB box is consistent with the level of the rail. Slide the DLB box to fix the slot on the rail.

Installation Instructions



Step 3

Fix the DLB box on the rail.
Use rail irons to reinforce both sides of the rail to prevent the DLB box from slipping off.

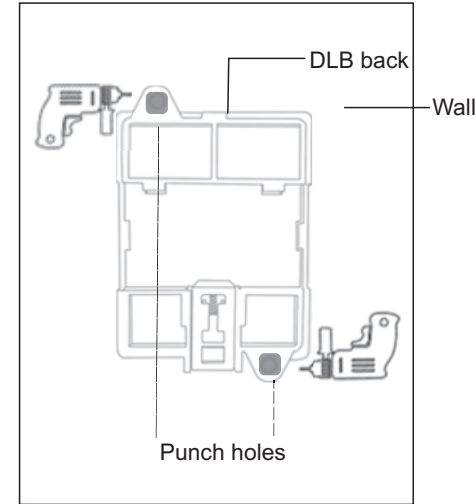


Finish the installation

Show as picture.

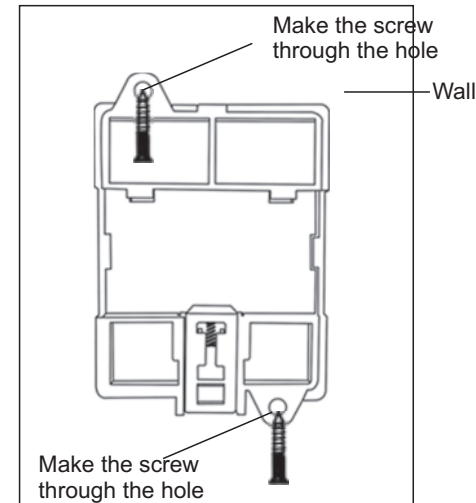
Installation Instructions

NO.2 Installation without Din Rail



Step 1

Place the DLB box horizontally on the wall to trace the hole
Place the DLB horizontally and trace the holes
Use an electric drill to drill holes.



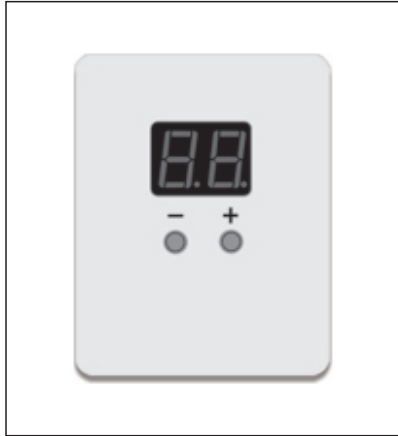
Step 2

Fix the DLB box via hole to the wall.

Two holes on the upper and lower edges of the DLB box for M4 screws fixing the box on wall.

