Teison

CT - CLAMP USER MANUAL
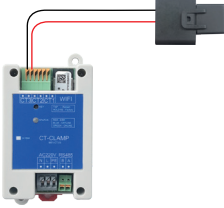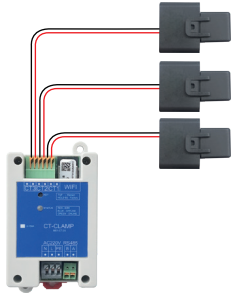
CONTENT

1. About CT CLAMP

CT CLAMP is available with Teison Smart MINI series AC EV Charger for home use. When the load of household appliances increase, CT controller can adjust the charging current dynamically to avoid the overloading. In solar system, users can choose it powered by available solar electricity or Grid.
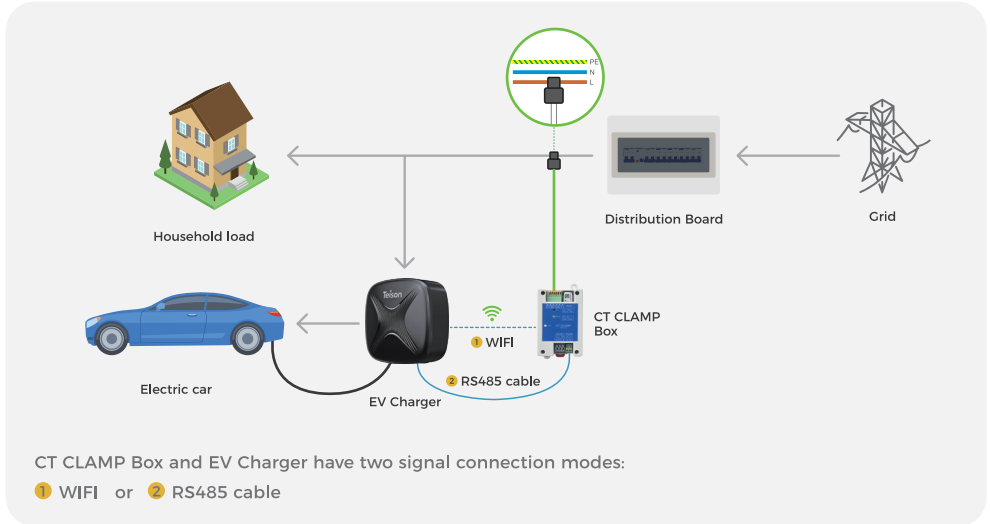
2. Model Selection

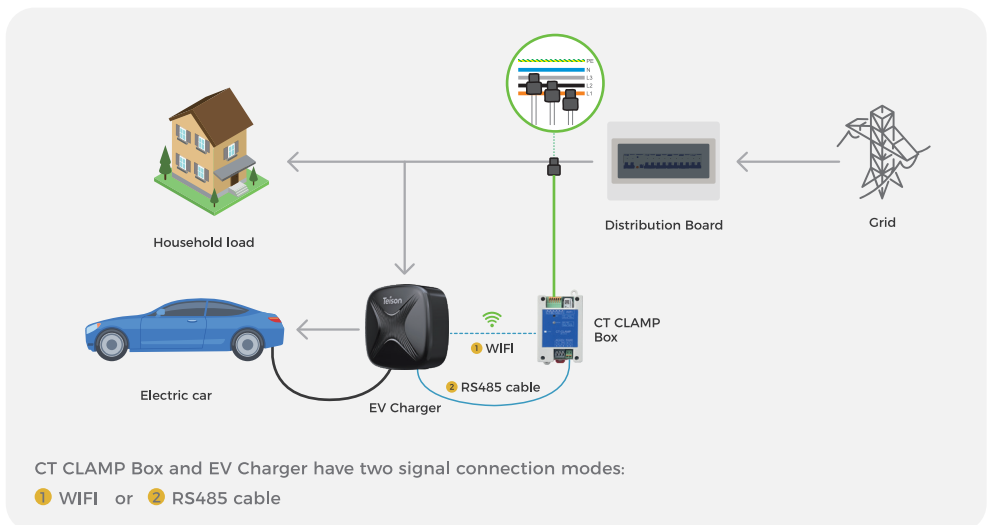| Model	M51-CT-03-1P	M51-CT-03-3P
Picture		
Phase	Single phase	Three phase
Number of Current Transformers	1	3
Input Voltage	AC 220V	
Working Frequency	45 - 65 HZ	
System Consumption	Standby: 3W, working: 10W (full function state)	
Display and Buttons	LED/button	
Wireless Connection	Bluetooth, WiFi (2.4GHz only)	
Protocol Connection	OCPP1.6J	
Application	Bluetooth control and configure to Internet	
Working Temperature	-40℃～+65℃	
Working Humidity	5%～95% (non-condensing)	
Elevation up to	≤4000M	
Size	92*54*32mm (L*W*H, host only)	
Net Weight	80±5g	

3. Working Scenario

CT CLAMP has two operating modes, one is normal mode and the other is solar mode.

