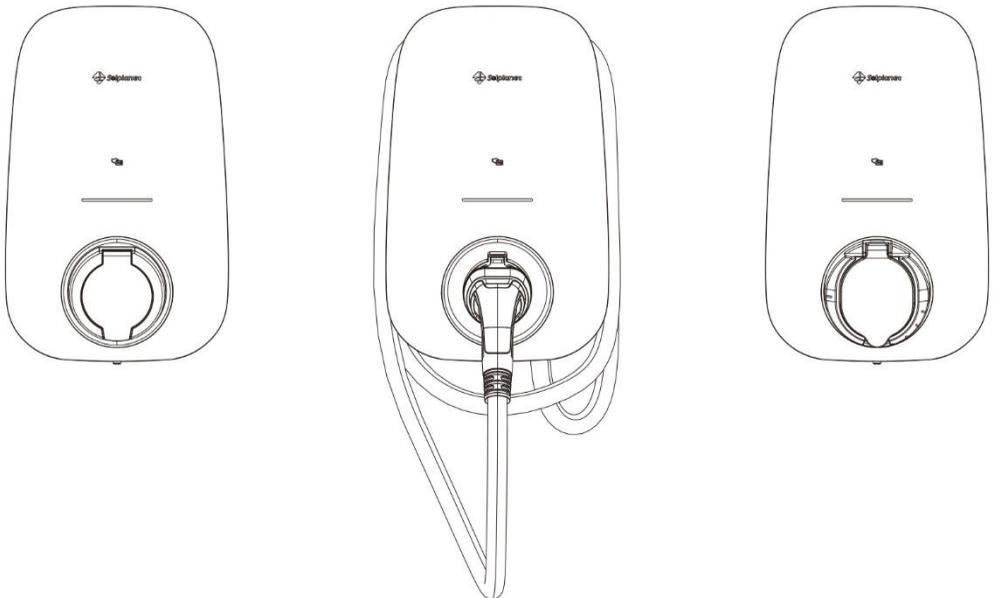


# Smart EV Charger User Manual

## SOL APOLLO Series

SOL7.4H-WP / SOL7.4H-WS / SOL7.4H-WSS / SOL11H-WP /  
SOL11H-WS / SOL11H-WSS / SOL22H-WP / SOL22H-WS /  
SOL22H-WSS



## **Thank you for choosing our Solplanet Smart EV Charger.**

The Solplanet Smart EV Charger is an AC power charging station, it supplies AC power to chargers: SOL7.4H, SOL11H, SOL22H.

Please read and follow the instructions in this manual carefully.

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# 1 Notes on this Manual

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## General Notes

The Solplanet Smart EV Charger is an AC power charging station, it supplies AC power to charge electric vehicles.

### 1.1 Area of validity

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This manual describes the mounting, installation, commissioning, operation and maintenance of the following SOL APOLLO EV chargers:

- SOL7.4H
- SOL11H
- SOL22H

The series listed above is equipped with a variety of interfaces, please check the technical specifications in section 9 Technical data to confirm the interfaces that are available on the EV charger.

### 1.2 Target group

---

This document is intended for qualified persons and end users. Only qualified persons are allowed to perform the activities marked in this document with a warning symbol "  ". The tasks with no "  " symbol may also be performed by end users.

Qualified persons must have the following skills:

- Knowledge of how the EV charger works and is operated;
- Identify the hazards (in terms of a risk assessment), relevant to the working conditions on the site;
- Trained in the installation and commissioning of electrical devices and installations;
- Knowledge of all applicable laws, standards and directives;
- Knowledge of and compliance with this document and all safety information.

### 1.3 Symbols used in this manual

---

The safety precautions and general information are used in this manual as follows:



#### **DANGER**

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



#### **WARNING**

WARNING indicates a hazardous situation which, if not avoided, can result in death or serious injury.



#### **CAUTION**

CAUTION indicates a hazardous situation which, if not avoided, can result in minor or moderate injury.

#### **NOTICE**

NOTICE indicates a situation which, if not avoided, can result in property damage.



INFORMATION provides tips which are valuable for the optimal installation and operation of the EV charger.

## 1.4 Terms and definitions

---

For the purposes of this document, the terms and definitions given in this document.

Sheet 1

<b>object</b>	<b>Abbreviation</b>	<b>Definition</b>
1	DLB	Dynamic Load Balance
2	EV	Electric vehicle
3	OBC	On-board charger
4	BLE	Bluetooth Low Energy
5	EPS	Emergency Power Supply
6	RFID	Radio Frequency Identification
7	WLAN	Wireless Local Area Networks
8	NFC	Near Field Communication
9	CP	Control pilot, used to monitor and control the interaction between the EV and the EV supply equipment.

## 2 Safety

---

### 2.1 Intended use

---

The EV charger is an AC charging device.

The EV charger may automatically adjust its output power during operation due to non-ideal conditions e.g., extremely high ambient temperatures.

The EV charger can only be operated in accordance with the information provided in the enclosed documentation and with the locally applicable laws, regulations and standards. Any other application may cause personal injury or property damage.

The EV charger must be used as a stationary device.

All components of the EV charger must remain within their permitted operating ranges at all times.

Adapters, extension cables and conversion cables must not be used with either version of the EV chargers.

### 2.2 Safety standards

---

SOL APOLLO EV chargers comply with the EU Low-Voltage Directive 2014/35/EU and the EMC Directive 2014/30/EU. The EV charger also complies with the requirement for safety and EMC in European market. They are labeled with the CE mark.

For more information about certificates in other countries and regions, please visit website ( [www.solplanet.net](http://www.solplanet.net) ).

### 2.3 Important safety information

---

Before installing, operating or maintaining this product, it is important to read and ensure that the contents of the following Guide are fully understood. Failure to follow all the specified instructions and procedures, will invalidate the warranty and as such Solplanet will not be liable for any claims for compensation.

 **DANGER****Danger to life due to electric shock when live components or cables are touched !**

- Do not open the EV charger under load or when it is not electrically isolated.
- Do not use the EV charger if it is damaged.
- Do not extend the charging cable with an extension lead.
- Do not touch or insert foreign objects into the EV charger socket or the cable plug.
- Do not install the EV charger near flammable, explosive, or combustible materials.

 **WARNING****Risk of injury due to electric shock !**

- All work on the equipment must only be carried out by qualified personnel who have read and fully understood all safety information and installation requirements contained in this manual.
- The EV charger must be out of reach from children.
- The EV charger must be connected to a protective earth conductor.
- The electrical installation must comply with all applicable local safety requirements, standards and guidelines.
- No modifications, not limited to mechanical or electrical, must be made to the EV charger.
- Components should not be changed or replaced by the end-user or unqualified personnel.
- Do not use conversion adapters or cord extension sets with the EV charger.

