Alphaess
your smart energy

V01

INSTALLATION, OPERATION & MAINTENANCE MANUAL OF

SMILE-G3-EVCT11



@AlphaEnergyStorageSystem @AlphaESS @alpha_ess @AlphaESS www.alphaess.com

Alpha ESS Co., Ltd.
+86 513 8060 6891
info@alpha-ess.com
www.alphaess.com
Jiuhua Road 888, Nantong High-Tech Industrial Development Zone, Nantong, Jiangsu Province, China

Alpha ESS Suzhou Co., Ltd.
+86 512 6828 7609
info@alpha-ess.com
www.alphaess.com
Building 10-A, Canal Town Industrial Park, 99 Taihu E Rd, Wuzhong District, Suzhou, Jiangsu Province, China

Alpha ESS Europe GmbH
+49 610 3459 1601
europe@alpha-ess.de
www.alpha-ess.de
Paul-Ehrlich-Straße 1a, Langen, Hessen D-63225 Germany

Alpha ESS Australia Pty. Ltd.
+61 02 9000 7676
Australia@alpha-ess.com
www.alphaess.com
8/15-21 Gibbes Street, Chatswood, NSW 2067 Australia

Alpha ESS Italy S.r.l.
+39 339 462 4288
info@alpha-ess.it
Via Don Minzoni, 17, Calenzano Firenze 50041 Italy

Alpha ESS Korea Co., Ltd
+82 64 721 2004
info@alpha-ess.com
2F, 19-4, Nohyeong 11-gil, Jeju-si, Jeju-do, Republic of Korea

Alpha ESS UK Ltd.
+44 145 354 5222
info@alpha-ess.com
Drake house, Long street, Dursley, gl11 4hh UK

Alpha ESS International Pte. Ltd.
+65 6513 1125 / +65 6513 1126
Singapore@alpha-ess.com
2 Corporation Road #01-06A Corporation Place 618494 Singapore

Alpha ESS USA, Inc.
+1 408 368 7828
usa@alpha-ess.com
Unit 5 2180 S Ivanhoe St, Denver, CO 80222

Copyright Statement

This manual is under the copyright of Alpha ESS Co., Ltd. with all rights reserved. Please keep the manual properly and operate in strict accordance with all safety and operating instructions in this manual. Please do not operate this product before read-ing through the manual.

CONTENT

01 INTRODUCTION 01

1.1 Safety and Warning 01
1.2 Scope of Delivery 02
1.3 Liability Limitation 02
1.4 Product Overview 03

02 MOUNTING 04

2.1 Package Verification 04
2.2 Installation Preparation 04
2.3 AC Charger Mounting 05

03 ELECTRICAL CONNECTION 07

3.1 Installation Notice 07
3.2 System Wiring Diagram 07
3.3 Overview of the Connection Area 08
3.4 AC Wiring 09
3.5 Communication Connection 10

04 SYSTEM CONFIGURATION AND OPERATION 12

4.1 Configuration 12
4.2 Setup on AlphaCloud and APP 13
4.3 Start and Stop Charging 18

05 TROUBLESHOOTING 19

5.1 Indicator State 19
5.2 Fault Code 20

06 SPECIFICATION PARAMETER 23

01 Introduction

1.1 Safety and Warning

1）Keep explosive or flammable materials, chemicals, vapors, and other hazardous objects away from the charger.
2）Keep the charging socket clean and dry. If it is dirty, please wipe it with a clean and dry cloth. Touching the socket core when the power is on is strictly forbid-den.
3）Do not use the charger if the device has defects, cracks, abrasions, bare leakage, or any similar issues. Please contact service if any of these conditions occur.
4）Do not attempt to disassemble, repair, or modify the charger. If necessary, please contact service. The improper operation could result in device damage, electric leakage, etc.

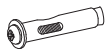
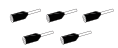
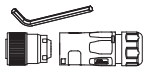
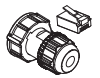
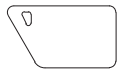
5）If any abnormal condition happens, please press the emergency stop button immediately and cut off all input and output power supply.
6）Please charge cautiously in rainy or lightning weather.
7）Keep the charger away from children to avoid injury.
8）Driving an EV during charging is strictly forbidden. Charge the EV only when it is

Warning

The input and output voltages of this device are dangerously high and can pose a threat to human life. Please strictly observe all warn-ings and operating instructions on the device and in the manual. Un-authorized and non-professional service personnel should not re-move the cover of this device.

1.2 Scope of Delivery

Check the scope of delivery and inspect components to ensure they are present and undamaged. Contact your distributor if the packed components are incomplete or damaged.