3.1 Working principle of normal mode

- 1 Phase System with CT CLAMP: M51-CT-03-1P

CT CLAMP Box and EV Charger have two signal connection modes:
❶ WIFI   or   ❷ RS485 cable

- 3 Phase System with CT CLAMP: M51-CT-03-3P

CT CLAMP Box and EV Charger have two signal connection modes:
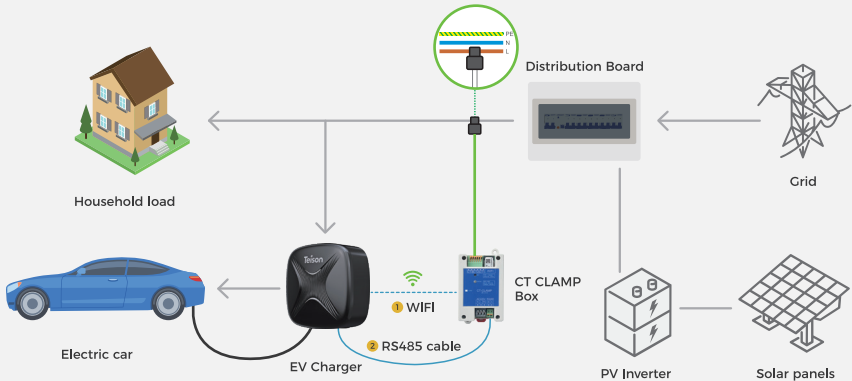❶ WIFI   or   ❷ RS485 cable

3.2 Working principle of solar mode

In this mode, when there is over 7A residual current transferred from solar system to Grid, Teison Smartmini wallbox will start to work. In the opposite scenario, the charger will stop charging.

Boost mode means that the charger will work with max current powered by booth solar electricity and Grid.
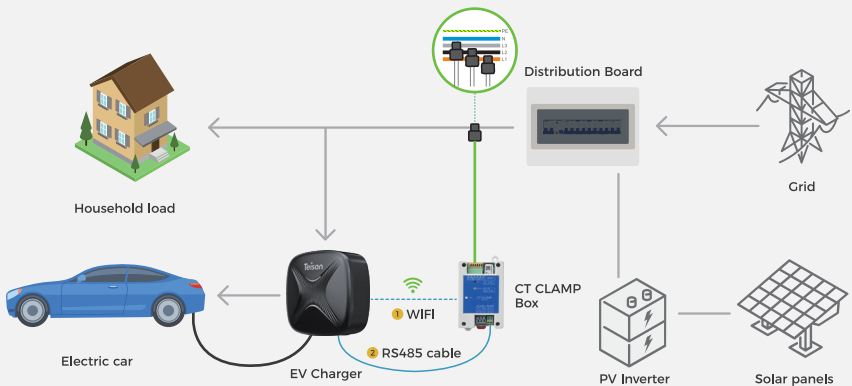
- 1 Phase System with CT CLAMP: M51-CT-03-1P

Distribution Board

Grid

Household load

Electric car

EV Charger

CT CLAMP Box

① WIFI

② RS485 cable

PV Inverter

Solar panels

CT CLAMP Box and EV Charger have two signal connection modes:
① WIFI   or   ② RS485 cable