## 2.4 Symbols on label

Symbol	Explanation
	Risk of danger, warning and caution ! Safety information, important for human safety. Failure to observe the safety information in this manual may result in injury or death.
	Be ware of high voltage and operating current. The EV charger operates at high voltage and current. Work on the EV charger must only be carried out by skilled and authorized electricians.
	Certified safety. The product is TUV-tested and complies with the requirements of the EU Equipment and Product Safety Act.
	CE mark. The EV charger complies with the requirements of the applicable CE guidelines.
	Do not dispose of the EV charger with household waste. For more information on disposal, please refer to Section 10 "Recycling and disposal".
	Refer to the manual accompanying the EV charger.

## 2.5 Basic safety protection

The EV charger provides the following safety protection functions:

- 1) Over-voltage, under-voltage protection;
- 2) Over-frequency, under-frequency protection;
- 3) Over-current protection;
- 4) Residual current monitoring;
- 5) Grounding conductor monitoring;
- 6) Relay fault monitoring;
- 7) Phase lost monitoring;
- 8) Over-temperature monitoring.

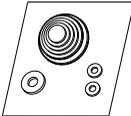
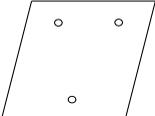
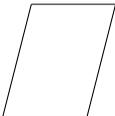
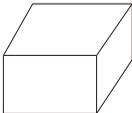
### 3 Scope of delivery

Inspect the product packaging for any external visible damage and ensure that all items in the table below have been included. Contact your supplier if the accessories delivered are incomplete or if the EV charger or accessories show signs of damage.

Sheet 2

Object	Description	Quantity
A	EV charger	1 piece
B	Rubber seal kit	1 set
C	Screw accessory kit: Wall anchors and hexagon bolts (x3) M4x10mm screw (x2) M4x6mm screw (x1) ST3x10mm screw (x2)	1 set
D	Mounting template	1 piece
E	RFID card	3 pieces
F	AC Input cable fastener	1 piece
G	Energy meter (Optional)	1 piece
H	Cable holder (for cable version)	1 piece
I	Quick installation guide	1 piece

Sheet 3

				
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	
				
<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>

## 4 Overview

### 4.1 Overview of the product

#### Socket Version

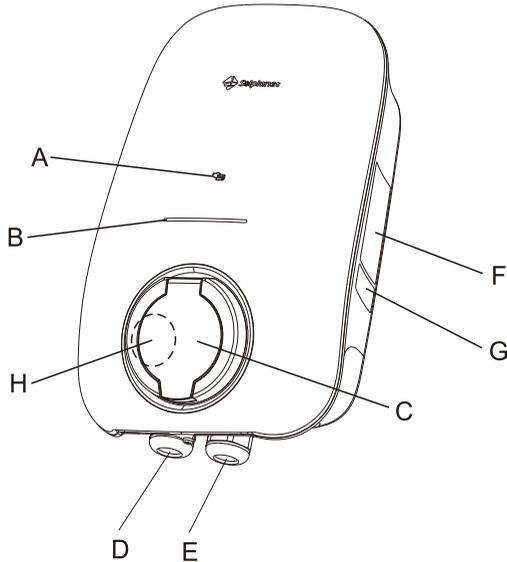


Figure 1: Overview of the socket version

Sheet 4

Position	Description
A	RFID / NFC Reader Area for RFID card scanning or for use with NFC authorized smart devices.
B	LED strip Indicates the operating state of the EV charger.
C	Socket
D	Input cable gland
E	Communication cable gland
F	Type label
G	QR code
H	Knockout entry reserved for input AC cable.

## Cable Version

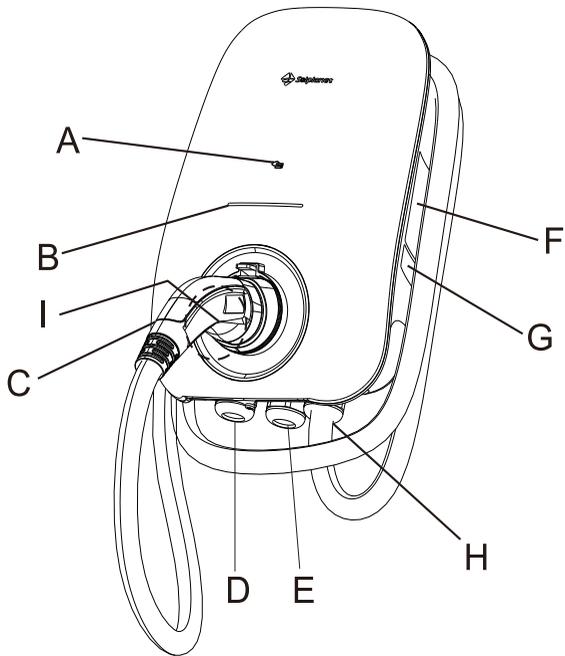


Figure 2: Overview of the cable version

Sheet 5

Position	Description
A	RFID / NFC Reader Area for RFID card scanning or for use with NFC authorized smart devices.
B	LED strip Indicates the operating state of the EV charger.
C	Charging plug
D	Input cable gland
E	Communication cable gland
F	Type label
G	QR code
H	Charging plug cable
I	Knockout entry reserved for input AC cable.

## 4.2 System overview with power management

---



The product provide disconnection means and a residual current monitoring for detecting 6 mA direct residual current. In order to guarantee safety in accordance with IEC 61851-1 that RCD Type A and appropriate equipment that ensures the disconnection of the supply in case of DC fault current above 6 mA. The additional overcurrent protection and approved RCD Type A need to be provided in the installation as well.

The SOL APOLLO EV charger provides the Dynamic Load Balance function for users when installed together with an energy meter. This function automatically adjusts the charging power depending on the power flow within the system. When the homes power consumption is stable and the PV power increases, the EV charger charging power will increase accordingly. The increase of power will be no greater than 32A and can be also limited by the EV on-board charger (OBC).

