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INSTALLATION & OPERATION MANU-AL EV CHARGER SMILE-EVCT11



Copyright Statement

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01 Introduction

1.1 Safety and Warning

- 1) Keep the explosive or flammable materials, chemicals, vapors and other hazard objects away from the charger.
- 2) Keep the charging socket clean and dry. If dirty, please wipe with clean dry cloth. Touch the socket core is strictly forbidden when power on.
- 3) Do not use the charger in case the device has defects, crack, abrasion, bare leakage and so on. Please contact the working staff in case of above conditions.
- 4) Do not attempt to disassemble, repair, refit the charger. If necessary, please contact the working staff. Improper operation will result in device damage, electric leakage, etc.
- 5) In case any abnormal condition happens, please press the emergency stop button immediately, cut off all input and output power supply.
- 6) Please make charging cautiously in raining or lighting weather.
- 7) The children should not get close to or use the charger to avoid being hurt.
- 8) During the charging, the EV is not allowed to drive. Charging only when the EV stops still. For Hybrid car, charging only when switching the engine off.



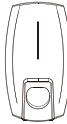

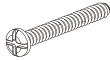



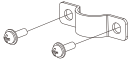



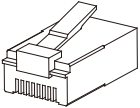
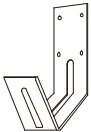
Warning



The input and output voltages of this device are dangerous high voltage, which can endanger human life safety. Please strictly observe all warnings and operating instructions on the device and in the manual. Unauthorized and non-professional service personnel should not remove the cover of this device.

1.2 Scope of Delivery

Check the scope of delivery for completeness and any externally visible damage. Contact your distributor if the scope of delivery is incomplete or damaged.

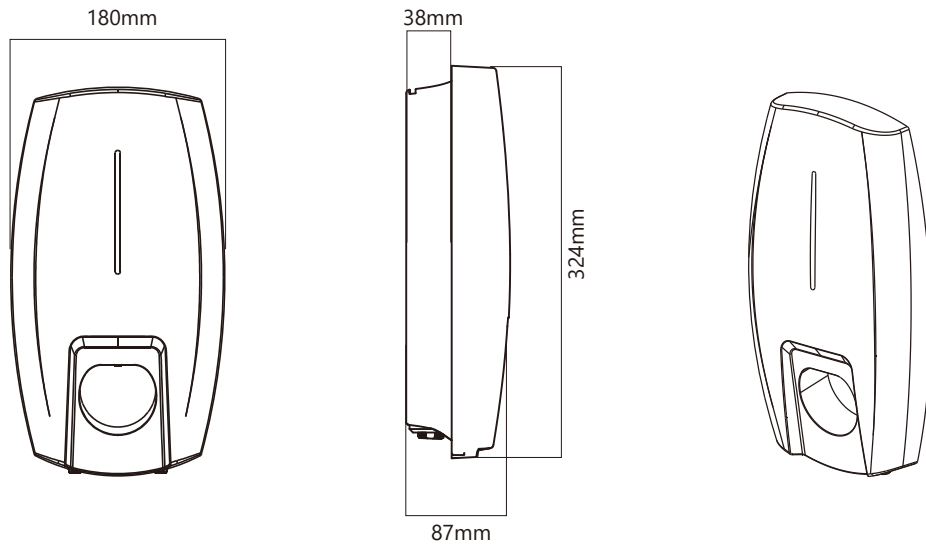
SMILE-EVCT11			
			
Wallbox (x1)	User Manual (x1)	M4*32 Screw (x6)	6*30 Expansion Pipel (x6)
			
Sealed Cap (X1)	M4*12 Screw (X2)	Clasp (X1)	Terminal block (X5)
			
Wrench (X1)	Installation board (X1)	RJ45 Connector (x1)	Charging Cable Holder (x1)

1.3 Liability Limitation

Any product damage or property loss caused by the following conditions AlphaESS does not assume any direct or indirect liability.

- Product modified, design changed or parts replaced without AlphaESS authorization;
- Changes, or attempted repairs and erasing of series number or seals by Unauthorized AlphaESS technician;
- System design and installation are not in compliance with standards and regulations;
- Failure to comply with the local safety regulations;
- Transport damage (including painting scratch caused by rubbing inside packaging during shipping). A claim should be made directly to shipping or insurance company in this case as soon as the container/packaging is unloaded and such damage is identified;
- Failure to follow any/all of the user manual, the installation guide and the maintenance regulations;
- Improper use or misuse of the device;
- Insufficient ventilation of the device;
- The maintenance procedures relating to the product have not been followed to an acceptable standard;
- Force majeure (violent or stormy weather, lightning, overvoltage, fire etc.);
- Damages caused by any external factors.

1.4 External Structure



02 Mounting

2.1 Package Verification

Unpack to check and verify following items after receiving the charger:

- Visual inspection on external appearance. In case there is any broken or damage, notify the seller immediately.
- Check accessory type and quantity. If there is quantity in short or type inconformity, make the record in time and contact the seller at once.