- 3 Phase System with CT CLAMP: M51-CT-03-3P

Distribution Board

Grid

Household load

Electric car

EV Charger

CT CLAMP Box
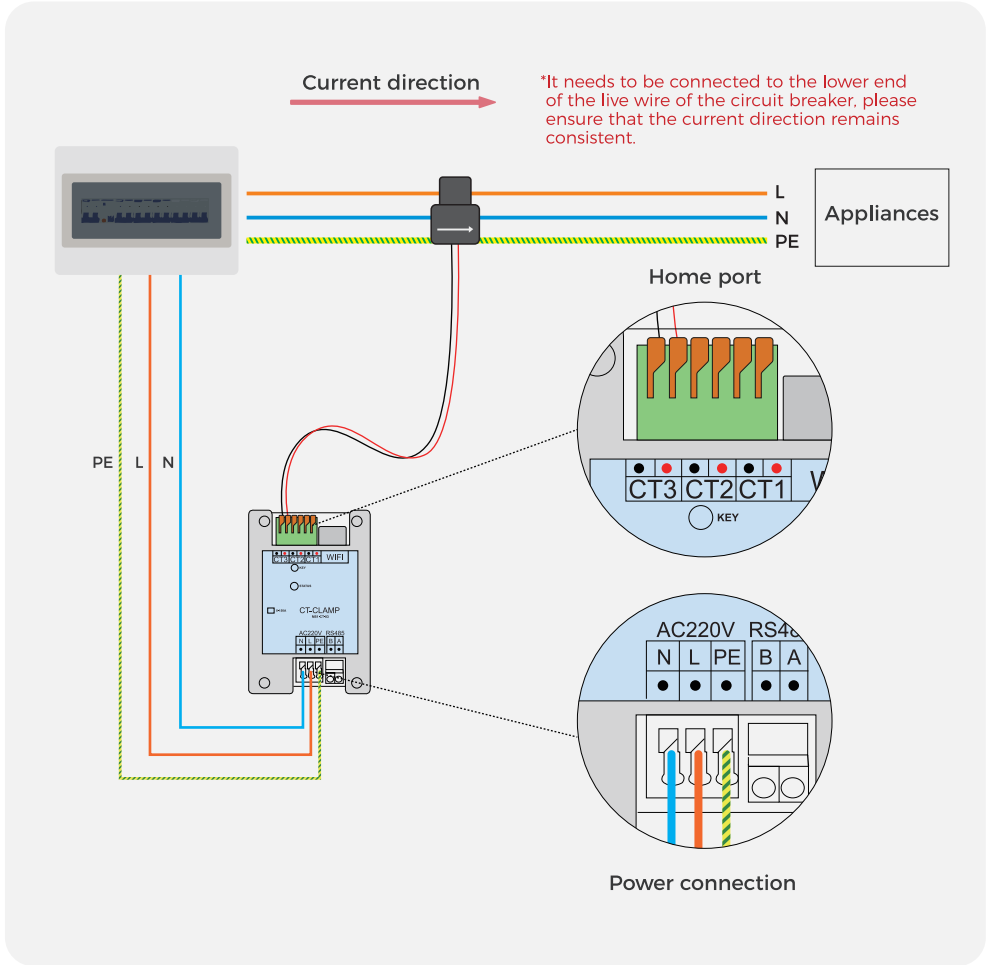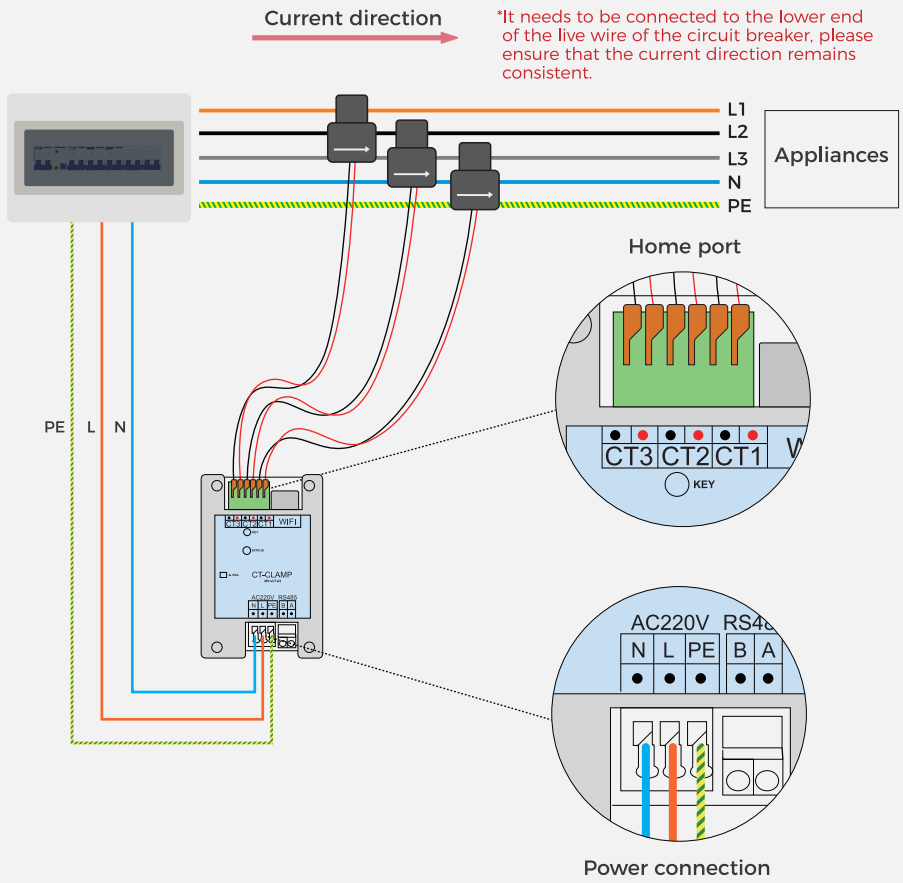
① WIFI