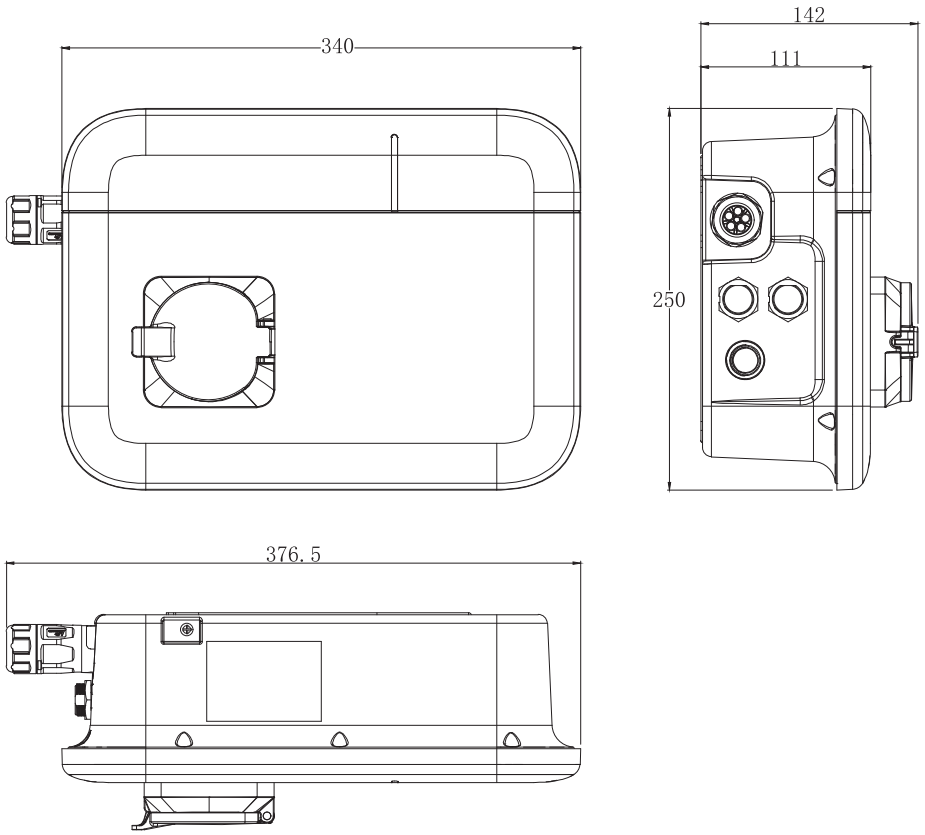
SMILE-G3-EVCT11		
		
EV Charger (x1)	Installation, Operation & Maintenance Manual (x1)	M6*40 Wall Anchor (x4)
		
Wall Bracket (x1)	T20 Wrench (x1)	Bootlace Ferrules E6010 (x5)
		
AC Connector (x1)	Communication Connector (x2)	RFID Card (x2)

1.3 Liability Limitation

AlphaESS will not assume any direct or indirect liability for any product damage or property loss caused by the following conditions:

- Product modification, design changes, or parts replacement without AlphaESS's authorization;
- Changes or attempted repairs, and erasing of series number or seals by unauthorized technicians;
- The product wiring 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 the shipping or insurance company as soon as the container/packaging is unloaded and such damage is identified;
- Failure to follow any/all of the user manual, installation guide, and maintenance regulations;
- Improper use or misuse of the device;
- Insufficient ventilation of the device;
- The product maintenance procedures have not been in compliance with an acceptable standard;
- Force majeure (violent or stormy weather, lightning, overvoltage, fire, etc.);
- Damages caused by any external factors.

1.4 Product Overview



02 Mounting

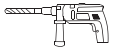
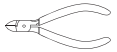
2.1 Package Verification

After receiving the charger, please unpack and check the following items:

- Inspect the external appearance and notify the seller immediately if there is any damage.
- Check the accessory type and quantity. If the quantity and/or type is incorrect, record it promptly and contact the seller immediately.

2.2 Installation Preparation

2.2.1 Tools

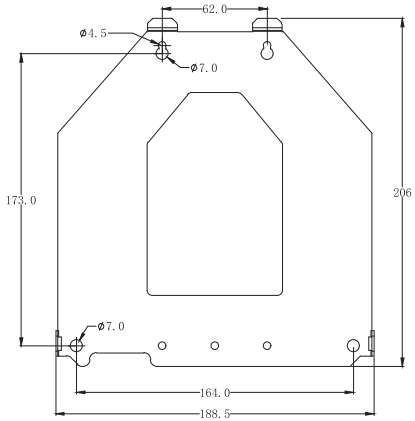
Tool Name	Photo	Function
Multimeter		Check the electrical connection and electrical parameter
Cross Screwdriver (PH2x150mm, PH3x250mm)		Tighten the screws
Electric Drill φ8		Drill holes in the wall
Diagonal Pliers		Cut cables

2.2.2 Cables & Materials

Name	Specification	Quantity
Power supply cable	5*4~6mm² three-phase power supply cable	Depends on the actual requirement