2.2 Installation Preparation

2.2.1 Tools

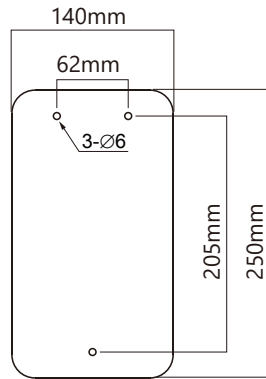
Tool Name	Photo	Function
Multimeter		Check electrical connection and electrical parameter
Cross Screwdriver (PH2x150mm, PH3x250mm)		Tight the screws
Insulated Torque Wrench		Tight the bolts
Electric drill		Hole on the wall
Diagonal Pliers		Cut cables

2.2.2 Cables & Materials

Name	Specification	Quantity
Power supply cable	5*6mm ² three-phase power supply cable	Depend on actual requirement
Communication cable	RJ45	Depend on actual requirement

2.3 AC Charger Mounting

2.3.1 Mounting the AC Charger

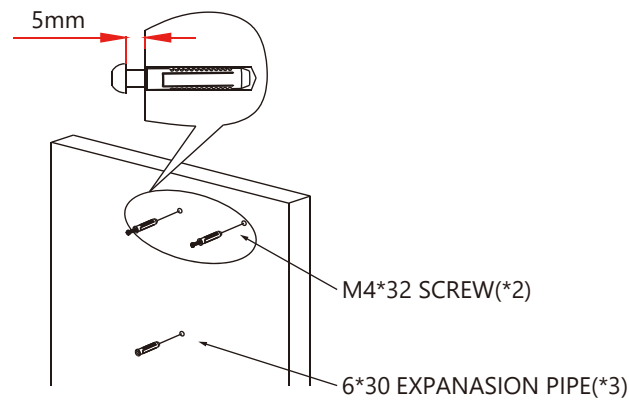


Mount the Expansion pipe to the wall once a suitable location has been found.

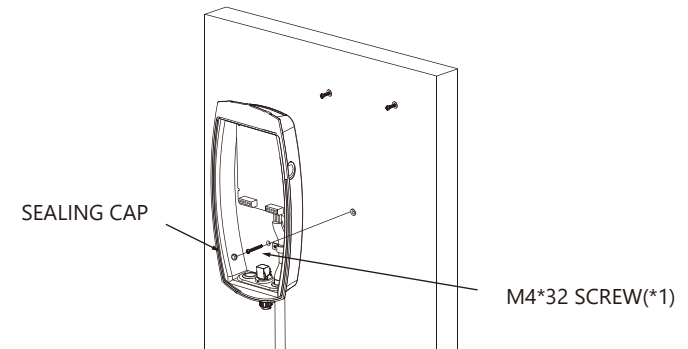
The AC Charger shall be mounted vertically.

The steps to mount the AC Charger are listed below:

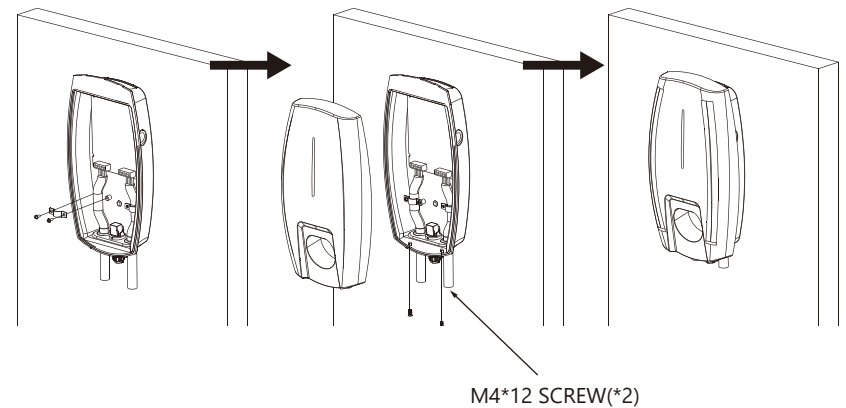
1. According to the cases of the attached installation board, drill 3 x $\Phi 6$ * 35 mm holes on the wall, and insert the expansion pipe;
2. Lock the 2 x M4*32mm self-tapping screw into the expansion pipe, and reserve 5mm space;



3. Open the top cover of EV-charger, hang it on the 2x M4*32 mm self-tapping screws, lock it into the bottom M4*32 mm self-tapping screw and then cover the sealing cap;



4. Connect wires to the connectors (Refer to Section 3.3), close the upper cover, and lock it with 2 x M4*12mm screw.



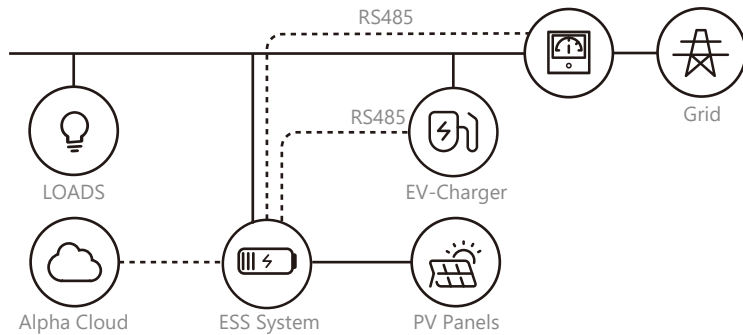
03 Electrical Connection

3.1 Installation Notice

- a) Electrical device should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by the manufacturer for any consequences arising out of the use of this device. A qualified person is one who has skills and knowledge related to the construction, installation and operation of electrical device and who has received safety training to recognize and avoid the hazards involved.
- b) All applicable local, regional, and national regulations must be respected when installing, repairing, and maintaining this device.
- c) Maximum length of the communication cable between the EV-charger and the energy storage system must be less than 100m.

