

INSTALLATION, OPERATION & MAINTENANCE MANUAL OF SMILE-G3-EVCS7 & SMILE-G3-EVCS7-E



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VERSION INFORMATION

[illegible]



FIRMWARE VERSION CHECK LIST*

AC EVSE Model	Firmware version	Date
	V1.5.60	

*Alpha's operations staff will check software versions every three months for software updates.

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1. Introduction

1.1. Safety and Warning

1. There are two versions of this EV charger, SMILE-G3-EVCS7/S only for the UK region.
2. Be sure to choose a suitable EV Charger installation location. The product must be mounted in a well-ventilated environment to ensure adequate heat dissipation.
3. For outdoor installation, don't mount in a location that will be exposed to direct sunlight, recommend to mount the system in a sheltered place or mount an awning over it.
4. The EV Charger should be installed close to the parking position of electric vehicles to facilitate daily use.
5. Keep the explosive or flammable materials, chemicals, vapors and other hazardous objects away from the charger.
6. Keep the charging socket clean and dry. If it is dirty, please wipe it with clean and dry cloth. Touch the socket core when the power is on is strictly forbidden.
7. 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.
8. 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.
9. Adaptors or conversion adapters are not allowed to be used.
10. Cord extension sets are not allowed to be used.
11. If any abnormal condition happens, please press the emergency stop button immediately, and cut off all input and output power supply.
12. Please charge cautiously in rainy or lighting weather.
13. Keep the charger away from children to avoid injury.
14. Driving an electric vehicles during charging is strictly forbidden. Charge the EV only when it is stationary. Charge hybrid electric vehicles only when the engine is switched off.
15. The charger actively maintains security Firmware update updates within 3 years after its first launch.
16. The Charger itself does not collect any personal data and the manufacturer does not collect telemetry data from the Charger, Only collect charging relevant information and accordance with applicable privacy laws and regulations so that users understand the use condition.

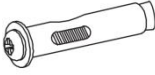
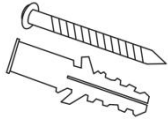
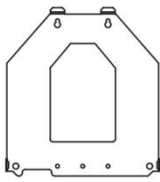
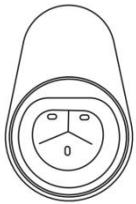
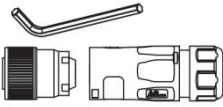
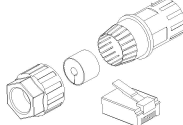
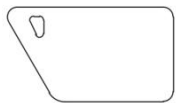
WARNING

The input and output voltages of this device are dangerously high and can pose a threat to life. 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

Before unpacking the product, check the outer packaging for damage, such as holes, signs of mechanical damage or water damage. If any damage is found, do not unpack the product and contact your dealer as soon as possible.

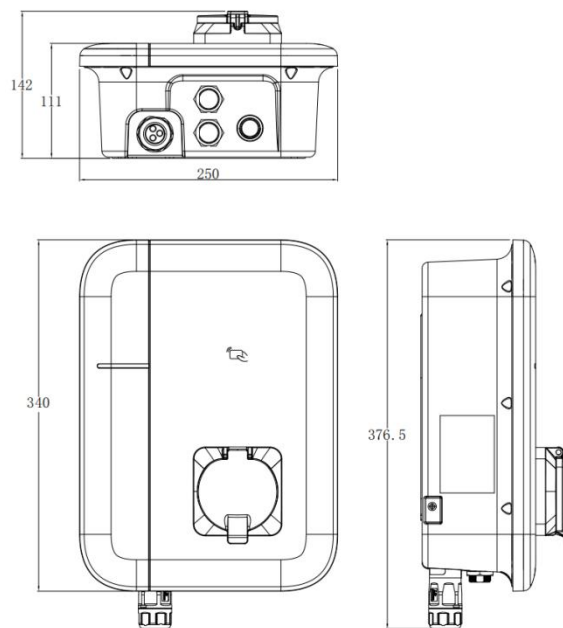
Check the scope of delivery and inspect components to ensure they are present and undamaged. Contact your distributor if the packed components are incomplete or damaged.

SMILE-G3-EVCS7/S & SMILE-G3-EVCS7-E/S			
			
EV Charger (x1)	Installation, Operation & Maintenance Manual(x1)	M6*40 Wall Anchor (x4)	Wall Anchor (x3)
			
Wall Bracket (x1)	T20 Wrench (x1)	Bootlace Ferrules E6010 (x5)	Charging Gun Holder (x1)
			
AC Connector (x1)	Communication Connector(x2)	RFID Card (x2)	M4*10 Screw (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 modified, design changed 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 shipping or insurance company as soon as the container/package 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. Definition of Abbreviations and Nouns

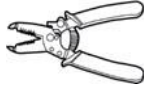
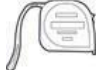