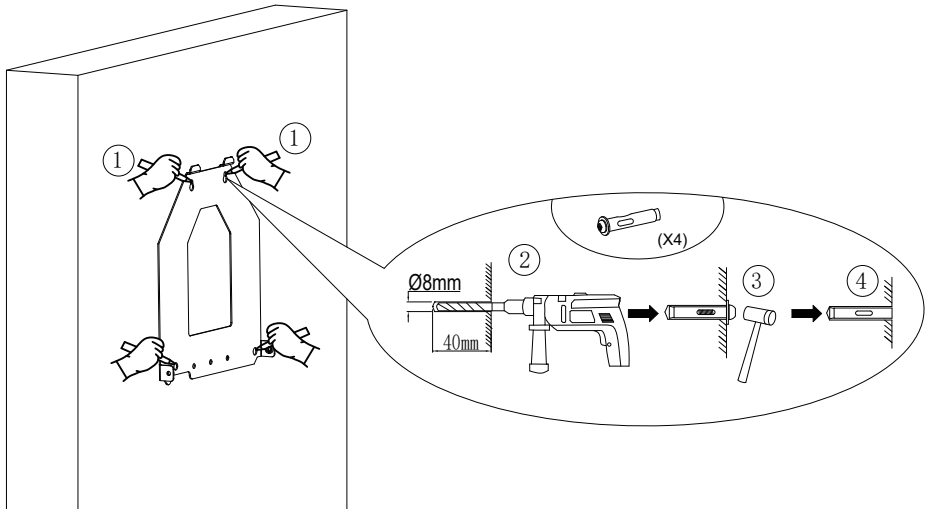
2.3 AC Charger Mounting

2.3.1 Mounting the EV Charger

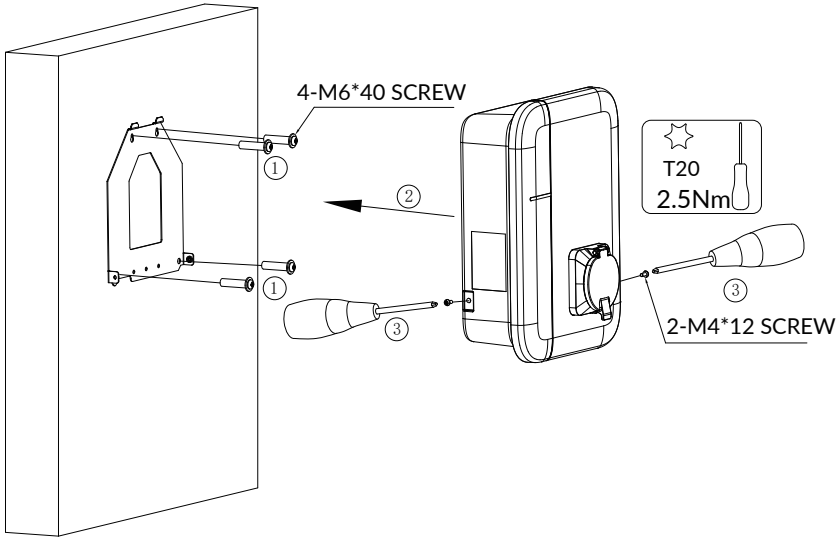


The steps to mount the AC Charger are listed below:

1. Find a flat space on the wall.
2. Use the wall bracket to mark 4 points on the wall.
3. Drill 4 holes with φ8 drill bit and insert the 4 M6*40 expansion pipes horizontally into the holes. Make sure the holes are about 45mm deep and the expansion pipes are fully inserted.



4. Secure the wall bracket to the wall with 4 M6x40 screws. (The EV Charger shall be mounted vertically.)
5. Hang the EV charger on the wall bracket.
6. Secure the EV charger to the wall bracket housing 2 M4*10 screws and complete the mounting.



03 Electrical Connection

3.1 Installation Notice

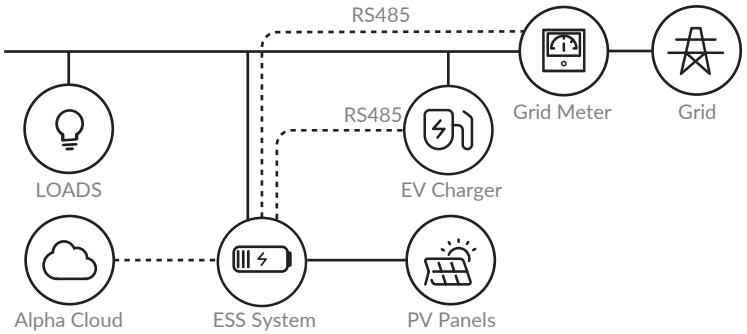
a) The electrical device should only be installed, operated, serviced, and maintained by qualified personnel. The manufacturer assumes no responsibility for any consequences arising from the use of this device. A qualified person should have the necessary skills and knowledge related to the construction, installation and operation of electrical devices and have received safety training to recognize and avoid associated hazards.

b) All applicable local, regional, and national regulations must be respected when installing, repairing and maintaining this device.

c) The communication cable between the EV charger and the energy storage system should not exceed a maximum length of 100m.

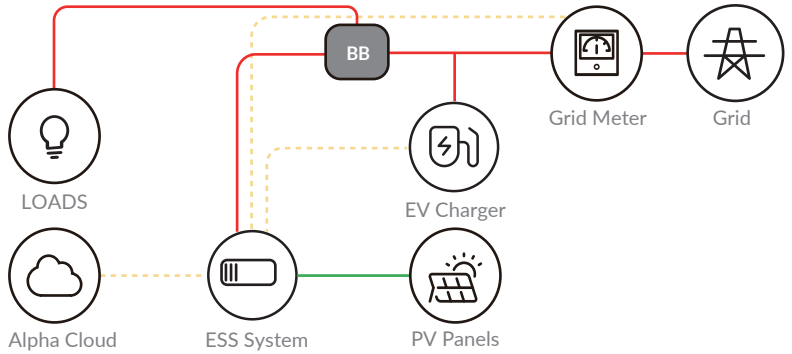
3.2 System Wiring Diagram

To integrate to the AlphaESS energy storage system, the EV charger should be installed as the diagram below.



NOTE: The EV charger should be installed behind the grid meter.

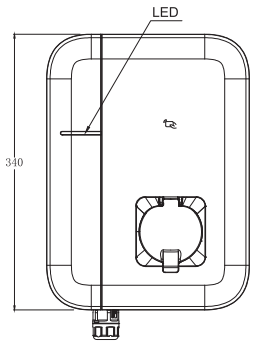
If you have installed a Backup Box, the EV charger should be installed as the diagram below.



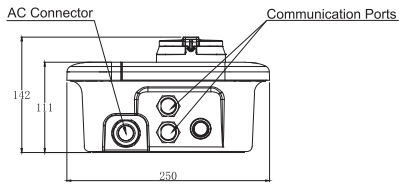
NOTE: The EV charger should be installed between the grid meter and the backup box. The backup box does not support access to communication of ESS temporarily.