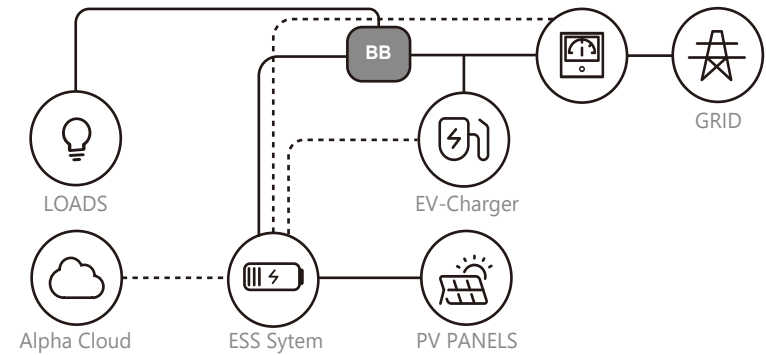
3.2 System Wiring Diagram

For combining with AlphaESS energy storage system, the EV charger should be installed as the below diagram.



! Note: the EV charger should be installed behind the grid meter.

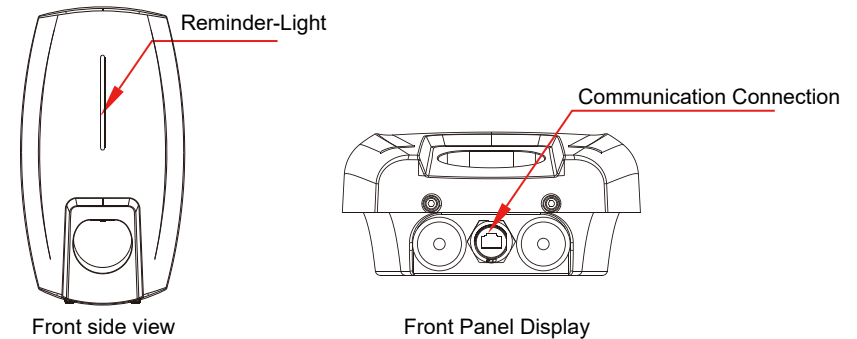
If you have installed a Backup Box, the EV charger should be installed as the below diagram.



! Note: the EV charger should be installed between the grid meter and the backup box. The backup box does not support access to communication of ESS temporarily.

3.3 Overview of the Connection Area

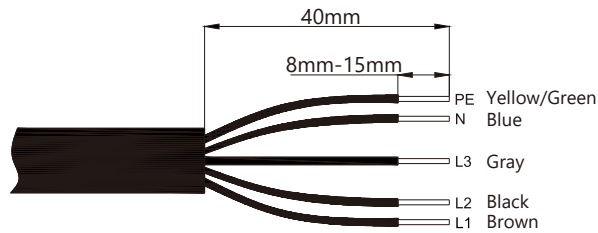
3.3.1 AC Charger Appearance



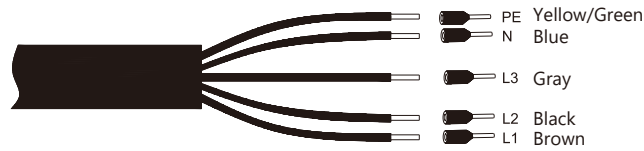
LED Indicator Instruction		
State	Description	LED Status
Im Standby	Normal	Flashing green, 1S on, 4S off
Charging status	Normal	Breathing green, 1S on, 1S off
Plugged charging connector state	Normal	Breathing yellow, 1S on, 1S off
Software upgrade	Normal	Green light flash
Ground warning	Normal	Flashing yellow, 2S on, 2S off
Relay adhesion	Fault	Red light normally on
For details please refer to 5.1	Fault	Flashing red

3.4 AC Wiring

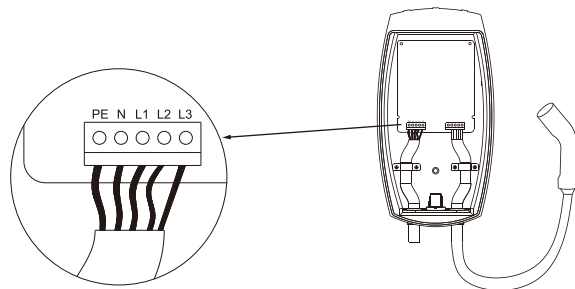
1. Remove a length of 40mm of the cable jacket and strip the wire insulation to a length of 8~15mm.



2. Crimp the terminals as shown in the figure below.



3. The wiring is shown in the figure below.



3.5 Communication Connection

The communication between the EV Charger and EMS of the energy storage system is RS485.

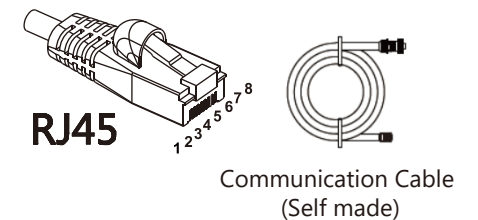
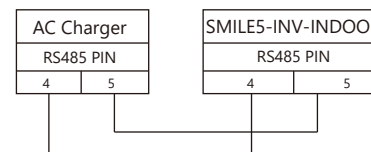
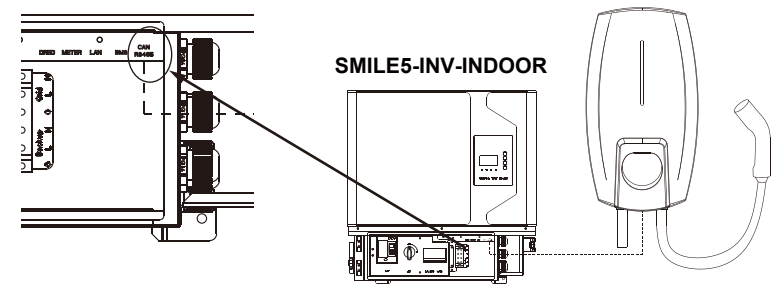
RJ45 PIN definition is as below:

EV AC Charger – SMILE-EVCT11		
RJ45	PIN4	PIN5
RS485	RS485-B	RS485-A

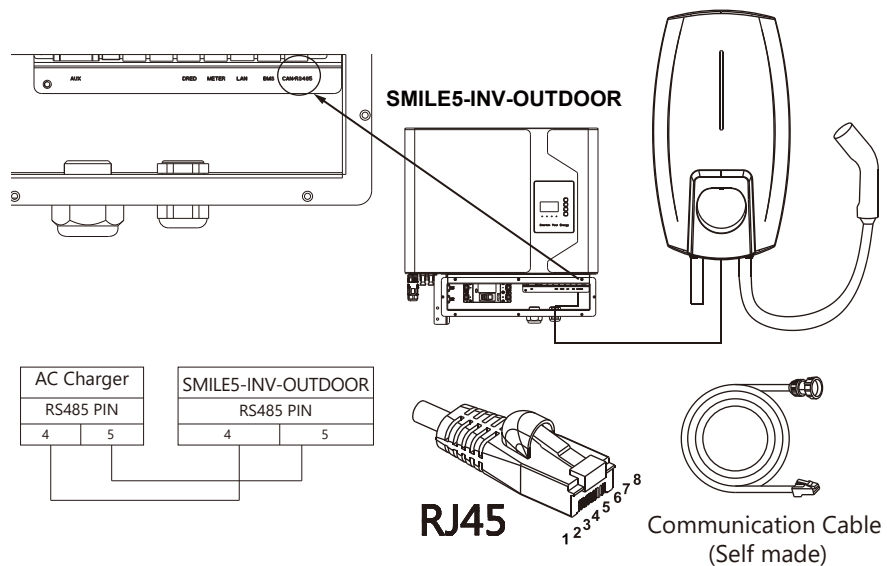
ESS– SMILE5-INV / SMILE-B3 / SMILE-HV Series		
RJ45	PIN4	PIN5
RS485	RS485-B	RS485-A

ESS– SMILE-T10-INV / Storion-T30		
RJ45	PIN4	PIN6
RS485	RS485-B	RS485-A

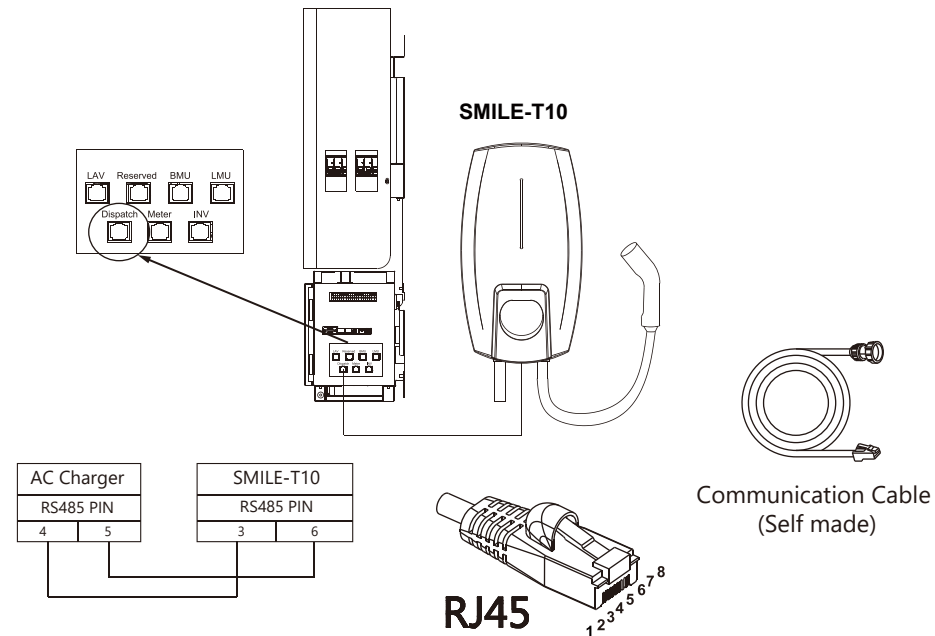
3.5.1 Communication Connection between SMILE5-INV-INDOOR and AC Charger