Unit: mm

2. Safety

2.1. Mounting Preparation

2.1.1. Preparing Tools

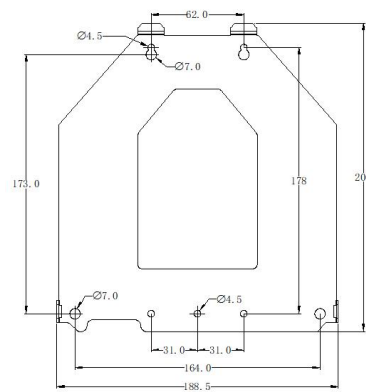
Tools and Instruments		
		
Hammer drill (with a $\Phi 8$ mm drill bit)	Rubber mallet	Multimeter DC voltage range ≥ 1000 VDC)
		
Diagonal pliers	Wire stripper	Cable cutter
		
Cord end terminal crimper	Utility knife	Marker
		
Measuring tape	Cross screwdriver (PH2 $\times$ 150mm, PH3 $\times$ 250mm)	

2.1.2. Cables & Materials

Name	Specification	Quantity
AC cable	3*6mm ² , three-core (L, N and PE) outdoor copper cable	Depends on the actual requirement
Communication cable	AWG26~AWG24, standard network cable (recommended type: Cat5e, SFTP, UV-resistant for outdoor use)	Depends on the actual requirement

2.2. Mounting EV Charger

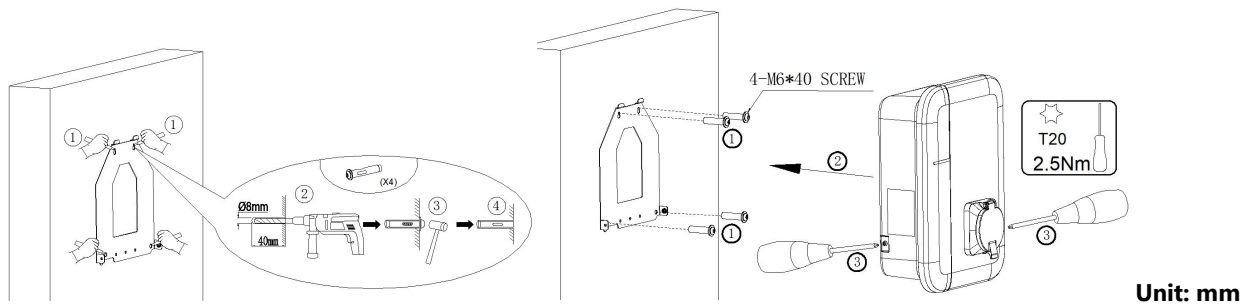
2.2.1. Mounting the EV Charger



Unit: mm

The steps to mount the AC Charger are listed below:

1. Find a flat space on the wall.
2. Use the wall bracket to marking 4 points on the wall.
3. Drill 4 holes with $\Phi 8$ drill bit and insert four M6*40 expansion pipes horizontally into the holes. Make sure the holes are about 45mm deep and the expansion pipes are fully inserted.



Unit: mm

4. Secure the wall bracket to the wall with four 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 with two M4*10 screws and complete the mounting.

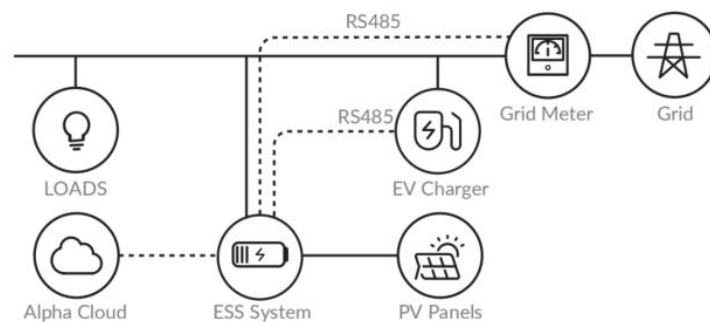
3. Electrical Connection

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 mentioned above of this device. A qualified personnel should have the necessary skills and knowledge related to the construction, installation and operation of electrical device 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

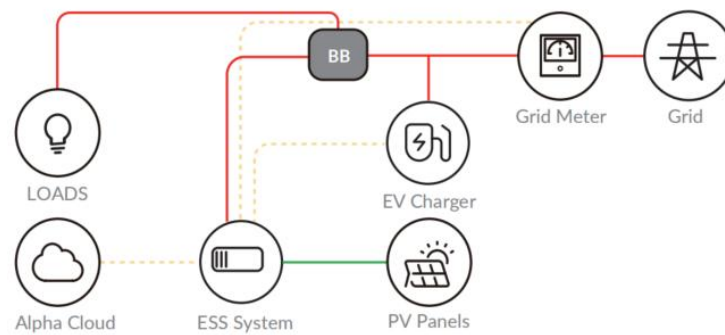
To integrate to the AlphaESS energy storage system, the EV charger should be installed as below.



NOTICE

- The EV charger should be installed behind the grid meter.