② RS485 cable

PV Inverter

Solar panels

CT CLAMP Box and EV Charger have two signal connection modes:
① WIFI   or   ② RS485 cable

4. Installation Guidance

4.1 Installation method

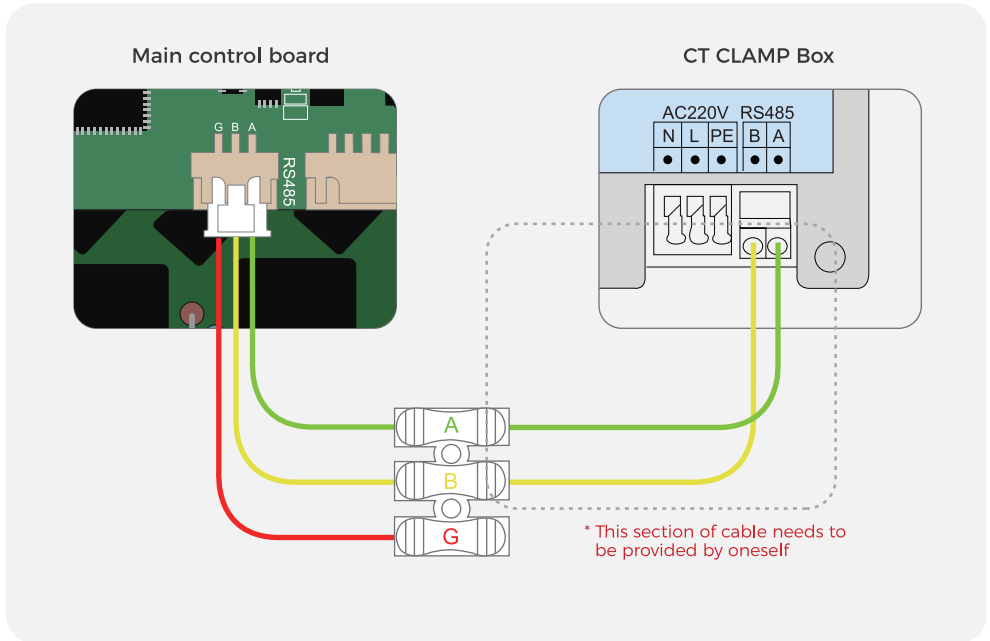• CT installation of single phase CT CLAMP Box (M51-CT-03-1P)

Current direction

*It needs to be connected to the lower end of the live wire of the circuit breaker, please ensure that the current direction remains consistent.

L
N
PE

Appliances

PE L N

Home port

CT3 CT2 CT1

KEY

CT-CLAMP

WIFI

AC220V RS48

N L PE B A

Power connection

• CT installation of three phase CT CLAMP Box (M51-CT-03-3P)

Current direction

*It needs to be connected to the lower end of the live wire of the circuit breaker, please ensure that the current direction remains consistent.