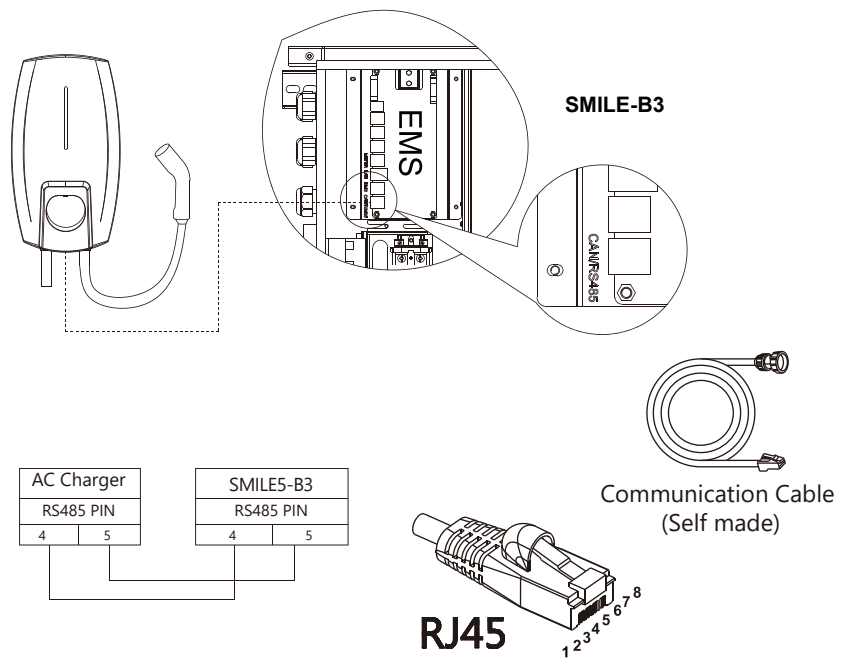
3.5.2 Communication Connection between SMILE5-INV-OUTDOOR and AC Charger



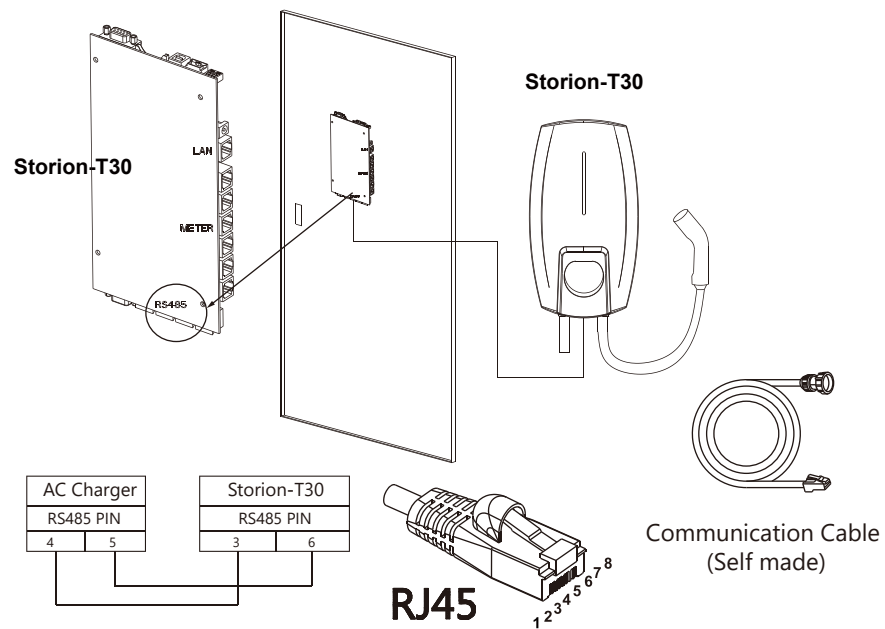
3.5.4 Communication Connection between SMILE-T10 and AC Charger



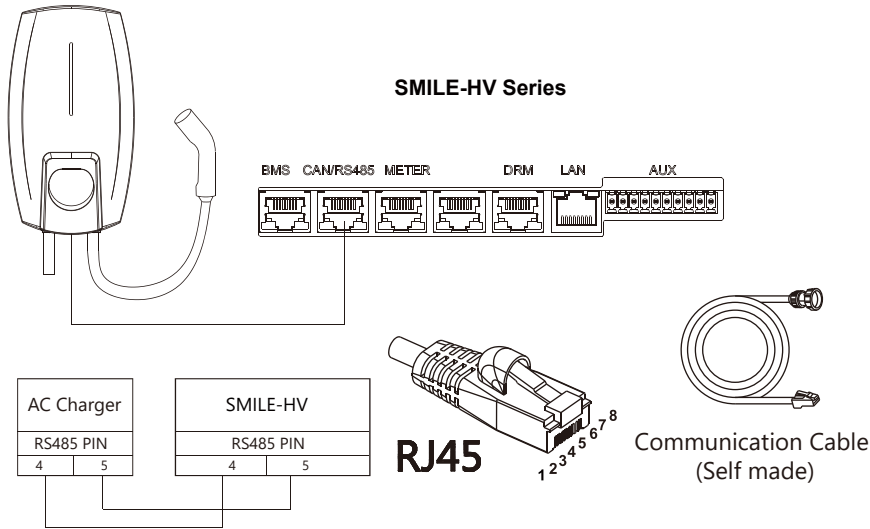
3.5.3 Communication Connection between SMILE-B3 and AC Charger