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

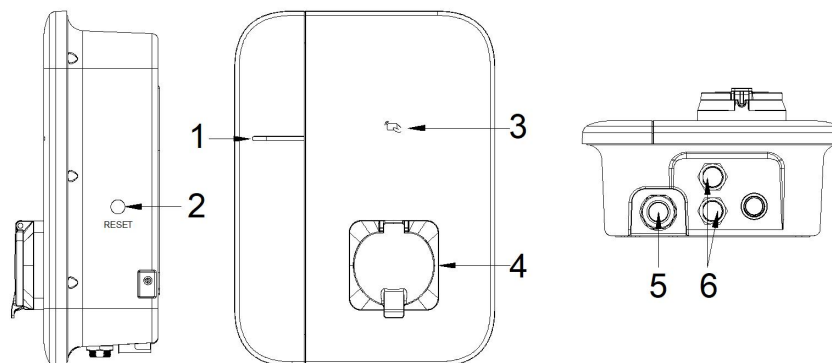


NOTICE

- 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



Position	Designation
1	LED Display
2	AP Mode Reset Button
3	Card Swiping Area
4	Charging Port
5	AC Connector
6	Communication Ports

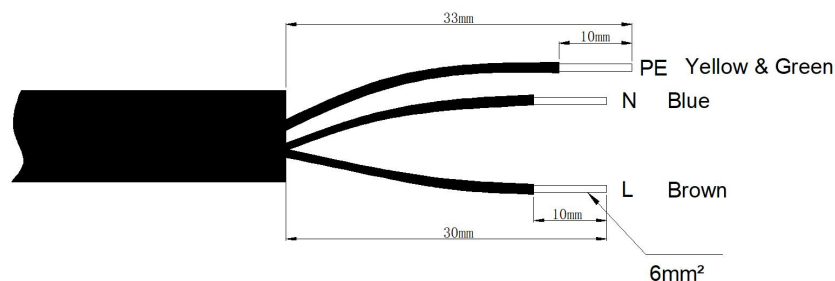
LED Indicator Introduction

State	Description	LED Status
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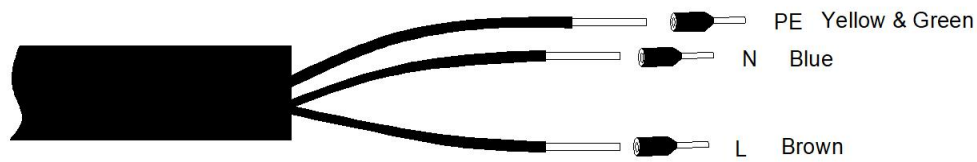
Standby	Normal	Flashing green, 1s on, 3s off.
Charging status	Normal	Flashing green, 1s on, 1s off.
Plugged gun	Normal	Flashing yellow, 1s on , 1s off.
Waiting for vehicle response	Normal	Flashing green, 200ms on, 1s off, 2 times, then 3s off. The cycle repeats.
Software upgrade	Normal	Flashing white, 200ms on, 1s off, 5 times, then 3s off. The cycle repeats.
Ground warning	Normal	Flashing yellow, 500ms on, 500ms off, then 3s off. The cycle repeats.
Relay adhesion	Fault	Flashing red, 500ms on, 500ms off, 7 times, then 3s off. The cycle repeats.
For details please refer to 5.1	Fault	Flashing red or yellow.

3.4. AC Wiring

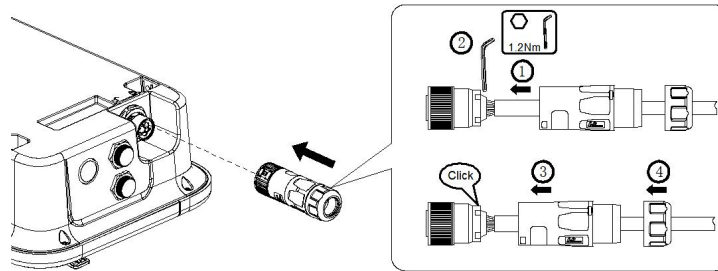
1. Disconnect the EV charger from voltage sources and make sure it cannot be reconnected before working on the device.
2. Dismantle the AC cable by 33mm.
3. Shorten L and N by 3mm each, so that the grounding conductor is 3mm longer. This ensures that the grounding conductor is the last to be pulled from the screw terminal in the event of tensile strain.
4. Strip the insulation of L, N and the grounding conductor 10mm.



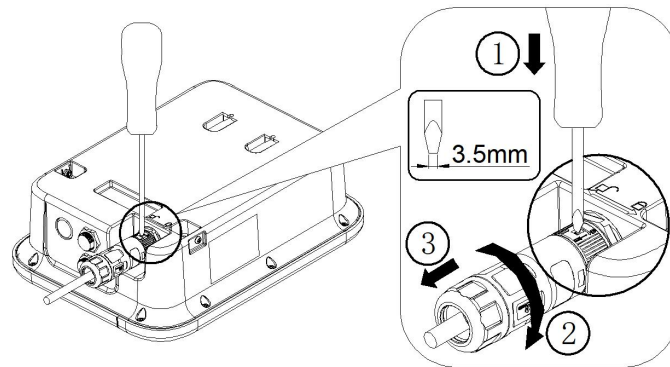
5. If using fine stranded wire, fit L, N and PE with bootlace ferrules.