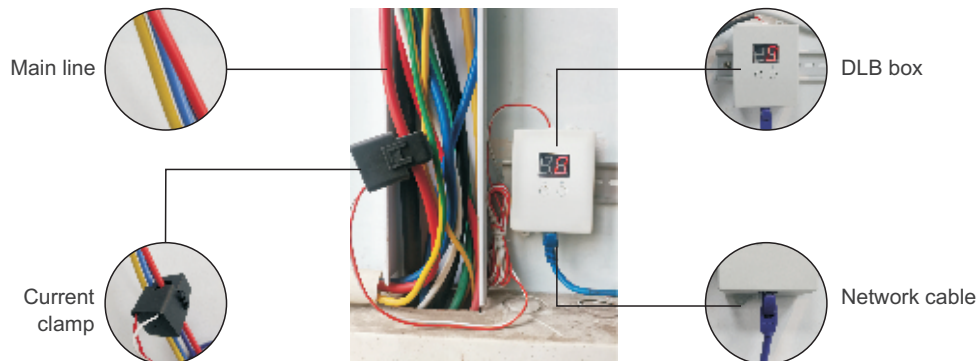
1 Phase DLB BOX

1 phase DLB



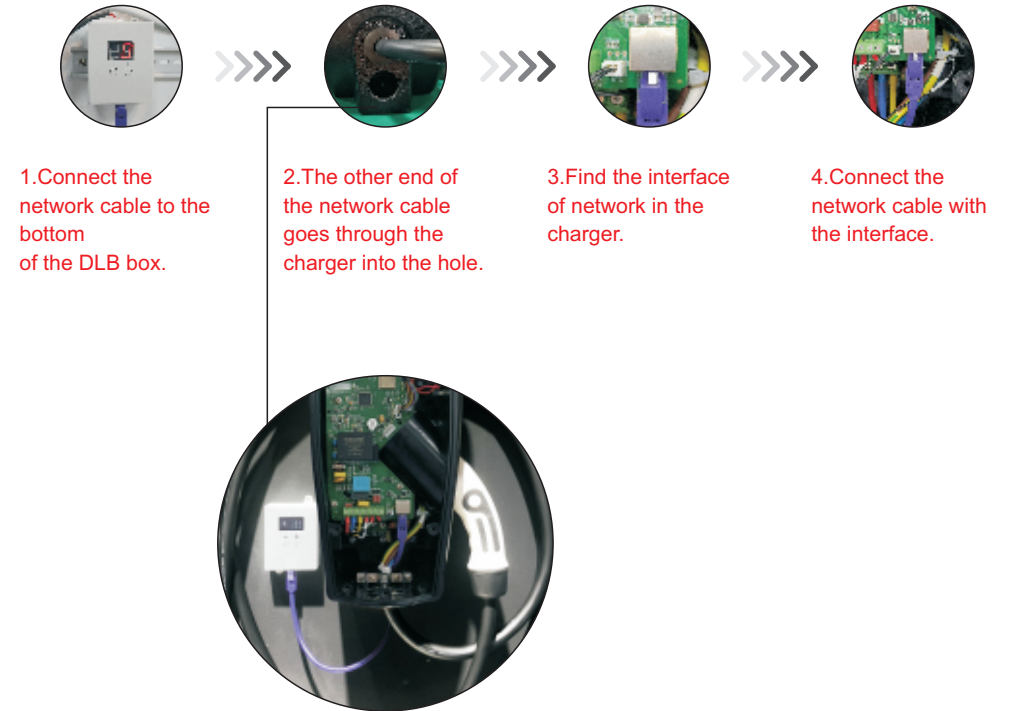
CT Installation

Connect the DLB top interface with the current transformer terminal, ensure the current clamp on the home mains line.



1 Phase DLB BOX

Network cable connection



Network Cable Recommended



Safety Instructions & Troubleshooting

Instructions

Setting the Home Main Line total current by DLB “-”“+”buttons.



Note:

① OLED tubes show the total current of the house (99A is the max value for this box).

②“-”button: reduce Current

③“+”button: increase Current

(Press the button for 2s to enter the fast parameter setting state, wait 3-5S after the parameter value is set, the box will automatically save parameters)

Safety Instructions & Troubleshooting

Troubleshooting

LED light status	Fault type	Potential Cause	Action
The yellow light of the charger light board lights for 1s, then the red light flashes for one time, and this happened in turn.	DLB offline	RS485 cable is damaged	Replace RS485 cable
		RS485 cable is not connected firmly	Reconnect
The yellow light of the charger light board lights on for 1s, and then the red light flashes twice in succession. This happens in turn.	DLB current abnormal	CT is clamped on the wrong power cord	Check if the CT position is correct
		CT open coil is not connected firmly	Reconnect
		The connection between the CT cable and the DLB is loose	Reconnect