3.3 Overview of the Connection Area

3.3.1 EV Charger Appearance



Front side view

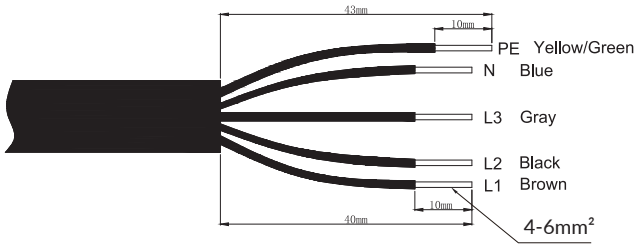


Bottom side view

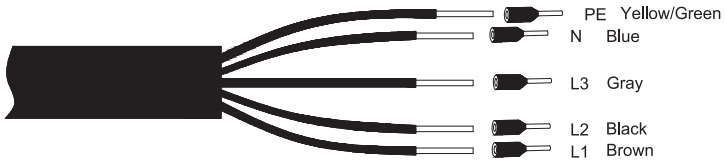
LED Indicator Instruction		
State	**Description**	**LED Status**
In Standby	Normal	Flashing green, 1s on, 3s off
Charging status	Normal	Flashing green, 1s on, 1s off
Plugged charging connector state	Normal	Flashing yellow, 1s on, 1s off
Software upgrade	Normal	Flashing white, 200ms on, 1s off, 5 times, then 3s off. The cycle repeats.
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

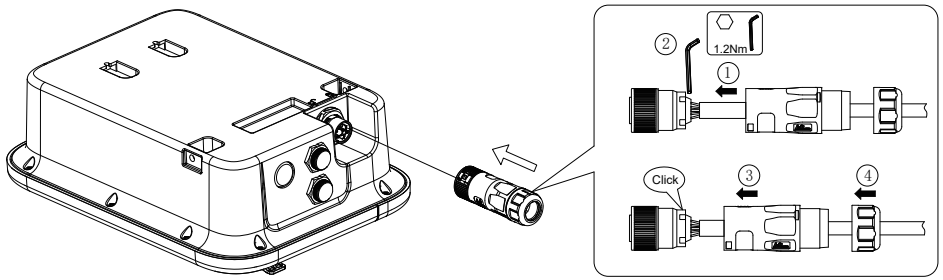
1.Remove a length of 43mm of the cable sheath and strip the wire insulation to a length of 10mm.



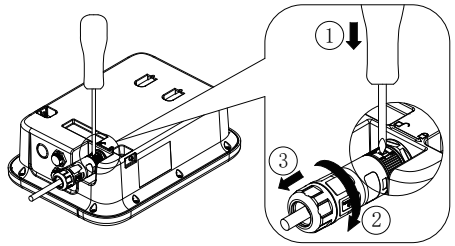
2. Crimp the terminals as shown in the figure below.



3. The wiring is shown in the figure below.



3.1 Unlock instructions



3.5 Communication Connection

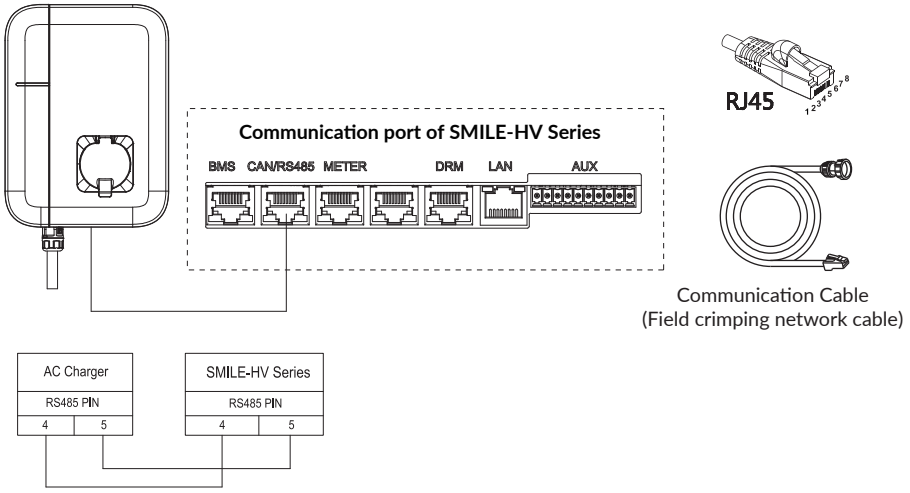
The communication between the EV Charger and EMS of the energy storage system is RS485.

RJ45 PIN definition is as below:

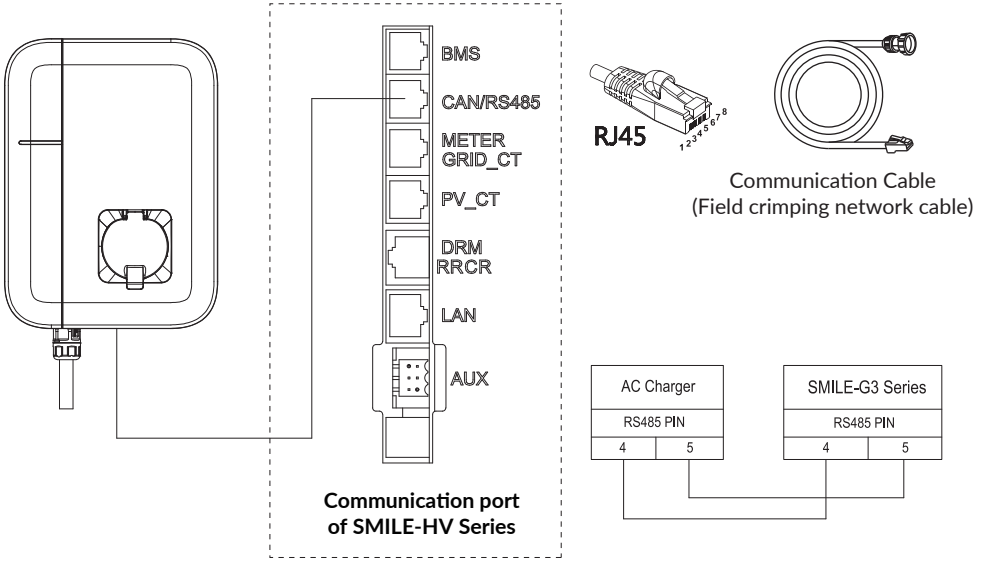
EV AC Charger – SMILE-G3-EVCT11		
RJ45	PIN4	PIN5
RS485	RS485-B	RS485-A