6. The wiring is shown in the figure below.



3.5. Unplug the AC Connector



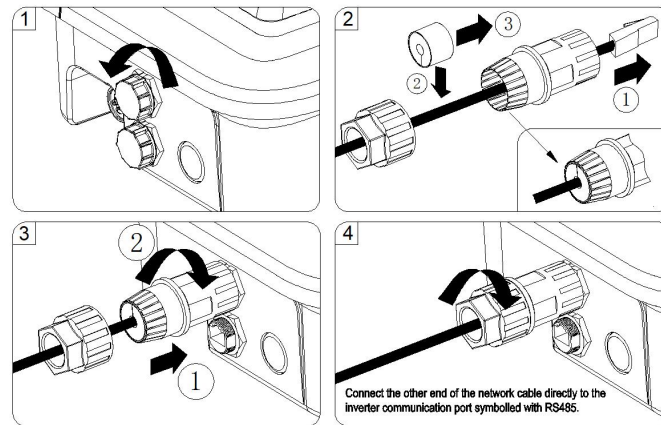
3.6. Communication Connection

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

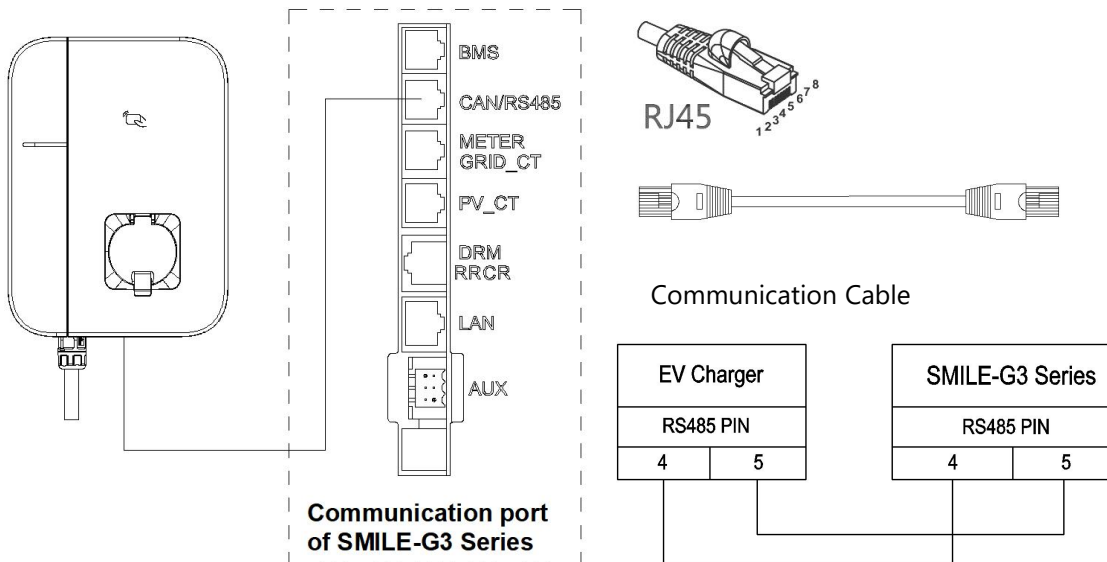
RJ45 PIN definition is as below:

EV Charger – SMILE-G3-EVCS7/S&SMILE-G3-EVCS7-E/S		
RJ45	PIN4	PIN5
RS485	RS485-B	RS485-A

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



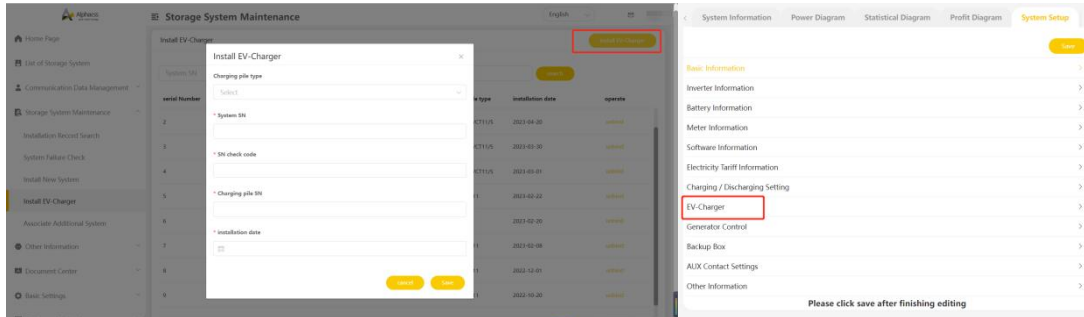
3.6.1. Communication Connection with SMILE-G3 Series



4. System Configuration and Operation

4.1. Configuration

To integrate the EV charger with the energy storage system, please ask the installer to enter the SN of the EV Charger on the AlphaCloud.



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 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

NOTICE

- Regardless of the chosen charging strategy, the charging mode depends on what you have chosen.

The AlphaCloud interface shows the 'EV-Charger' configuration page. At the top, 'Household current setup' is set to 32 A and 'EV-charger SN' is SN001. Below, 'EV-charger Status' is 'Abnormal'. The 'Charging strategy setup' dropdown is set to 'Timed Charging'. A 'Time Period1' is configured with a start time of 03:00. The 'Charging mode' dropdown is open, showing options: 'Manual Setting', 'Timed Charging' (highlighted), and 'Plug and Play'. A '+ New Time Period' button is at the bottom, and a 'Stop' button is at the very bottom.