And the system overview in different application are like the pictures below:

a) System Overview with EV-Charger Only

✓ EV Charger DLB

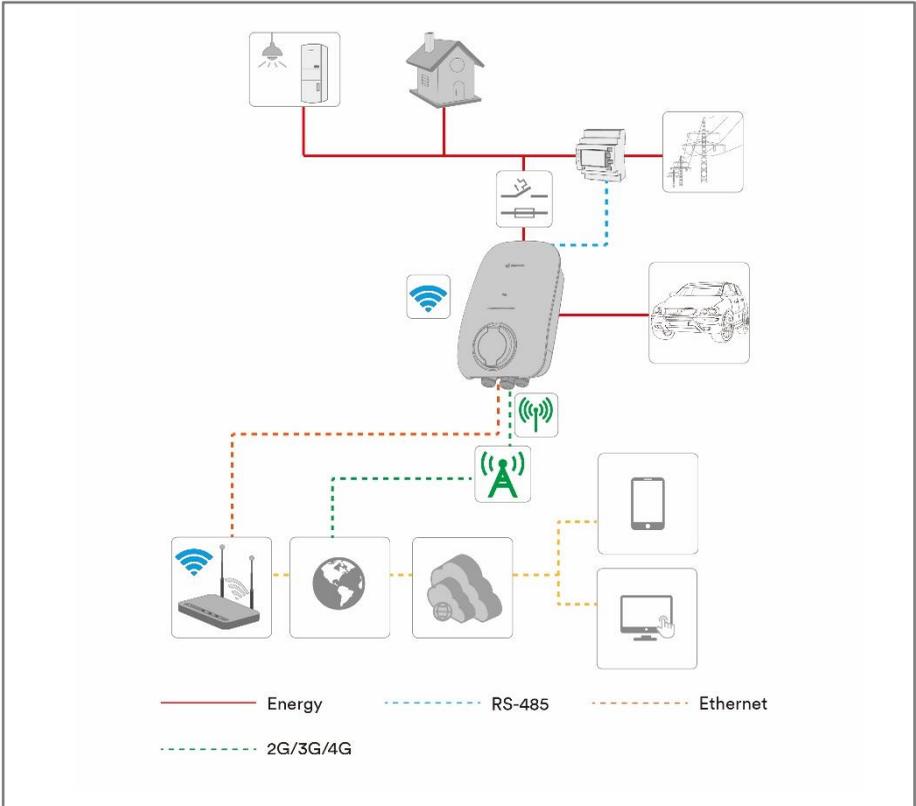


Figure 3

EV Charger DLB

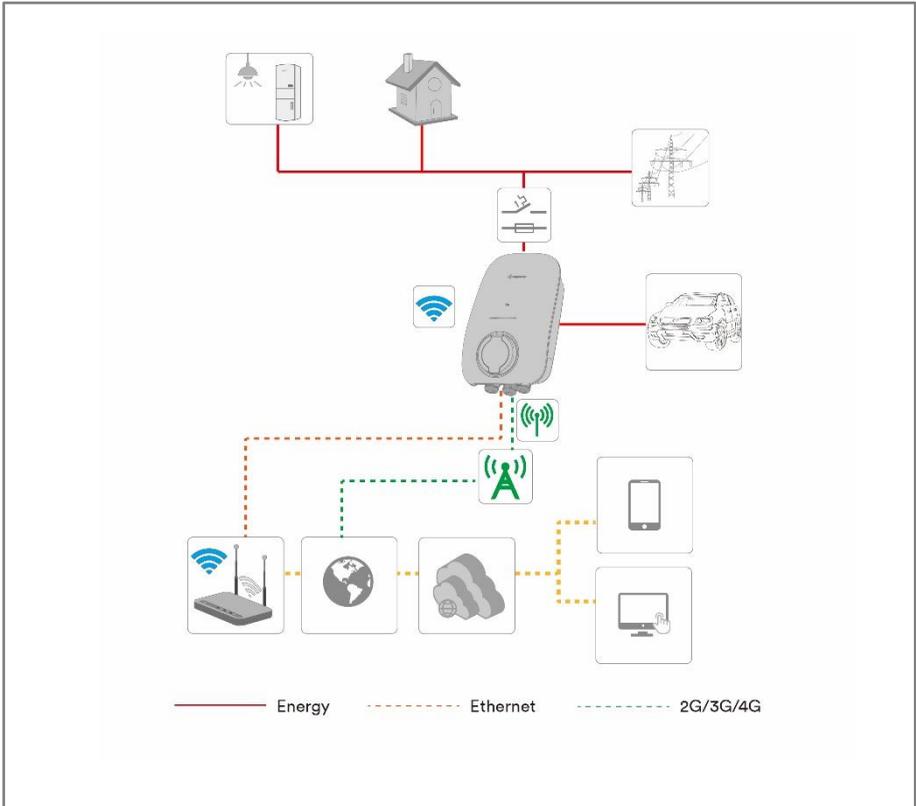


Figure 4

b) System Overview with EV-Charger and Ongrid Inverter

✓ EV Charger DLB    ✗ Ongrid inverter 0-export

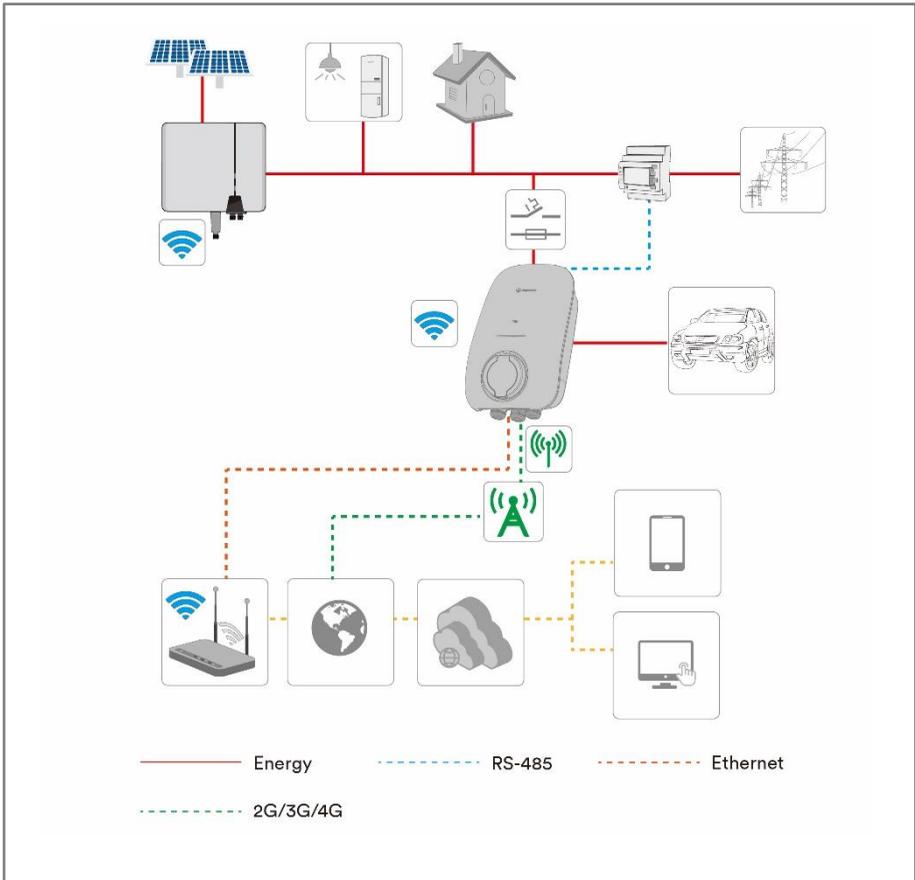


Figure 5

✓ EV Charger DLB    ✓ Ongrid inverter 0-export

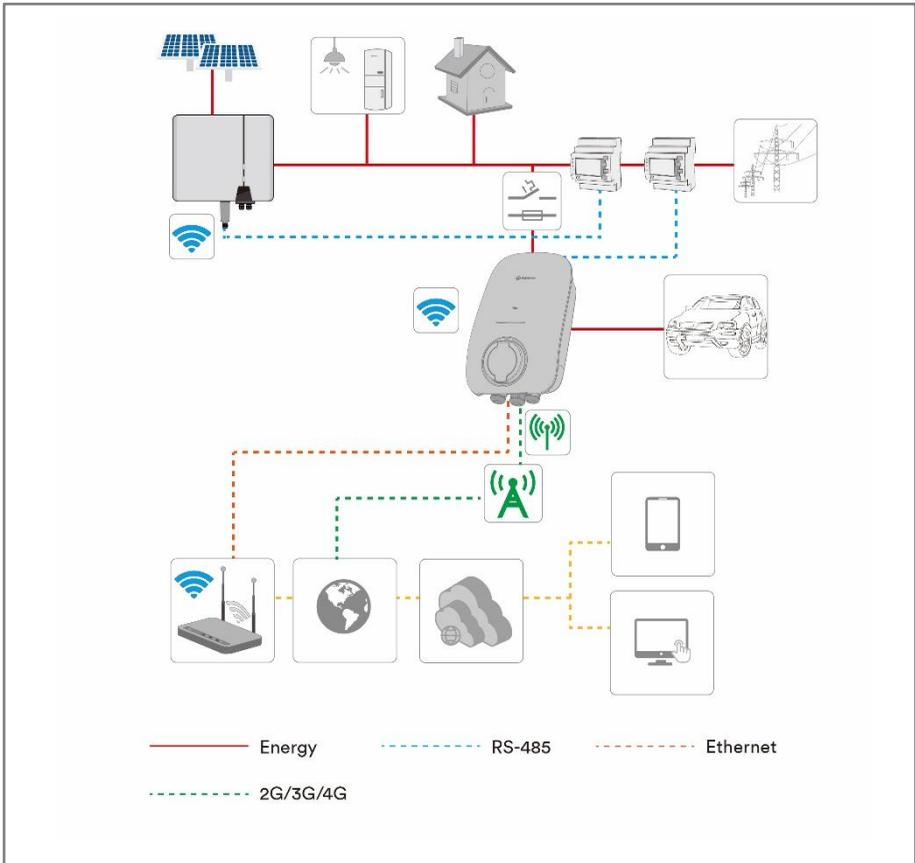


Figure 6

⊗ EV Charger DLB    ⊗ Ongrid inverter 0-export

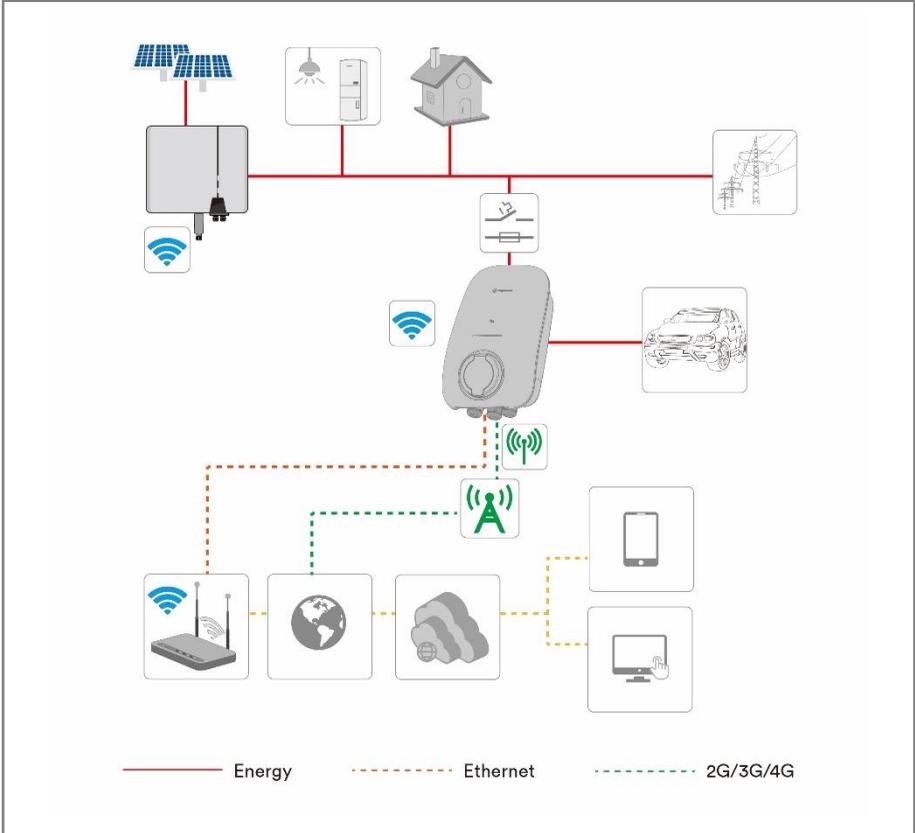


Figure 7

c) System Overview with EV-Charger and Hybrid Inverter

- ❌ EV Charger DLB
- ✅ Hybrid inverter 0-export

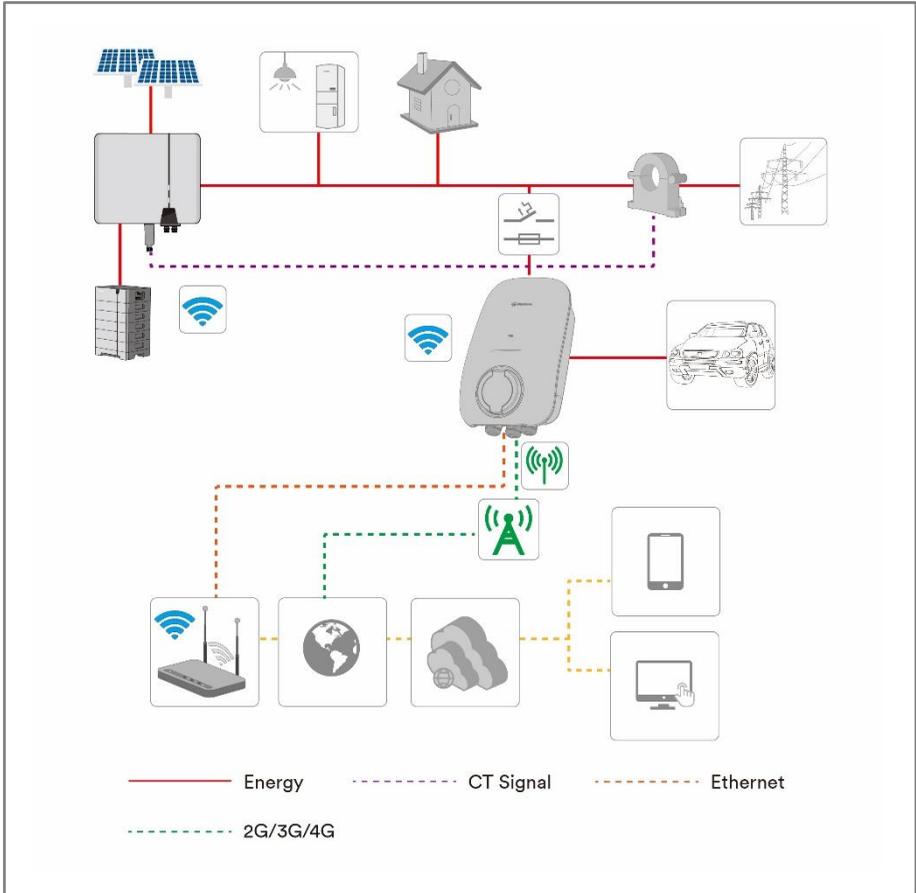


Figure 8

✓ EV Charger DLB    ✓ Hybrid inverter 0-export

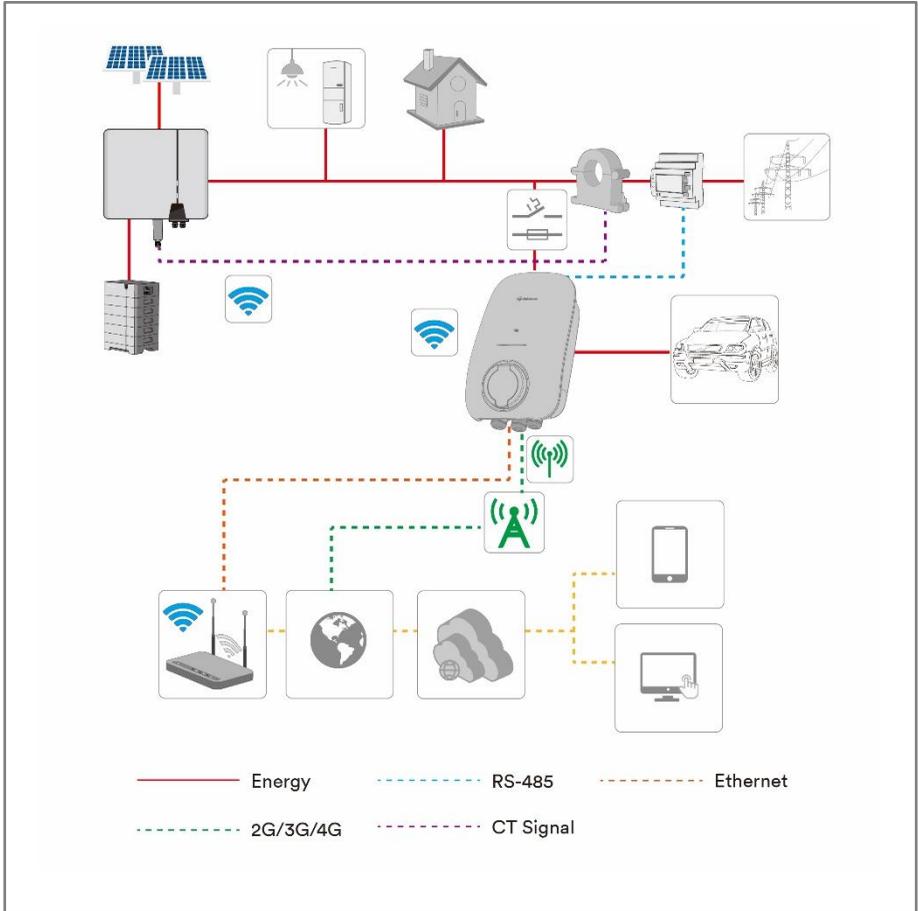


Figure 9

d) System Overview with EV-Charger, Hybrid and Ongrid Inverter

✓ EV Charger DLB    ✓ Hybrid inverter 0-export

✗ Ongrid inverter 0-export

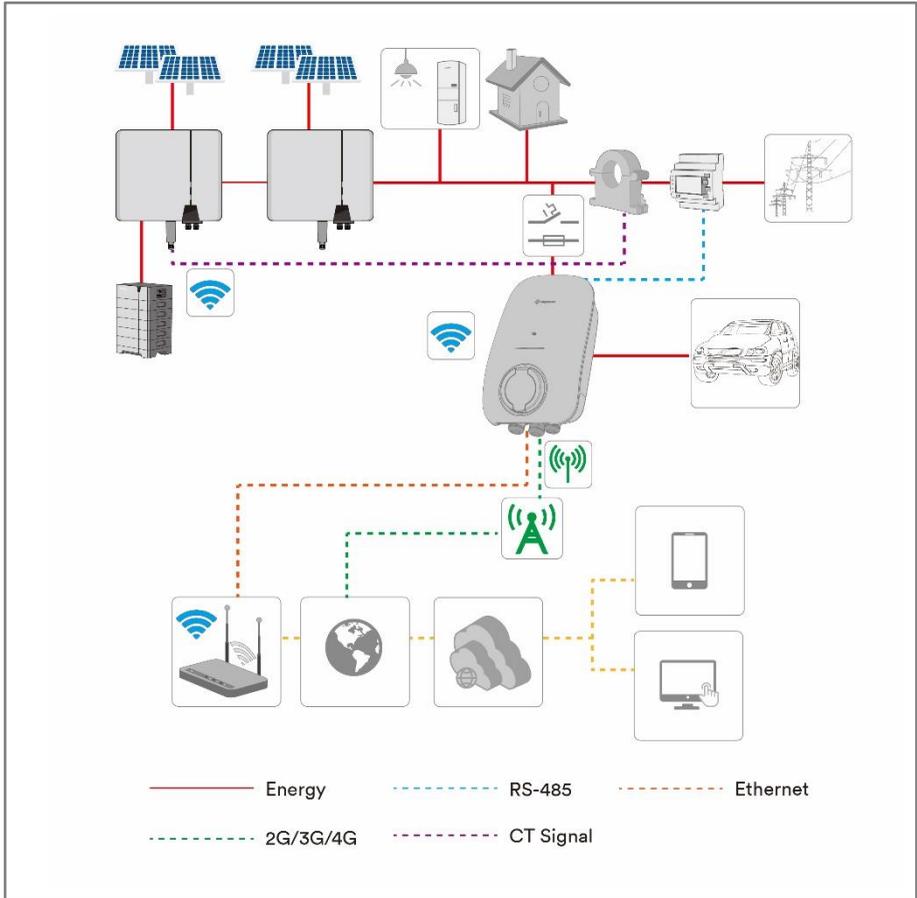


Figure 10

✓ EV Charger DLB    ✓ Hybrid inverter 0-export

✓ Ongrid inverter 0-export

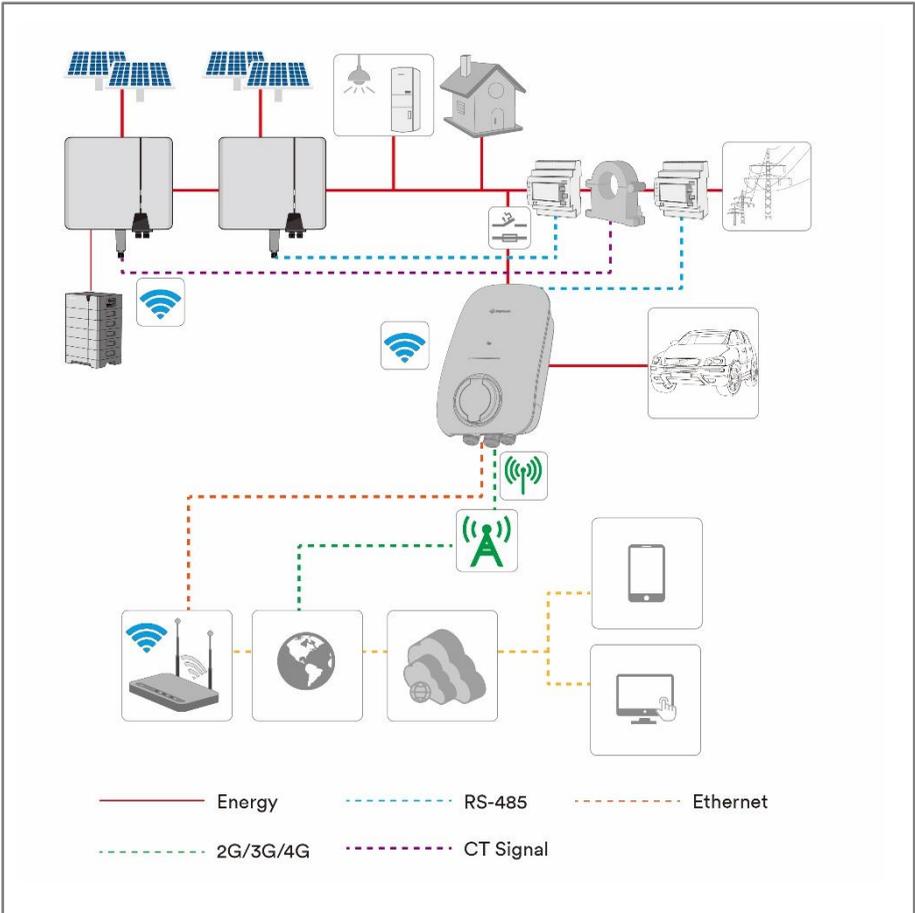


Figure 11

❌ EV Charger DLB    ✅ Hybrid inverter 0-export

❌ Ongrid inverter 0-export

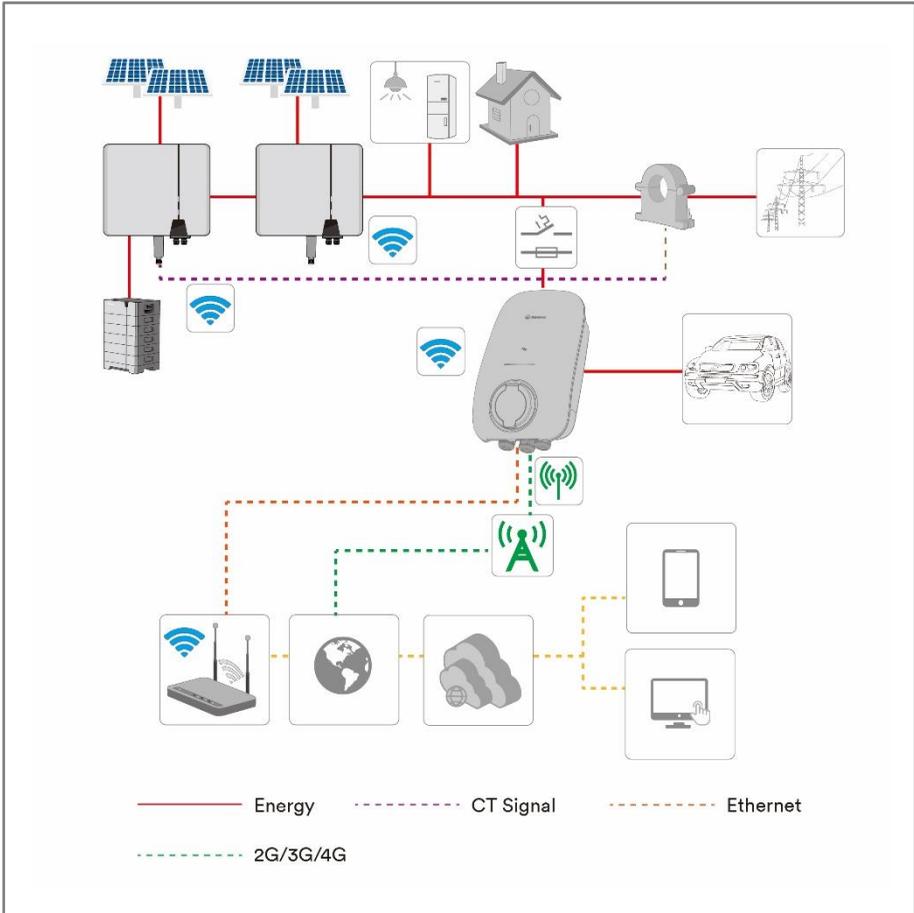


Figure 12

Item	Description	Remark
	<p>PV String</p>	<p>The product supports to connect the monocrystalline silicon, polycrystalline silicon and thin-film without grounding.</p>