L1
L2
L3
N
PE

Appliances

Home port

CT3 CT2 CT1 W

KEY

WIFI

CT-CLAMP

AC220V RS485

PE   L   N

AC220V   RS48

N	L	PE	B	A
●	●	●	●	●

Power connection

4.2. Communication connection method

- Option 1: RS485 Cable connection

Main control board

CT CLAMP Box

AC220V RS485

N L PE B A

A

B

G

* This section of cable needs to be provided by oneself

Find the RS485 interface on the main control board and connect it as shown in the figure above. The single-phase and three-phase connection methods are the same.
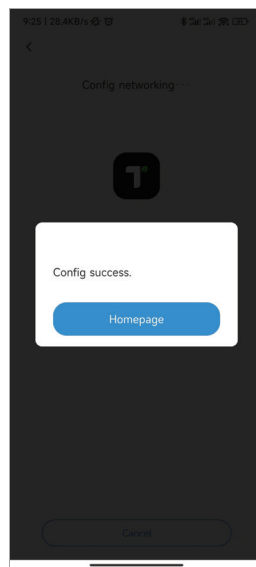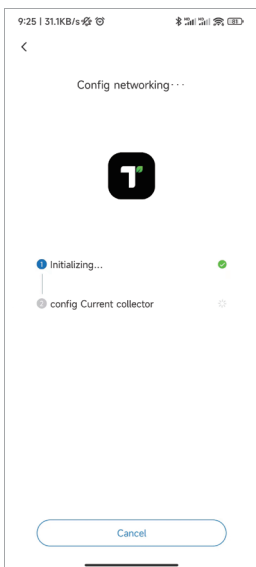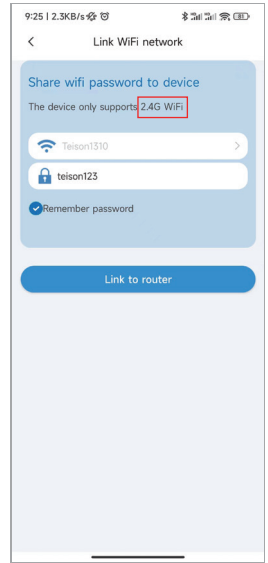
● Option 2: WIFI configuration instructions
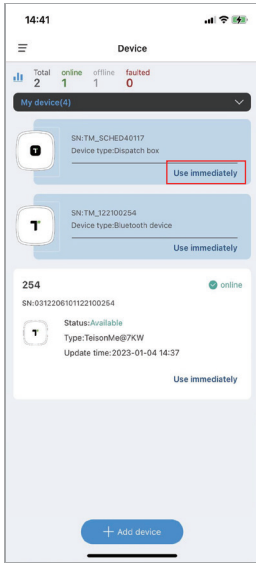
Press "Use immediately" to enter main interface
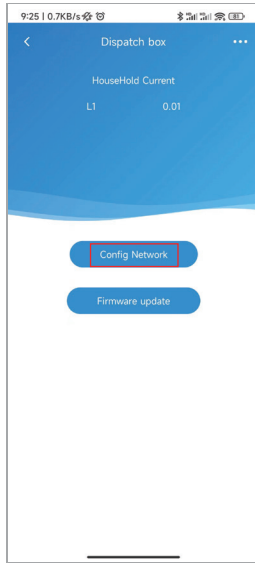
Press ""Config Network", then go to the interface of Link Wifi network, remember to choose the wifi in 2.4G and type into the correct password, to link to router.
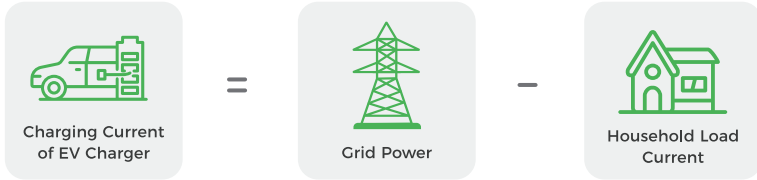

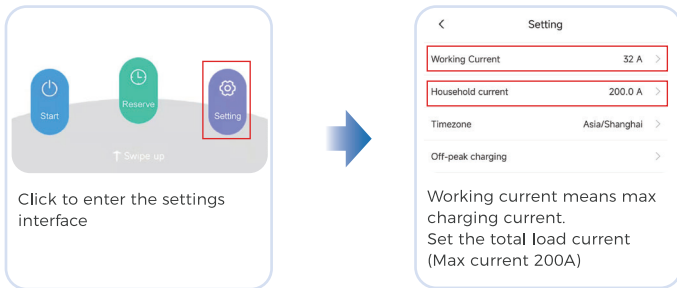Wait for a while, when show "Config success" it means network successfully connected