Interface of AlphaCloud

The APP interface shows the 'Household current setup(A)' as 32. 'EV-charger SN' is SN0001. 'Charging strategy setup' is set to 'Timed Charging'. 'Timed Charging Period 1' is checked with a time range from 03:00 to 03:30. 'Charging mode' is set to 'Slow charge'. There is a 'Specify the charging power mode' button. 'Charging Current Setting(A/phase)' is 32. A '+ Added Time Period' button is at the bottom.

Interface of APP

4.2.1. Manual Setting

To charge the electric vehicle immediately, please click "start" button on AlphaCloud or APP or use the RFID card after setting up the charging mode.

To stop the EV charger from charging, please click "stop" button on AlphaCloud or APP.

4.2.2. Timed Charging

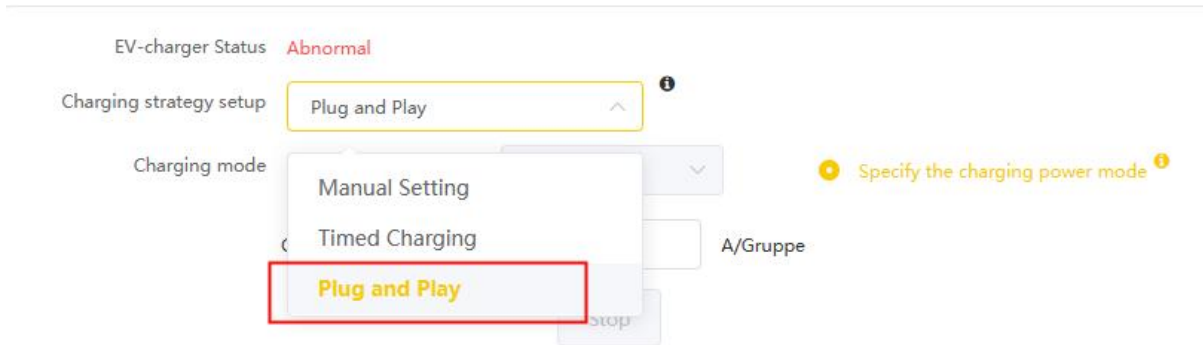
You can also set two charging time periods for the EV charger.

The AlphaCloud interface shows two timed charging periods. 'Time Period1' is checked with a time range from 01:00 to 03:00. Below it, 'Charging mode' is set to 'Green charge' and 'Charging Current Setting' is 32 A/Gruppe. 'Time Period2' is unchecked with a time range from 00:00 to 00:00. Below it, 'Charging mode' is set to 'Green charge' and 'Charging Current Setting' is empty. A '+ New Time Period' button is at the bottom.

4.2.3. Plug and Play strategy

When the "Plug and Play" strategy is selected, EV charger will start charging as soon as the connector is plugged in, and stop charging when the connector is unplugged.

There is no need to swipe a card or control by AlphaCloud&APP.

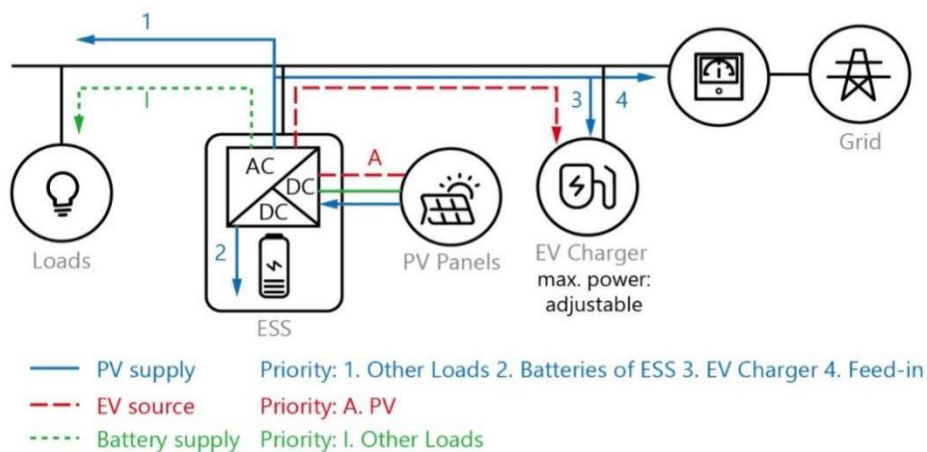


4.2.4. Charging Mode Instruction

NOTICE

- To start the EV charger, the current should not be less than 6A.