	<p>Hybrid inverter</p>	<p>ASW H-T2 and ASW H-T3 series products have a EPS port. ASW H-T2-O and ASW H-T3-O series products doesn't have a back-up port.</p>
	<p>Smart meter</p>	<p>The smart meter is the central device responsible for energy management. The smart meter also can be replaced by three current transformer which can communication with inverter directly.</p>
	<p>Utility grid</p>	<p>The product can connect to TN and TT grounding system grid.</p>
	<p>Battery system</p>	<p>The product must only be operated in connection with an intrinsically safe lithium-ion battery system approved by AISWEI.</p>
	<p>Ai-Dongle</p>	<p>The Ai-Dongle supports Ethernet communication and WLAN communication. It is not recommended to use both communication methods at the same time.</p>

	<p>Back-up load</p>	<p>The back-up load directly connected to the EPS port of the inverter. The back-up load can be power supplied by the inverter after the utility grid is failure.</p>
	<p>Normally load</p>	<p>The normally load directly connected to utility grid. The normally load will be power off after the utility grid is failure.</p>
	<p>Router</p>	<p>The product can connect to router through Wi-Fi signal or Ethernet cable.</p>
	<p>Internet</p>	<p>The monitor information can transfer to Cloud Server through Internet.</p>
	<p>Cloud server</p>	<p>The monitor information is stored at cloud server.</p>
	<p>Smart phone</p>	<p>The APP can be installed on the smart phone and then review the monitor information.</p>