ESS– SMILE-HV Series		
RJ45	PIN4	PIN5
RS485	RS485-B	RS485-A
ESS– SMILE-G3 Series		
RJ45	PIN4	PIN5
RS485	RS485-B	RS485-A

3.5.1 Communication Connection with SMILE-HV Series



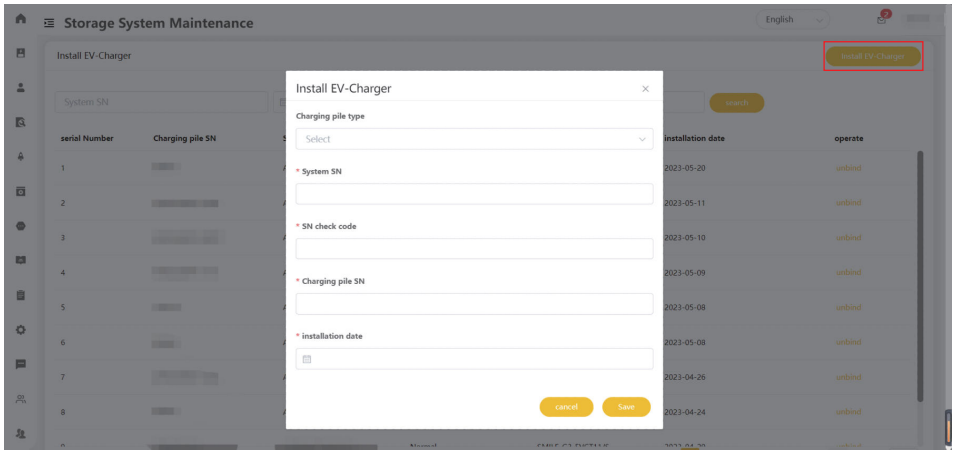
3.5.2 Communication Connection with SMILE-G3 Series

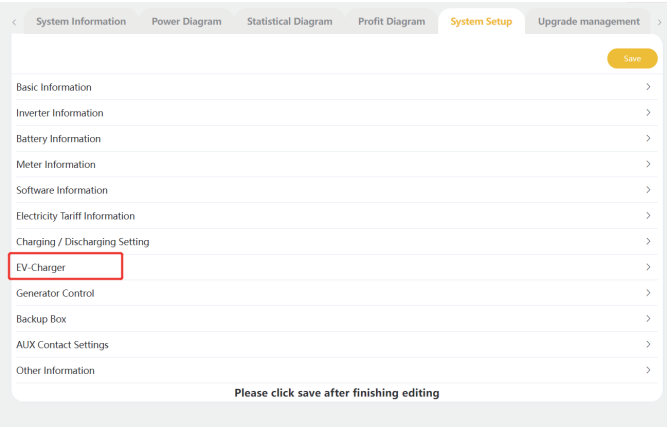


04 System Configuration and Operation

4.1 Configuration

To integrate the EV charger with the energy storage system, please ask the installer to enter the serial number of the EV Charger on the server.



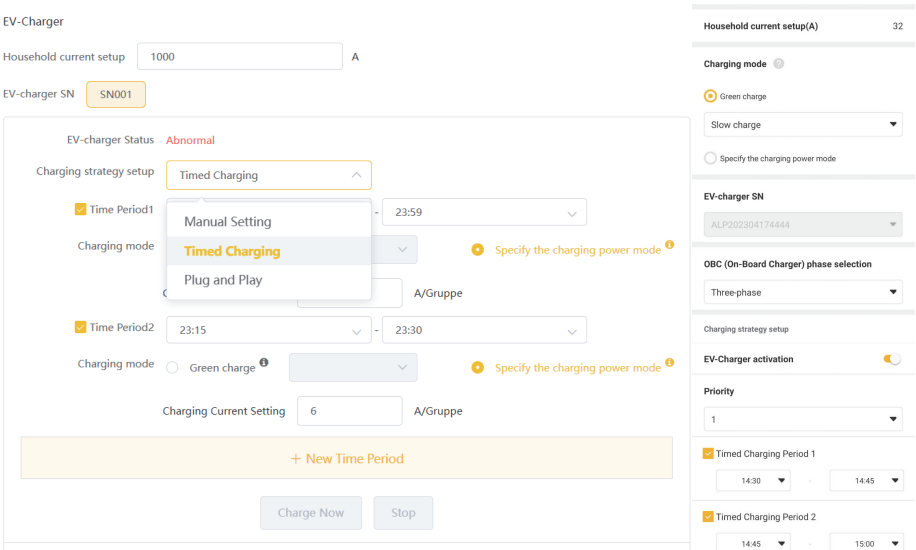


After configuration, please select the relevant SN of the EV charger and enter the current limit of each phase of the house.

4.2 Setup on the AlphaCloud and APP

After configuration, the end user can monitor and set up the EV charger on the AlphaCloud and APP.
We have three charging strategies: Manual Setting, Timed Charging, Plug and Play.
Each strategy has four charging modes to choose from:
1. Green charge-slow charge
2. Green charge-general charge
3. Green charge-quick charge
4. Specific power charge mode

> NOTE: Regardless of the chosen charging strategy, the charging mode depends on what you have chosen.