4.2.4.1 Green Charge – Slow Charge

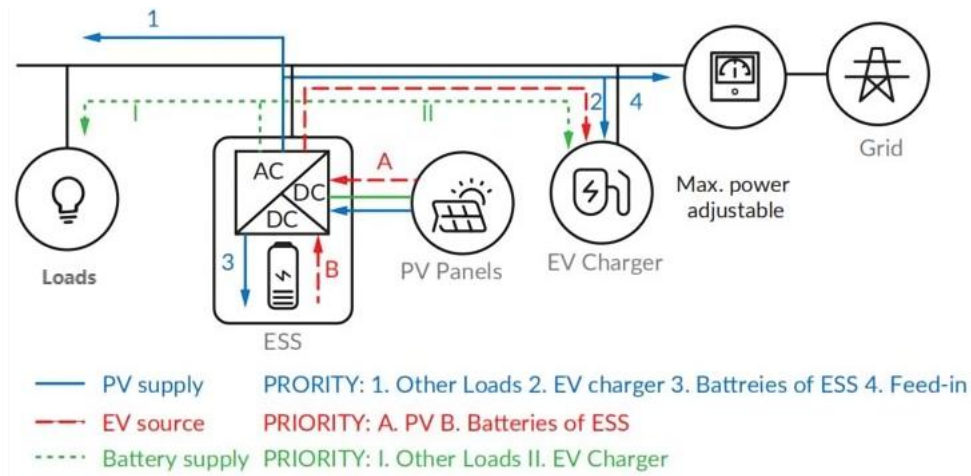


The EV charging source is only PV.

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 feed-in to the grid.

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

4.2.4.2 Green Charge – General Charge



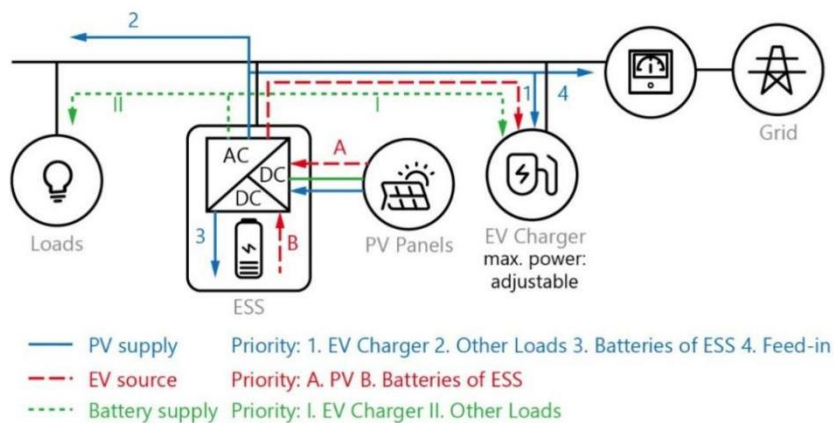
The EV charging source is PV and batteries.

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 feed-in to the grid.

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

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

4.2.4.3 Green Charge – Quick Charge



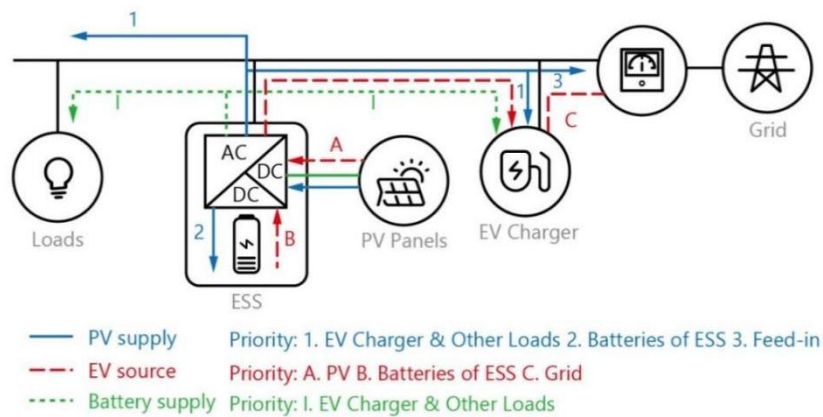
The PV and battery power will supply the EV charger firstly.

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 feed-in to the grid.

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

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

4.2.4.4 Specific Power Charge Mode



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

This specific power value can be set by yourself and the setting range is from 6A to 32A per phase, and the default value is the AC rated current value.

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-in to the grid.



4.2.5. Mode Option Suggestion

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

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

4.3. Start and Stop Charging

There are three ways to Start and Stop Charging.

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

5. 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 for charging	Normal	Flashing yellow, 1s on , 1s off.
Waiting for vehicle response	Normal	Flashing green, 200ms on, 1s off, 2 times, then 3s off. The cycle repeats.
Software upgrade	Normal	Flashing white, 200ms on, 1s off, 5 times, then 3s off. The cycle repeats.
Ground warning	Normal	Flashing yellow, 500ms on, 500ms off, then 3s off. The cycle repeats.
Suspended EVSE state	Normal	Yellow light normally on
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 over temperature	Fault	Flashing red, 500ms on, 500ms off, 6 times, then 3s off. The cycle repeats.
Relay over temperature	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, 3 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.
Owe 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 voltage 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. Please contact service to 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 occurred 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. If this fault persists, please contact services.
UnderFreq	Input lower frequency	AC input frequency may be too low.	
OverTemp	Over temperature	Temperature may be too high inside the charger.	Switch off the EV charger, 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. If this fault persists, please contact services.
Over DCLeak	Over leakage current	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. If this fault persists, please contact services
PhaseError	Reverse connection	Reverse connection of	1. Shut off the leakage current protection switch of the power distribution cabinet immediately.

		L/N input cable.	2. Check whether AC input/output cables are connected normally and whether the inverse connection of L/N input cables exists. If this fault persists, please contact services.
CableRCError	Charging cable connection abnormal	Poor connection of charging cable with EV/Charger.	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 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 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 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. 4 lose	Communication cable connection abnormal	Poor connection 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.