5. Setting

5.1 Normal mode

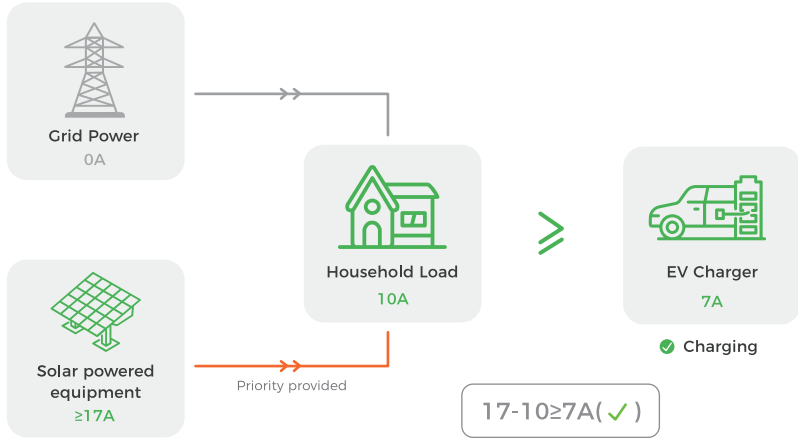EVC Charging current = maximum grid current (set on APP) - household load current

Charging Current of EV Charger **=** Grid Power **–** Household Load Current

APP settings

Click to enter the settings interface

Setting	
Working Current	32 A >
Household current	200.0 A >
Timezone	Asia/Shanghai >
Off-peak charging	>

Working current means max charging current.
Set the total load current
(Max current 200A)

Under this mode, the charger will adjust the real-time charging current according to limitation of 'Househole current', which will avoid the overload.

When the residual available current in household supply is less than 6A, the charger will be stopped.
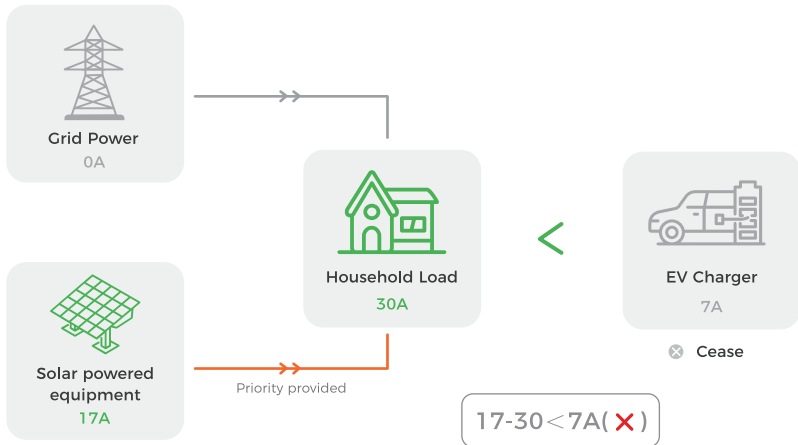
5.2 Solar mode

1 Solar power supply current - Household load current ≥EVC charging current (set on APP)

Grid Power
0A

Solar powered equipment
≥17A

Household Load
10A

Priority provided

EV Charger
7A

✓ Charging

17-10≥7A(✓)

When solar energy is more than real-time household load and residual current over 7A, the charger will work by available solar current. No current comes from Grid.
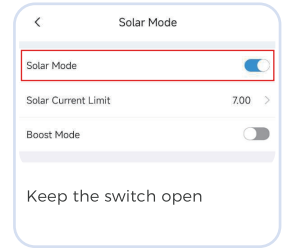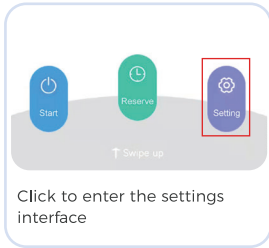
2 Solar power supply current - Household load current ＜EVC charging current (set on APP)

Grid Power
0A

Solar powered equipment
17A

Household Load
30A

Priority provided

EV Charger
7A

⊗ Cease

17-30＜7A(✗)