Interface of AlphaCloud

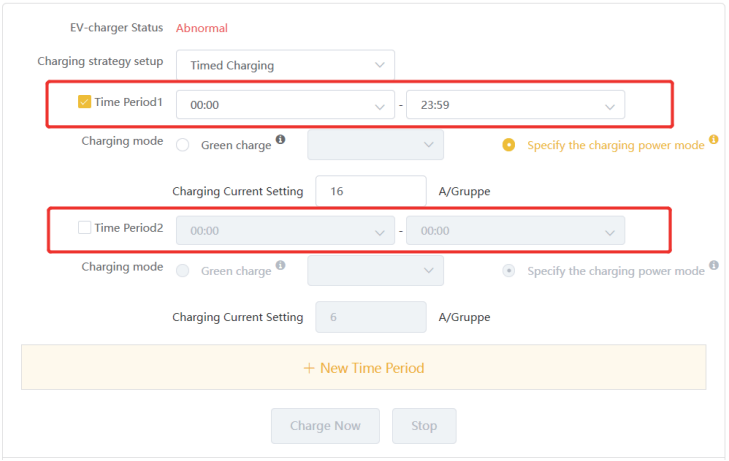
Interface of APP

4.2.1 Manual Setting

To charge the electric vehicle immediately, please click the “start” button or use the RFID card after setting up the charging mode.
To stop the EV charger from charging, please click the “stop” button.

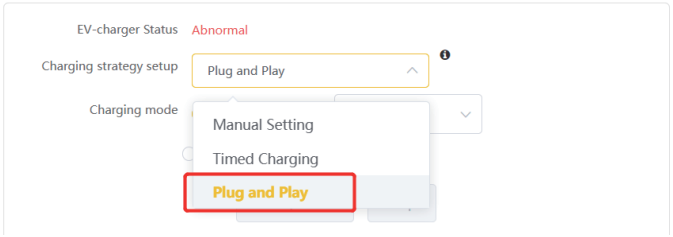
4.2.2 Timed Charging

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



4.2.3 Plug and Play Strategy

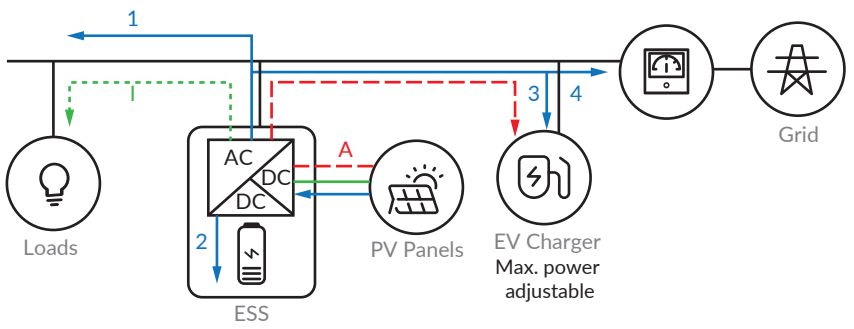
When the “Plug and Play” strategy is selected, the EV charger will start charging as soon as the connecter is plugged in, and stop charging when the connecter is unplugged.
There is no need to swipe a card or control through AlphaCloud & APP.
In this function, the Charging mode and the phase of OBC are needed to be set.



4.2.4 Charging Mode Instruction

> NOTE: To start the EV charger, the current of each phase should not be less than 6A.

4.2.4.1 Green Charge – Slow Charge

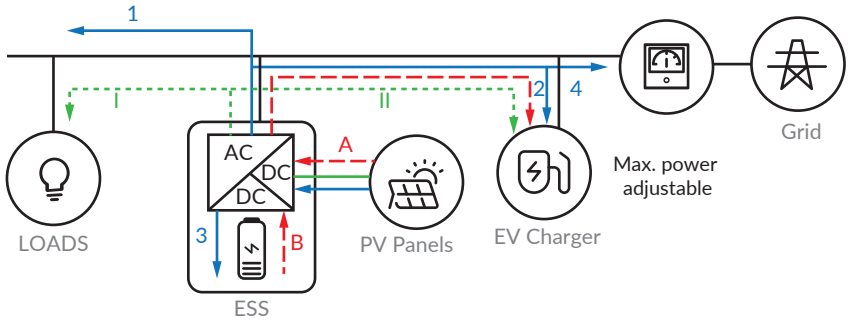


PV supply Priority: 1. Other Loads 2. Batteries of ESS 3.EV charger 4.Feed-in
EV source Priority: A. PV
Battery supply Priority: 1. Other Loads

The EV charging source is only PV.
If PV power is available, it will prioritize supplying other loads, then charge the battery of ESS, and then supply the EV charger. Any excess power will be fed back 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.