	<p>Computer</p>	<p>The monitor information also can be review on the computer.</p>
	<p>Ai-charger</p>	<p>APOLLO EV Charger.</p>

	CT	Current transformer.
	Cellsite	Communication base station.
	Protective device	Protective device with RCD and LSS.

### 4.3 LED Indicators

The EV charger is equipped with one LED strip which provides information about the various operating states represented by four colours.

#### Explanation of the different light signals:

Sheet 7

LEDs Status	EV Charger Status
Green - solid	Standby
Ice blue - solid	- Connected to vehicle and ready to charge - End of charging - Charging paused
Blue - pulsing	Charging
Green - pulsing	Charging (with full green power)
Ice blue - pulsing	Charging (mix of grid/green power)
Yellow-solid	E-LOCK
Red - blinking	Fault
Purple - blinking	Firmware update
Ice blue - blinking (once)	RFID card identification succeeded (with operation)
Ice blue - blinking (twice)	RFID card binding succeeded
Purple - blinking (once)	RFID card identification succeeded (without operation)

Purple - blinking (twice)	Invalid RFID card
Purple - blinking (three times)	Binding RFID cards over limit

## 4.4 Interfaces

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The SOL APOLLO EV charger is equipped with the following interfaces and functions:

### WLAN

The EV charger is supplied with WLAN interface as standard.

### BLE

The EV charger is supplied with a BLE (identifiable by the EV charger serial number) interface as standard. The BLE connection facilitates a point-to-point connection between the EV charger and a smart mobile device.