3.5.5 Communication Connection between Storion-T30 and AC Charger

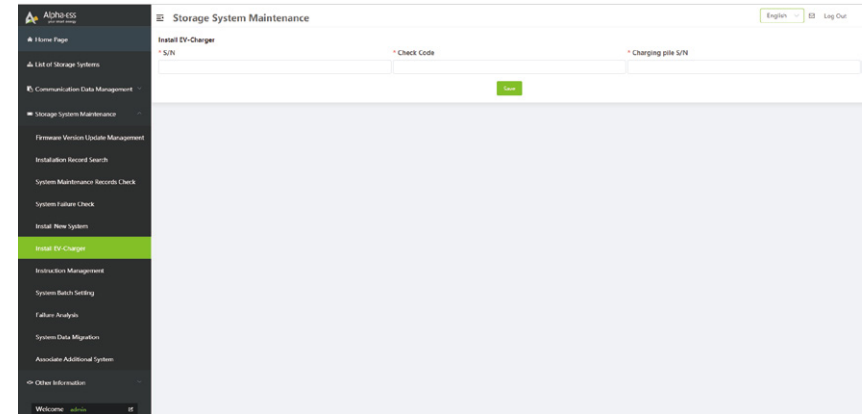


3.5.6 Communication Connection between SMILE-HV Series and AC Charger

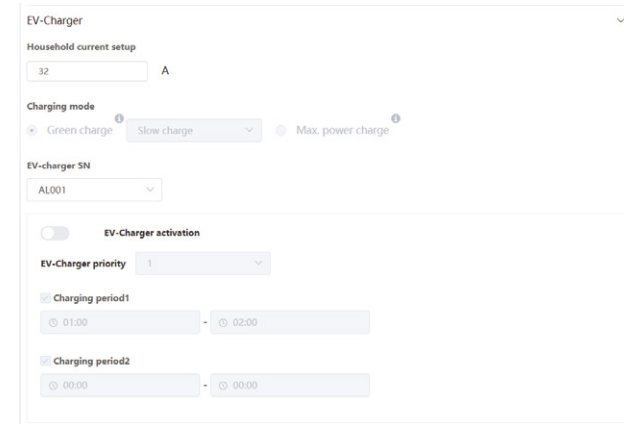


4.1 Configuration

For combining the EV charger to the energy storage system, please ask the installer enter the serial number of the EV Charger on the server.



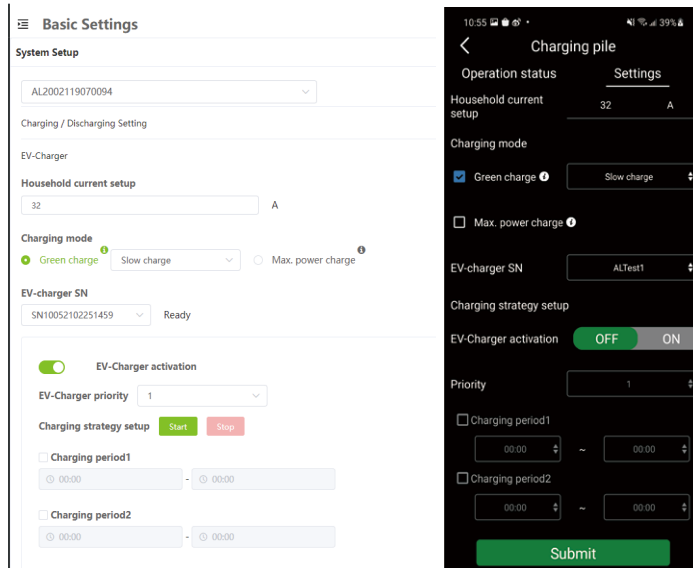
After configuration please choose the relevant SN of the EV charger and enter the current limit of each phase of the house.



Note: The EV-charger can also be used without being combined with the energy storage system. To do this, swipe the RFID card on the EV-charger and the charging process begins automatically. However, in this case, only the Max. Power Charge" mode is available (see Fig. 4.2.1.4 on page 17).

4.2 Setup on AlphaCloud and APP

After configuration, the end user can monitor and set up the EV charger on the AlphaCloud and APP.



Please choose the EV charging mode for your EV charger. There are four modes: Green charge-slow charge, Green charge-general charge, Green charge-quick charge, and max. power charge.

You can also set two charging time periods for the EV charger.

To charge the electric vehicle immediately, please click start charging button or use the memory card.

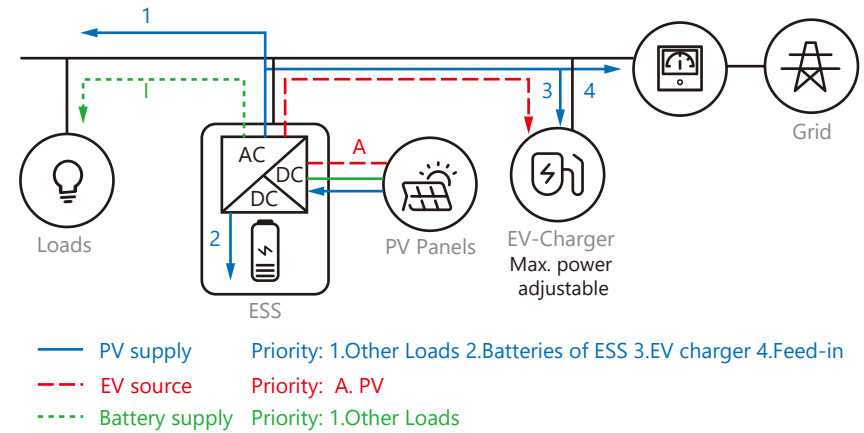
To stop the EV charger from charging, please click stop charging button.

Note: Whether you charge the EV immediately or Over a period of time, the charging mode is based on what you have chosen.

4.2.1 Charging Mode Instruction

Note: For starting EV charger, the current of each phase should not be less than 6A.