4.2.4.2 Green Charge – General Charge

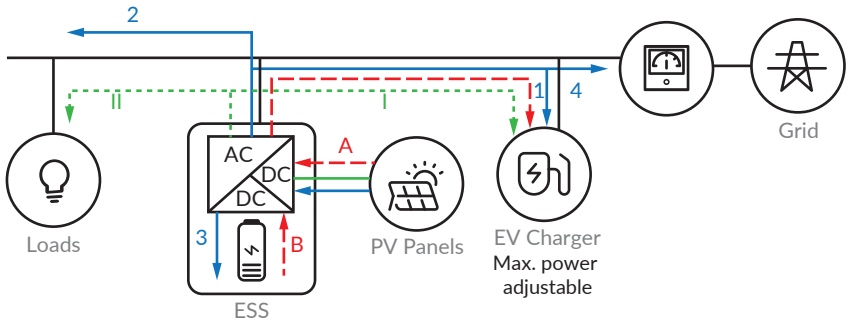


PV supply PRORITY: 1. Other Loads 2. EV charger 3. Battreies of ESS 4. Feed-in
EV source PRIORITY: A. PV B. Batteries of ESS
Battery supply PRIORITY: I. Other Loads II. EV Charger

The EV charging source is PV and batteries.
If PV power is available, it will prioritize supplying other loads, then supply the EV charger and maximize the EV charging power, and then charge the batteries of the ESS. Any excess power will be fed back into the grid.
The battery will be used for other loads and then for the EV charger.
Max. EV charging power P_EVmax=P_pv-P_load+P_bat

NOTE: If the electric vehicle's on-board charger (OBC) is three-phase, insufficient PV and battery power may not activate the EV charger in this mode.

4.2.4.3 Green Charge – Quick Charge

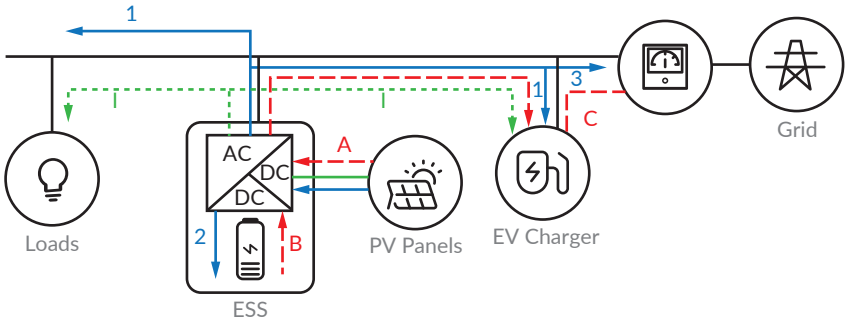


PV supply Priority: 1. EV charger 2. Other Loads 3. Batteries of ESS 4. Feed-in
EV source Priority: A. PV B. Batteries of ESS
Battery supply Priority: I. EV Charger II. Other Loads

The PV and battery power will supply the EV charger first.
If PV power is available, it will prioritize supplying the EV charger, then supply other loads, and then charge the battery of ESS. Any excess power will be fed back into the grid.
The battery will be used for the EV charger and then for other loads.
Max. EV charging power P_EVmax=P_pv +P_bat

NOTE: If the electric vehicle's on-board charger (OBC) is three-phase, insufficient PV may not activate the EV charger in this mode.

4.2.4.4 Specific Power Charge Mode



PV supply — Priority: 1. EV charger & Other Loads 2. Batteries of ESS 3. Feed-in

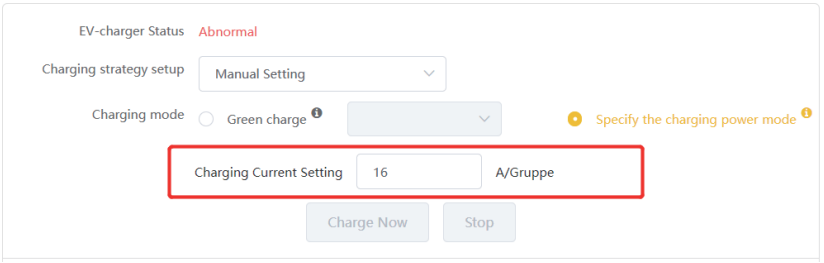
EV source — Priority: A. PV B. Batteries of ESS C.Grid

Battery supply — Priority: I. EV Charger & Other Loads

The EV charger will charge the electric vehicle with specified power. The PV and ESS system will supply the EV charger first. If the power is not enough, the grid will supply the EV charger simultaneously.

This specified power value can be set by yourself within a range of 6A to 16A per phase, and the default value is the AC rated current value (16A per phase).

If PV power is available, it will prioritize supplying the EV charger and other loads, and then charge the battery of ESS. Any excess power will be fed back into the grid.



4.2.4.5 Mode Option Suggestion

AC Output Power from AlphaESS Energy Storage System & PV Inverter	<5kWp		5~10kWp		>10kWp	
On-Board Charger of Vehicle	Single Phase	Three Phase	Single Phase	Three Phase	Single Phase	Three Phase
Green Charge-Slow Charge	√		√		√	√
Green Charge-General Charge	√		√	√	√	√
Green Charge-Quick Charge	√	√	√	√	√	√
Specific Power Charge Mode	√	√	√	√	√	√

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

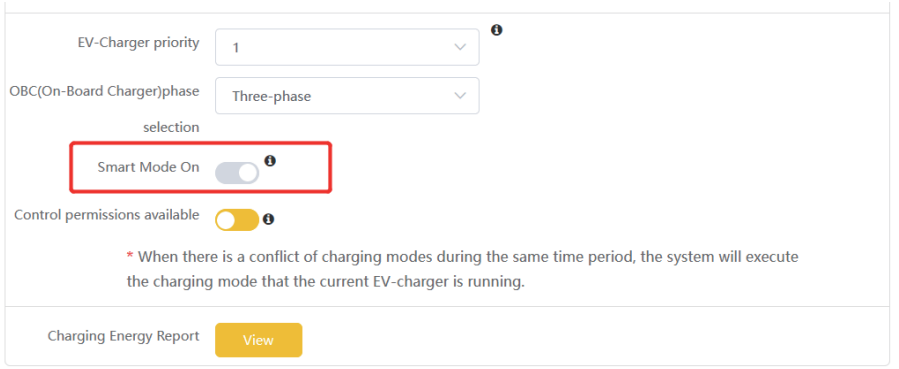
4.2.5 Smart Mode Function

Smart Mode is available when the charging mode is “Green Charge” mode and OBC is three-phase.