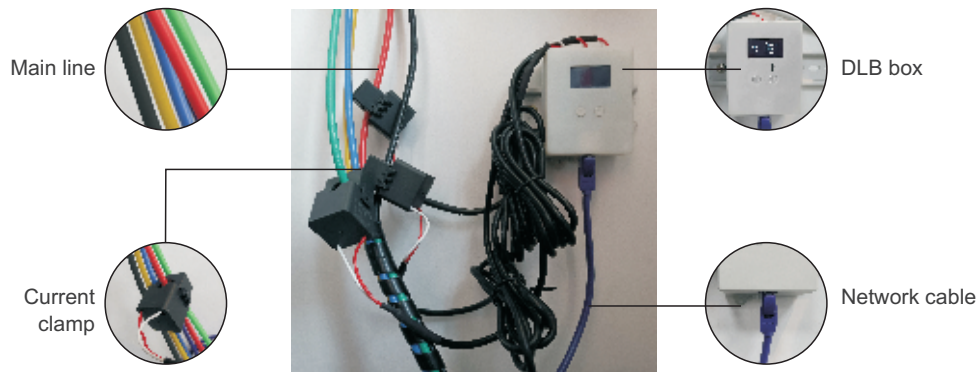
3 Phase DLB BOX

3 phase DLB



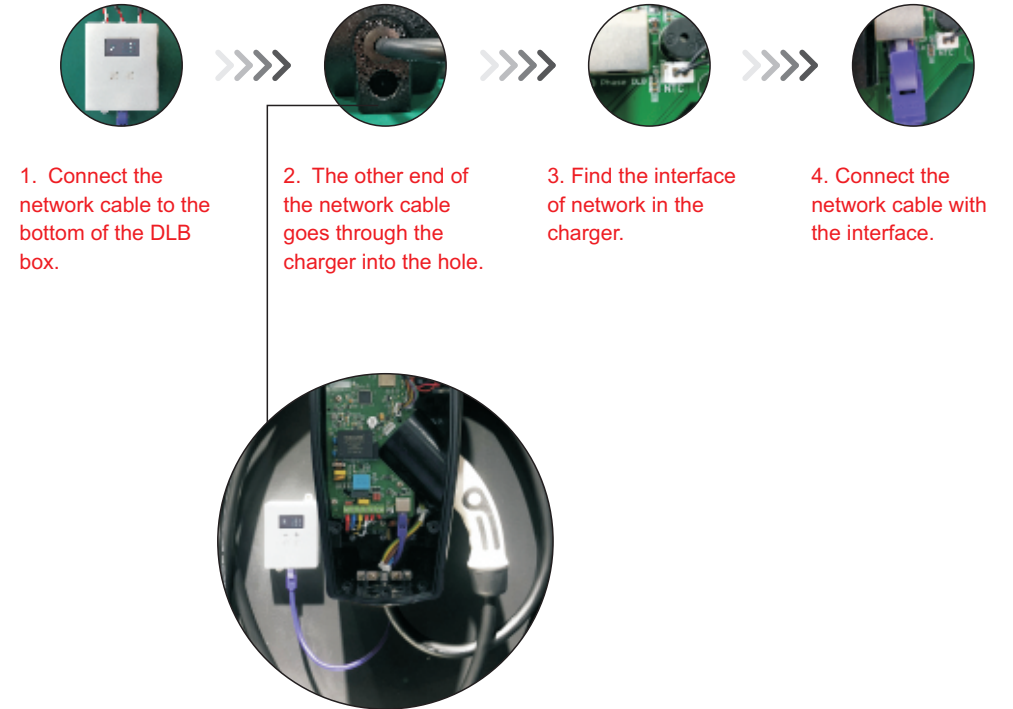
CT Installation

Connect the DLB top interface with the current transformer terminal, ensure the current clamp on the home mains line.