### Ethernet (optional)

The EV charger is supplied with Solplanet Speedwire as optional configuration, which is a type of communication based on the Ethernet standard. Solplanet Speedwire is designed for a data transfer rate of 100 Mbps and enables optimum communication between the EV charger and the Ai-charging app via a router.

### 4G (optional)

The EV charger is supplied with a 4G module which allows an LTE-FDD/WCDMA/GSM network connection link in situations where there is no WLAN or ethernet available.

### NFC Authorization

This function activates the EV charger by detecting the digital key stored in a smart phone or smart device. Check whether the smart phone is compatible with NFC and NFC function which is required to be activated. Follow your

smart phone's NFC instructions and place the authorized RFID card on the phone's NFC area, and copy the card data onto your smart phone.



Please note that this function does not support iPhone or other apple products due to Apple's restrictions for NFC.

## 4.5 Special Features

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### **Dynamic Load Balancing (requires an energy meter)**

Dynamic load balancing ensures you never overdraw your property's power capacity by balancing the power consumption between your EV charger and other electrical household appliances. The system measures the power consumption of the house by the energy meter and allocates all available power to your EV. The charge power is continuously adjusted, in response to changes in generation or power consumption elsewhere around the house. You can maintain a safe and convenient charging at all times while keeping costs low. The EV charger may prioritise the use of excess solar power generated by a PV system, if available, rather than the grid power.

# 5 Mounting

---

## 5.1 Planning the Installation

---

### **Qualified Person**

Installing and connecting the product must be done by a qualified electrician. Laws and regulations, relevant to the country of installation, regarding the safety of persons, animals, and property must be observed. A typical planning procedure may include but are not limited to the following:

1. Calculate the existing electrical load to determine the maximum operating current.
2. Calculate the appropriate cable size with respect to distance to minimize voltage drops.
3. Obtain any necessary permits from the local authority that has jurisdiction and confirm that the follow-up inspection has been scheduled by a qualified electrician after the installation is complete.
4. Use only copper conductors.
5. Use conductors that are sized in accordance with local wiring regulations. The selected cable gauge must be able to sustain periods of a constant load up to 16A / 32A.
6. Each unit should be connected to an appropriately sized circuit breaker.
7. Knowledge of the current capacity of the site (in amperes).