When the “Smart mode” is enabled:

If the real setting power is less than the minimum allowable power of three-phase, the phase of OBC will change to single-phase.

Once the real setting power is more than the minimum allowable power of three-phase, the phase of OBC will switch back to three-phase.



4.3 Start and Stop Charging

There are three ways to Start and Stop Charging.

1. Click the “start” or “stop” button on AlphaCloud or the APP.
2. Swipe the RFID card.
3. Plug and play when the “Plug and play” strategy is enabled.

05 Troubleshooting

5.1 Indicator State

State	Description	LED Status
In the standby	Normal	Flashing green, 1s on, 3s off
Charging status	Normal	Flashing green, 1s on, 1s off
Plugged gun state	Normal	Flashing yellow, 1s on, 1s off
Software upgrade	Normal	Flashing white, 200ms on, 1s off, 5 times, then 3s off. The cycle repeats.
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, 4 times, then 3s off. The cycle repeats.
CP fault	Fault	Flashing red, 500ms on, 500ms off, 2 times, then 3s off. The cycle repeats.
Leakage current fault	Fault	Flashing red, 500ms on, 500ms off, 1 time, then 3s off. The cycle repeats.
Input terminal overtemperature	Fault	Flashing red, 500ms on, 500ms off, 6 times, then 3s off. The cycle repeats.
Relay overtemperature	Fault	Flashing red, 500ms on, 500ms off, 7 times, then 3s off. The cycle repeats.
Under voltage fault	Fault	Yellow light on for 2s. Flashing Red, 500ms on, 500ms off, 1 time, then 3s off. The cycle repeats.
Over voltage fault	Fault	Yellow light on for 2s. Flashing Red, 500ms on, 500ms off, 1 time, then 3s off. The cycle repeats.
Overload fault	Fault	Flashing red, 500ms on, 500ms off, 8 times, then 3s off. The cycle repeats.
Over frequency fault	Fault	Yellow light on for 2s. Flashing Red, 500ms on, 500ms off, 2 times, then 3s off. The cycle repeats.
Under frequency fault	Fault	Yellow light on for 2s. Flashing Red, 500ms on, 500ms off, 2 times, then 3s off. The cycle repeats.
Leakage current loop abnormal	Fault	Flashing red, 500ms on, 500ms off, 11 times, then 3s off. The cycle repeats.

5.2 Fault Code

Error Code	Problems	Possible Causes	Solutions
OverVolt	Input over voltage	The AC input volt-age may be too high.	Check whether the grid voltage at the connection point of the EV charger is permanently in the permissible range. If the grid voltage is outside the permissible range due to local grid conditions, contact the grid operator. The grid operator must agree with an adjustment of the voltage at the connection point or with a change of the monitored operating limits. If the grid voltage is permanently within the permissible range, please contact Service.
UnderVolt	Input lower voltage	The AC input voltage may be too low.	
OverCurr	Output overload	The AC output current may be too large.	1. Shut off the leakage current protection switch of the power distribution cabinet immediately.
			2. Check whether there is a low resistance connection between the AC output cables of the charger.
OverFreq	Input over frequency	AC input frequency may be too high.	If possible, check the power frequency and observe how often fluctuations occur. If fluctuations occur frequently and this fault is occured often, contact the grid operator. The grid operator must approve changes to the operating parameters . If the grid operator gives his approval, discuss any changes to the operating parameters with the Service.
UnderFreq	Input lower frequency	AC input frequency may be too low.	
OverTemp	Over temperature	The temperature may be too high inside the charger.	1. Check the surrounding conditions of the installed chargers for the presence of any heating devices nearby. Make sure the environmental temperature is under 45°C.
Over DCLeak	Over leakage current	The leakage current to ground may be too high.	1. Shut off the leakage current protection switch of the power distribution cabinet immediately.
			2. Check whether there are broken AC output cables or a low resistance connection to ground.

Error Code	Problems	Possible Causes	Solutions
PhaseError	Reverse connection	Reverse connection of L/N input cable.	1. Shut off the leakage current protection switch of the power distribution cabinet immediately.
			2. Check whether AC input/output cables are connected normally and whether the inverse connection of L/N input cables exists.
CableRCError	Charging cable connection abnormal	Poor connection of charging cable with EV/Charger.	1. Check if the charging cable connection is correct and firm.
Charging pile No. 1 lose	Communication cable connection abnormal	Poor connection of charging cable with EV/Charger.	1. Check if the 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.
Charging pile No. 2 lose	Communication cable connection abnormal	Poor connection of charging cable with EV/Charger.	1. Check if the 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.
Charging pile No. 3 lose	Communication cable connection abnormal	Poor connection of charging cable with EV/Charger.	1. Check if the 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.

Error Code	Problems	Possible Causes	Solutions
Charging pile No. 4 lose	Communication cable connection abnormal	Poor connection of charging cable with EV/Charger.	1. Check if the 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 service.

06 Specification Parameter

Model	SMILE-EVCT11
Basic Parameters	
Dimension (H x W x D)	340 x 250 x 142 mm
Weight	3 kg
Operating Temperature	-30 ~ 50 °C
Related Humility	15 ~ 90%
Operating Altitude	< 2000 m
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 Socket
Cable Length	External 7 m Type 2 - Type 2 Charging Cable
Communication	
WiFi	AP Mode Settings
EMS	RS485
Protection	
RCD	6 mA DC
IP Degree	IP65

*:Optional accessory