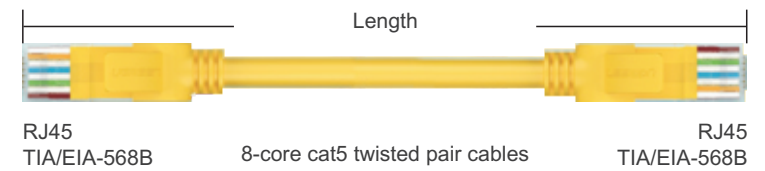


3 Phase DLB BOX

Network cable connection



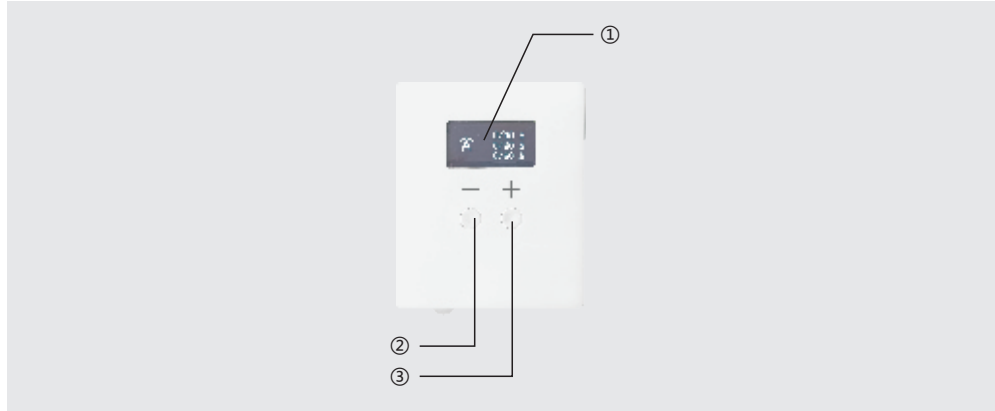
Network Cable Recommended



Safety Instructions & Troubleshooting

Instructions

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Safety Instructions & Troubleshooting

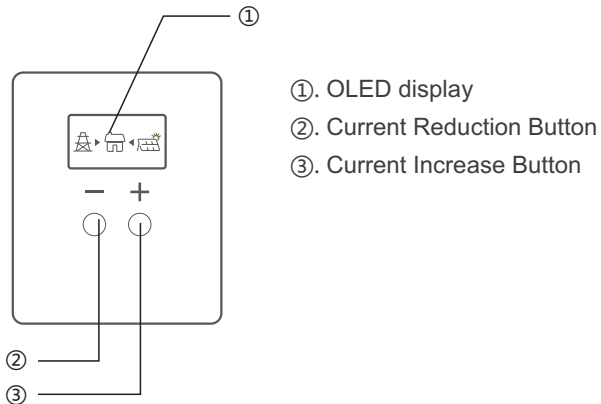
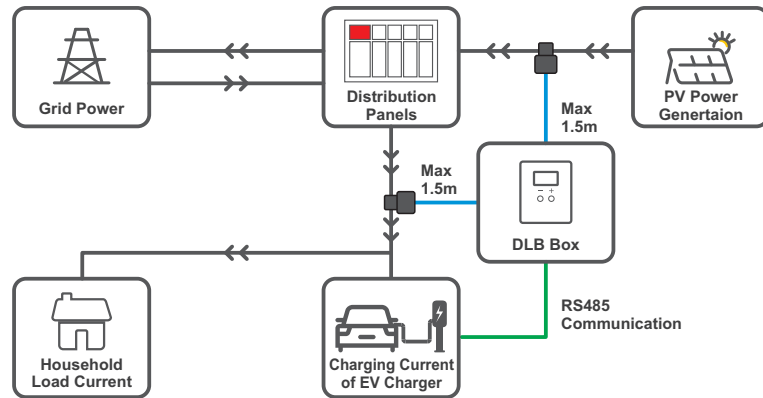
Troubleshooting

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		CT open coil is not connected firmly	Reconnect
		The connection between the CT cable and the DLB is loose	Reconnect