4.2.1.1 Green Charge – Slow Charge



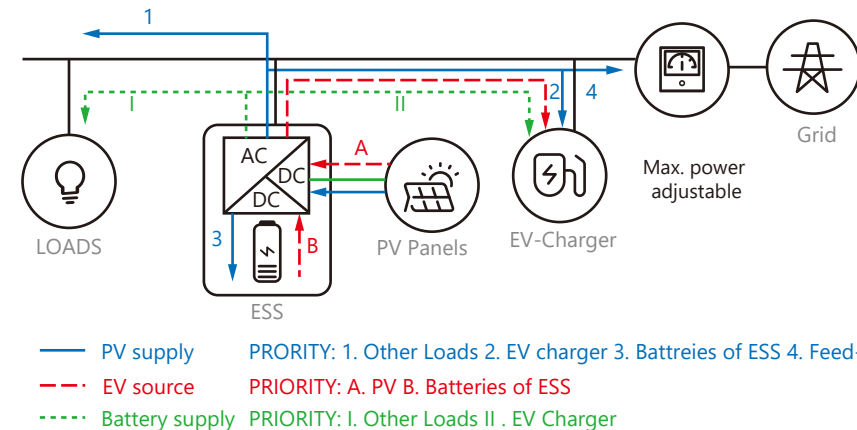
The EV charging source is only PV.

If PV power is available, it will first supply other loads, then charge the battery of ESS, and then supply the EV charger. At last it will feed into the grid.

Max. EV charging power $P_{EVmax} = P_{pv} - P_{load} - P_{bat}$

Note: if the on-board charger (OBC) on the electric vehicle is three-phase, Insufficient PV may not activate the EV charger in this mode

4.2.1.2 Green Charge – General Charge



The EV charging source is PV and batteries.

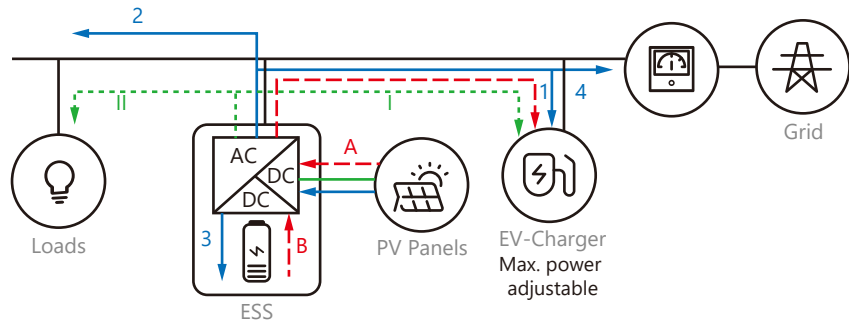
If PV power is available, it will supply other loads firstly, then supply the EV charger and maximize the EV charging power, and then charge the batteries of the ESS. At last it will feed into the grid.

The battery will be used for other loads and then for EV charger.

Max. EV charging power $P_{EVmax} = P_{pv} - P_{load} + P_{bat}$

Note: if the on-board charger (OBC) on the electric vehicle is three-phase, Insufficient PV and battery power may not activate the EV charger in this mode.

4.2.1.3 Green Charge – Quick Charge



- PV supply Priority: 1. EV charger 2. Other Loads 3. Batteries of ESS 4. Feed-in
- - - EV source Priority: A. PV B. Batteries of ESS
- - - - Battery supply Priority: I. EV Charger II. Other Loads

The PV and battery power will supply the EV charger firstly.

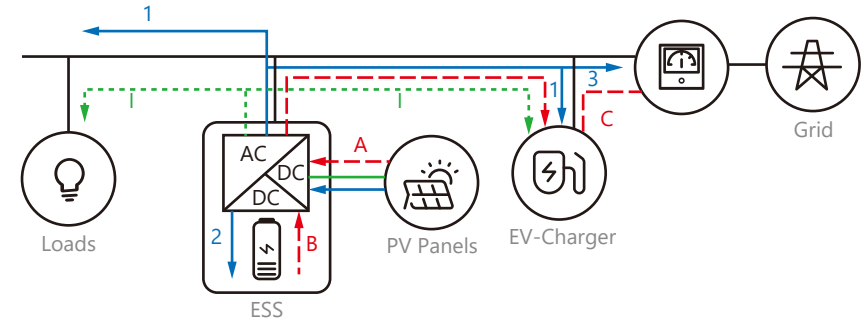
If PV power is available, it will supply the EV charger firstly, then supply other loads, and then charge the battery of ESS. At last it will feed into the grid.

The battery will be used for EV charger and then for other loads.

Max. EV charging power $P_{EVmax} = P_{pv} + P_{bat}$

Note: if the on-board charger (OBC) on the electric vehicle is three-phase, Insufficient PV may not activate the EV charger in this mode.

4.2.1.4 Max. Power Charge



- PV supply Priority: 1. EV charger & Other Loads 2. Batteries of ESS 3. Feed-in
- - - EV source Priority: A. PV B. Batteries of ESS C. Grid
- - - - Battery supply Priority: I. EV Charger & Other Loads

The EV charger will charge the electric vehicle with max. power. The PV and ESS system will supply the EV charger firstly. IF not enough, the grid will supply the EV charger at the same time.

If PV power is available, it will supply the EV charger and other loads firstly, and then charge the battery of ESS. At last it will feed into the grid.