6. Specification Parameter

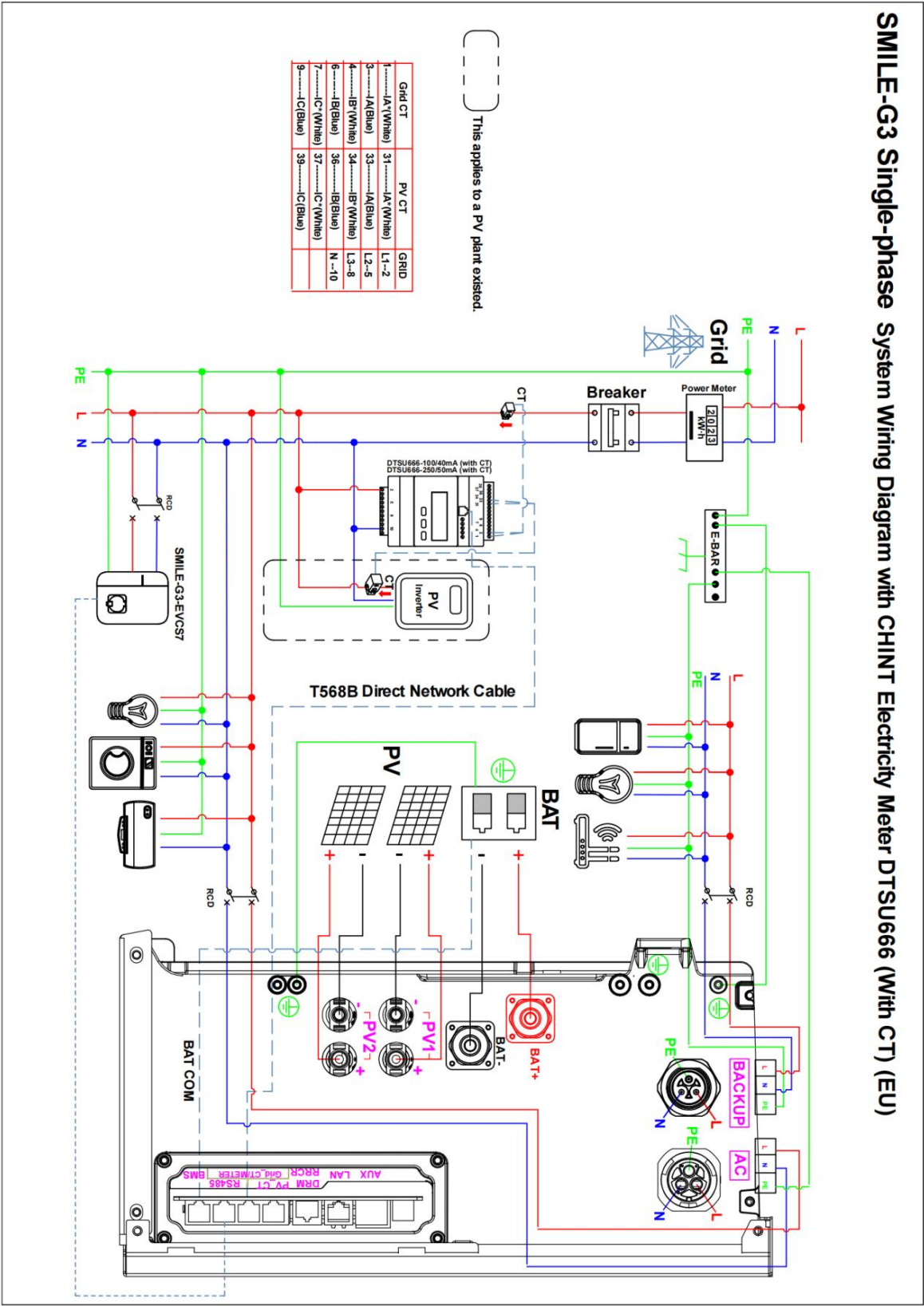
Model	SMILE-G3-EVCS7/S & SMILE-G3-EVCS7-E/S
Basic Parameters	
Dimension (W x D x H)	250 x 142 x 340 mm
Weight	3 kg
Installation	Wall-mount / Pole-mount
Operating Temperature	-30~50 °C
Relative Humidity	15%~90% (No Condensation)
Operating Altitude	< 2000 m
Warranty	3 Years Product Warranty
Compatible Energy Storage	SMILE-G3-S3.6/S5/B5
Input	
AC Rated Voltage	230 V, 1P+N+PE
Rated Current	32 A
Frequency	50 / 60 Hz
Output	
AC Output Voltage	230 V
Max. Current	32 A
Rated Power	7 kW
Interface	
Charger Connector	Type 2 Socket
Cable Length*	External 7 m Type 2 - Type 2 Charging Cable
Communication	
Wi-Fi	2.4 GHz IEEE 802.11b/g/n
EMS	RS485
Protection	
RCD	30mA AC + 6 mA DC on board , Extra**
IP Degree	IP54 (Indoor & Outdoor)
Impact Protection	IK08
Class of equipment	Class I
EV charging modes	Mode 3