DLB Box For Solar PV

Single Phase: BCP-DLB-11

Three Phase: BCP-DLB-13



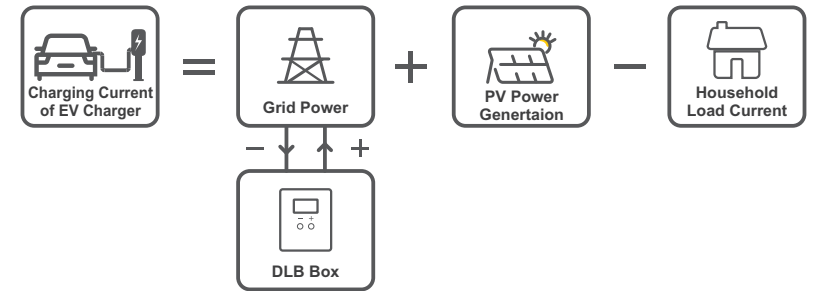
Working Principle

DLB box for PV system is a device can limit the Grid Power consuming via setting the current value.

"-" button reduces the current value, less Grid Power would be allowed to use.

"+" button increases the current value, so allow the ev charger uses more power from Grid.

DLB Box For Solar PV



How to calculate the current of the EV charger?

Single Phase

"The allowable current of EVC"=

"Max grid current"+ "PV power current"- "household load current"
(set via DLB)

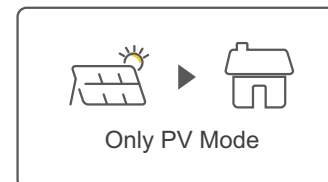
Three Phase

"The allowable current of EVC"=

{ "Max grid current (set via DLB)"+"The sum of the three phase current of PV power"-
"The sum of the three phase current of household load"} / 3

Three DLB modes for solar PV

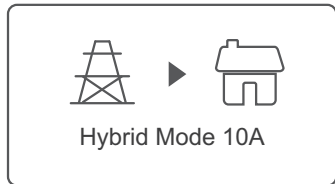
1. Pure PV mode



The EV charger in the pure PV mode will control its own charging current as much as possible, so that the actual input value of the grid current is as close as possible to 0A.

DLB Box For Solar PV

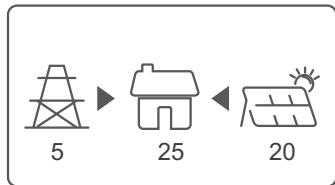
2. Hybrid mode



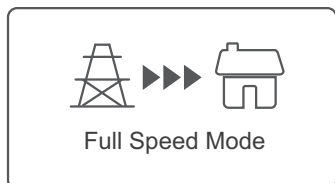
The EV charger in the hybrid mode will control its own charging current as much as possible in the range of DLB setting value.

EG:

We can set DLB Max grid current input setting value to 10A, the actual current value from grid to household power is 5A ($\leq 10A$), and the PV power generation current is 20A, so the total current of household power is 25A (5A+20A).



3. Full speed mode



When the EV charger is working in full speed mode, the DLB will no longer limit the charging current of the EV charger, and the charging pile will use the maximum current supported for charging.

DLB Box For Solar PV

Operating Steps

1. After the DLB box is turned on, the welcome interface will be displayed, and after 2 seconds, it will enter the measurement data display interface.
2. In the measurement data display interface, press any key to enter the setting interface of the Max grid current input setting value.
3. Press the "+" and "-" buttons in the setting interface to adjust the increase or decrease of the Max grid current input setting value. (Long press the "+" and "-" buttons in the setting interface to quickly adjust the Max grid current input setting value).
4. After setting the value, waiting for 5 seconds, the data will be automatically saved and return to the measurement data display interface.

Notes

The setting range of the Max grid current input setting value is 1-98A.

Press the "+" and "-" buttons at the same time in the setting interface to quickly switch between pure PV mode, hybrid mode, and full speed mode.

The DLB function of the EV charger, the adjustment range is between 6-32A.

Even if the sum of the current values of other household loads current is greater than (PV power generation current + Max grid current input setting value), the EV charger will be charged according to the minimum charging current of 6A.

The charging current of the EV charger is also affected by the cable of the charging gun of the EV charger (socket only type), the max charging power of the on-board charger, the max charging current setting value set by the EV charger, and the max power of the EV charger itself And other factors.