When solar energy is less than real-time household load or residual current lower than 7A, the charger will stop working until residual current over 7A.
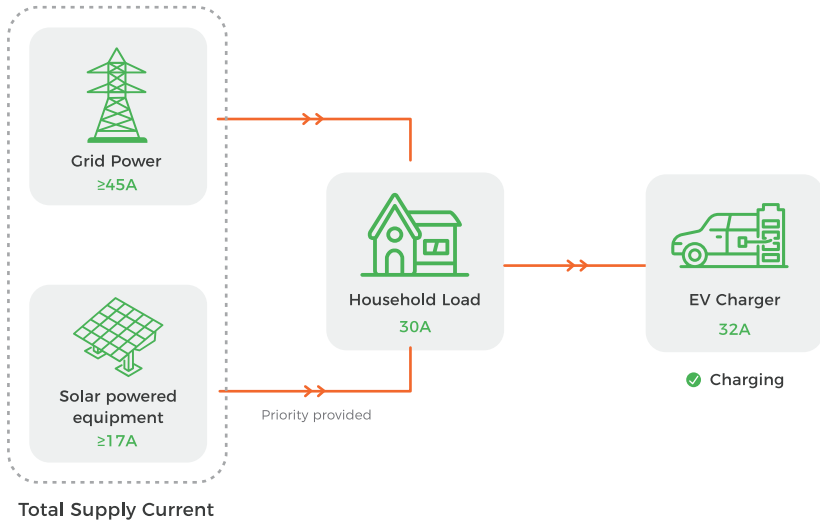
Users can adjust the 'Solar Current Limit' on the APP to set the min starting current.
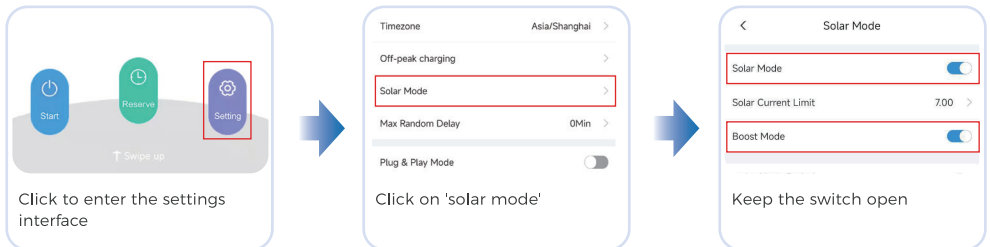
APP settings

Click to enter the settings interface

Click on 'solar mode'

Timezone	Asia/Shanghai >
Off-peak charging	>
Solar Mode	>
Max Random Delay	0Min >
Plug & Play Mode	

Solar Mode

Solar Mode	
Solar Current Limit	7.00 >
Boost Mode	

Keep the switch open

5.3 Boost mode

Total supply current - Household load current ≥EVC charging current (full power)

Grid Power
≥45A

Household Load
30A

EV Charger
32A

✅ Charging

Solar powered equipment
≥17A

Priority provided

Total Supply Current
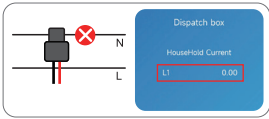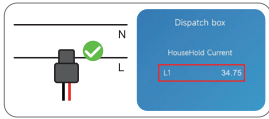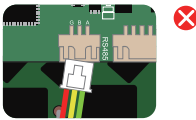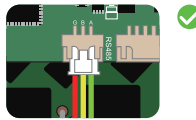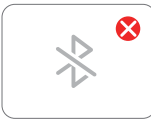
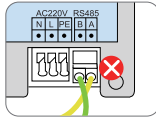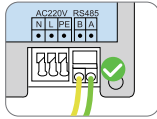Under Boost mode, the charger will output max charging current and be prior to use residual solar current. If the residual solar current can't support the max charging current, It's allowed to be powered by Grid.

APP settings

Start	Reserve	Setting
⬆ Swipe up		

Click to enter the settings interface

Timezone	Asia/Shanghai >
Off-peak charging	>
Solar Mode	>
Max Random Delay	0Min >
Plug & Play Mode	⬤

Click on 'solar mode'

<	Solar Mode
Solar Mode	🔵
Solar Current Limit	7.00 >
Boost Mode	🔵

Keep the switch open

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6. Troubleshooting

LED light status	Type	Potential Cause	Action
STATUS	online	/	/
		CT is stuck on the wrong power line, and the APP detects that the current is displayed as 0	Check if the CT position is correct, and the APP detects that the current is normal
STATUS	offline	Loose RS485 interface	Ensure that the wiring is intact
		Bluetooth not connected	Reconnect Bluetooth
		WIFI not connected	Reconnect WIFI
STATUS	fault	Communication line connection error	Reconnect the communication line

Teison Energy Technology Co.,Ltd

⦿ NO.276 MuseumRoad,Yangzhou,Jiangsu,China

🌐 www.teison.com　　www.teisonev.com　　www.evs-cn.com