Max. EV charging power $P_{EVmax} = P_{max}$

4.2.1.5 Mode Option Suggestion

AC Output Power from AlphaESS Energy Storage System & PV Inverter	<5kWp		5~10kWp		>10kWp	
	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
On-Board Charger of Vehicle						
Green Charge-Slow	✓		✓		✓	✓
Green Charge-Normal	✓		✓	✓	✓	✓
Green Charge-Quick	✓	✓	✓	✓	✓	✓
Max. Power Charge	✓	✓	✓	✓	✓	✓

Please refer to the actual situation of the customer's home loads.

5.1 IndicatorState

State	Description	LED Status
In the standby	Normal	Flashing green, 1S on, 4S off
Charging status	Normal	Breathing green, 1S on, 1S off
Plugged gun state	Normal	Breathing yellow, 1S on, 1S off
Software upgrade	Normal	Green light flash
Ground warning	Normal	Flashing yellow, 2S on, 2S off
Relay adhesion	Fault	Red light normally on
Input polarity reverse	Fault	Flashing red, 500ms on, 500ms off, 1 time, 3S off, Cycle
CP fault	Fault	Flashing red, 500ms on, 500ms off, 2 times, 3S off, Cycle
Leakage current fault	Fault	Flashing red, 500ms on, 500ms off, 3 times, 3S off, Cycle
Input terminal overtemperature	Fault	Flashing red, 500ms on, 500ms off, 4 times, 3S off, Cycle
Relay overtemperature	Fault	Flashing red, 500ms on, 500ms off, 5 times, 3S off, Cycle
Under voltage fault	Fault	Flashing red, 500ms on, 500ms off, 6 times, 3S off, Cycle
Over voltage fault	Fault	Flashing red, 500ms on, 500ms off, 7 times, 3S off, Cycle
Overload fault	Fault	Flashing red, 500ms on, 500ms off, 8 times, 3S off, Cycle
Over frequency fault	Fault	Flashing red, 500ms on, 500ms off, 9 times, 3S off, Cycle
Owe frequency fault	Fault	Flashing red, 500ms on, 500ms off, 10 times, 3S off, Cycle
Leakage current loop abnormal	Fault	Flashing red, 500ms on, 500ms off, 11 times, 3S off, Cycle

5.2 Fault Code

Error Code	Problems	Possible Causes	Solutions
OverVolt	Input over voltage	AC input voltage may be too high.	<ol style="list-style-type: none"> 1. Check the input voltage from the backend. 2. If the voltage is over 276Vac for a short time, wait till the power grid recovers to normal voltage range.
UnderVolt	Input lower voltage	AC input voltage may be too low.	<ol style="list-style-type: none"> 1. Check the input voltage from the backend. 2. If the voltage is under 184Vac for a short time, wait till the power grid recovers to normal voltage range.
OverCurr	Output overload	AC output current may be too large.	<ol style="list-style-type: none"> 1. Shut off the leakage current protection switch of power distribution cabinet immediately. 2. Check whether there is low resistance connection between AC output cables of the charger.
OverFreq	Input over frequency	AC input frequency may be too high.	<ol style="list-style-type: none"> 1. Check the input voltage frequency from the backend. 2. If the frequency exceeds 63Hz for a short time, wait till power grid recover to normal voltage range.
UnderFreq	Input lower frequency	AC input frequency may be too low.	<ol style="list-style-type: none"> 1. Check the input voltage frequency from the backend. 2. If the frequency is lower than 47Hz for short time, wait till power grid recover to normal voltage range.
OverTemp	Over temperature	Temperature may be too low inside the charger.	<ol style="list-style-type: none"> 1. Check the surrounding conditions of chargers installed whether there is heating device nearby. Ensure the ambient temperature is under 60 C.
Over DCLeak	Over leakage current	Leakage current to the earth may be too high.	<ol style="list-style-type: none"> 1. Shut off the leakage current protection switch of distribution cabinet immediately. 2. Check whether there is broken of AC output cables or low resistance connection to the earth.
PhaseError	Reverse connection	Reverse connection of L/N in put cable.	<ol style="list-style-type: none"> 1. Shut off the leakage current protection switch of power distribution cabinet immediately. 2. Check if AC input/output cables are normal, and if inverse connection of L/N input cables.
CableRCError	Charging cable connection abnormal	Poor connection of charging cable with EV/Charger.	<ol style="list-style-type: none"> 1. Check if charging cable connection is correct and firm.

Error Code	Problems	Possible Causes	Solutions
Charging pile No. 1 lose	Communication cable connection abnormal	Poor connec-tion of charging cable with EV/Charger	1. Check if Communication cable connection is correct and firm.
			2. Check whether the communication cable sequence is correct.
			3. Check whether the charging pile address is set correctly.
			4. Check whether the installation number of charging piles is set correctly.

**NOTE:**

If the above problems cannot be solved, please contact the seller.

06 Specification Parameter

Model	SMILE-EVCT11
Dimension (H x W x D)	325 x 181 x 87 mm
Weight	3.2 kg
Operating Temperature	-30 ~ 50 °C
Related Humidity	15 ~ 90%
Operating Altitude	< 2000 m
Warranty	3 Year Product Warranty

Input

AC Rated Voltage	400 V, 3P+N+PE
Rated Current	16 A
Frequency	50/60 Hz

Output

AC Output Voltage	400 V
Max. Current	16 A
Rated Power	11000 W

Interface

Charger Connector	Type 2 cable
Cable Length	7 m

Communication

EMS	RS485
-----	-------

Protection

RCD	6 mA DC
IP Degree	IP65