Pollution degree (PD)	PD 3	
Power System	SMILE-G3-EVCS7-E/S	TN-S, TN-C-S
	SMILE-G3-EVCS7/S	TN-C
EMC	Class B	
Certification	EN IEC 62311:2020 / EN IEC 61851-1:2019 / EN 301489-1 V 2.2.3:2019 EN 301489-3 V 2.1.1:2019 / EN 301489-17 V 3.2.4:2020 / EN IEC 61000-6-1:2019 EN 61000-6-3:2007+A1 / EN IEC 61000-3-2:2019 / EN 61000-3-3:2013+A1 EN IEC 61851-21-2:2021 / EN 300328 V 2.2.2:2019 / EN 300330 V 2.1.1:2017 IEC 62955:2018 IEC 62321 BS 7671:2018 / A1:2020 / A2:2022	

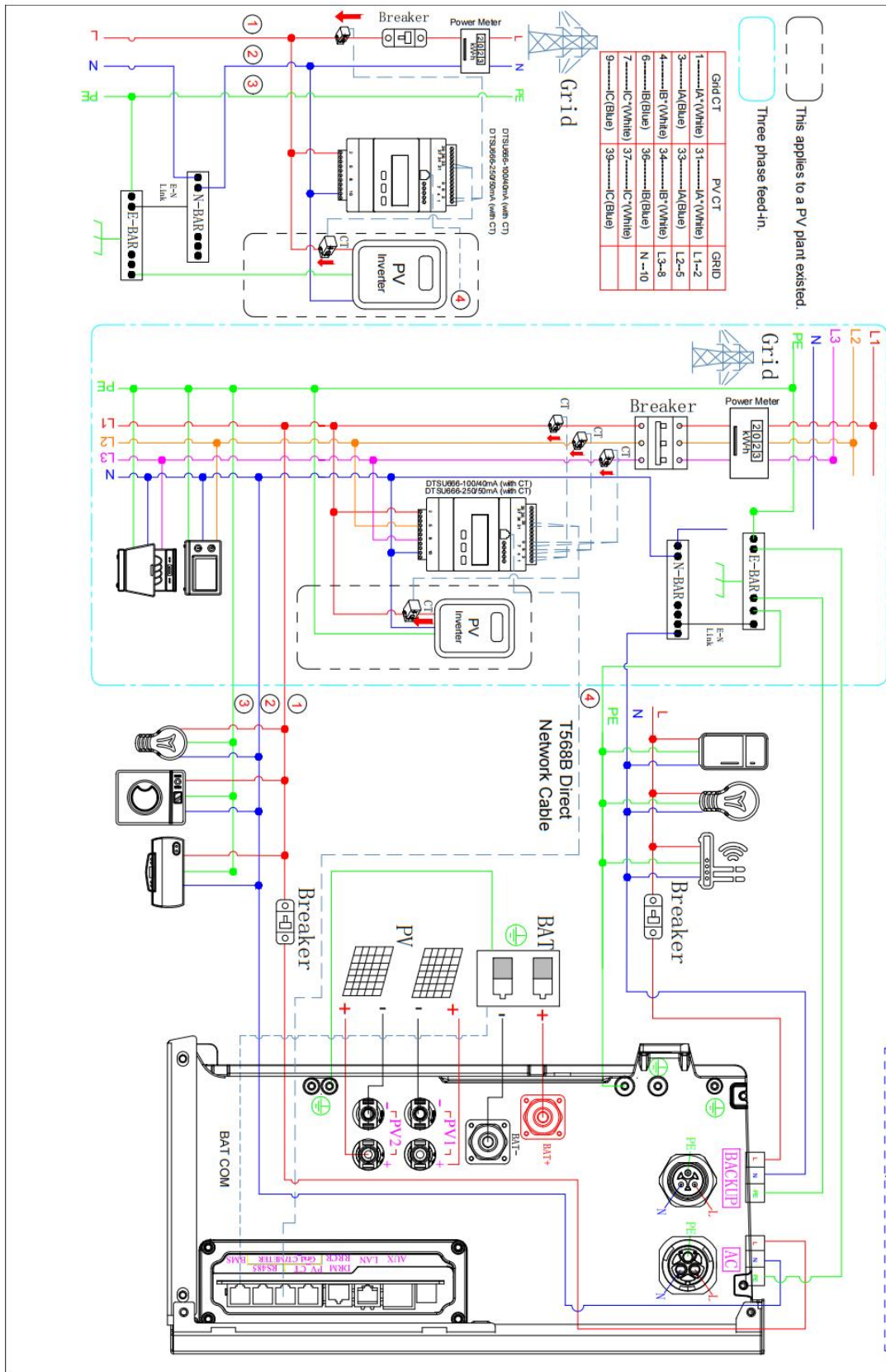
*Optional

**Certified Residual Current Device (RCD) should be installed upstream close to the charging station. RCDs shall comply with one of the following standards: IEC 61008-1, IEC 61009-1, IEC 60947-2 and IEC 62423. RCDs can be RCD type B or RCD Type A.

7. Appendix: System Overview



⚠ NOTICE
(Only for Australia and New Zealand
installation site)



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