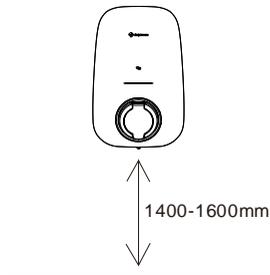
## 5.2 Site Requirements

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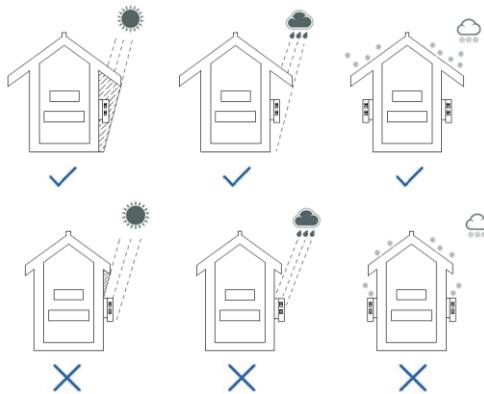
1. Ensure the product is installed out of reach from children.
2. Ensure appropriate access to the product for installation and maintenance.
3. Ensure there is adequate heat dissipation by observing the minimum clearance to walls, other EV chargers or objects:

Direction	Min. Clearance (mm)
above	200
below	200
sides	200

- The installation height from the ground is between 1400mm and 1600mm.



- The ambient temperature below 40°C is recommended (to ensure optimal operation).
- It is recommended to mount the product under a shaded site of the building or to mount a sun shield above the product.
- Avoid exposing the product to direct sunlight, rain and snow to ensure optimal operation and an extended service life.



- The mounting method, location and surface must be suitable for the products weight and dimensions.
- If mounted in a residential area, we recommend mounting the product on a solid surface. Plasterboard and similar materials are not recommended.
- Do not place any objects on the product.

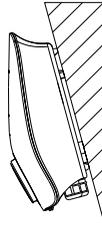
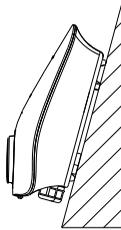
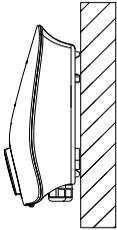
### 5.3 Selecting the mounting location



## DANGER

### Danger to life due to fire or explosion

- Despite careful construction, if installed incorrectly or mounted in unsuitable locations, electrical devices can cause fires which may result in death or serious injury.
- Do not mount the product on flammable construction materials.
- Do not mount the product in areas where flammable materials are stored.
- Do not mount the product in areas where there is a risk of explosion.



1. Mount the product vertically or tilted backward by a maximum of 15°.
2. Never mount the product tilted forward or sideways.
3. Never mount the product horizontally.
4. Mount the product at eye level to make it easy to operate and to read the LED strip.
5. The electrical connection area must point downwards.

### 5.4 Mounting the product

#### Removing the decorative cover

1. Remove the bottom screw (A) on the flat workbench.
2. It is recommended to start at the bottom of enclosure (C) when removing the decorative cover (B).

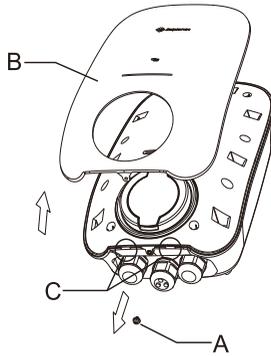


Figure 13

**Drill three  $\varnothing 10\text{mm}$  holes at a depth of approximately 70mm for the mounting screws**

1. Hold the mounting template (A) against the wall and ensure that the installation is level by using the spirit level.
2. Mark the location for three mounting holes (B).
3. Drill three mounting holes (B).
4. Insert the wall plugs (C) into the mounting holes (B).

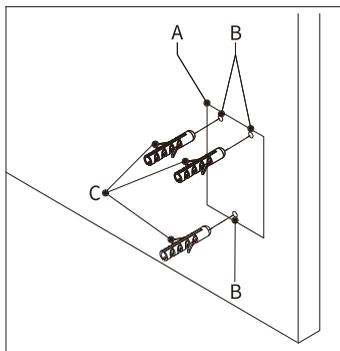


Figure 14

## Inserting the upper mounting screws

1. Install the upper mounting screws (A) in the upper holes (B).  
The recommended torque is 4.4Nm.
2. Ensure the screw protrudes at a length (X) out from the wall.  
The length of (X) is recommended to be 3mm (0.12inch).

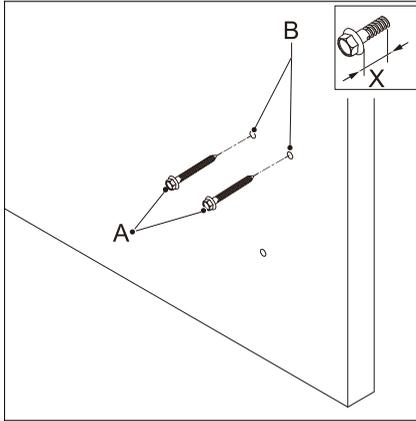


Figure 15

## Installing the EV charger on the wall

1. Align the openings (A) over the upper mounting screws (B).  
The upper mounting screws support the EV charger.

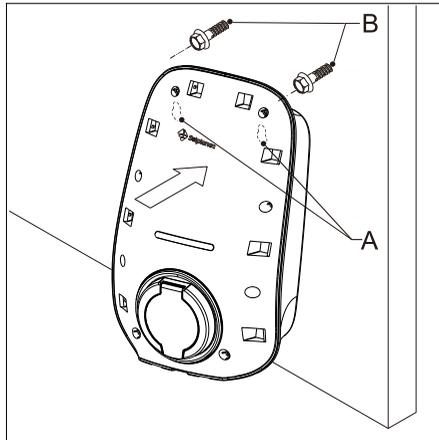


Figure 16

## Removing the top cover

1. Remove the eight screws (A) located on the top cover (B).
2. Remove the top cover (B) (Take care of the cable wires that connect to the top cover for the socket version).

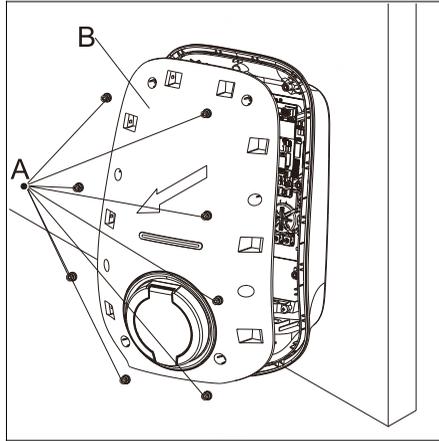


Figure 17

## Installing the inner screw on the bottom cover

1. Thread the screw (A) through the sealing rubber (B). Then install the mounting screw (A) to secure the enclosure to the surface. The recommended torque is 4.4Nm.

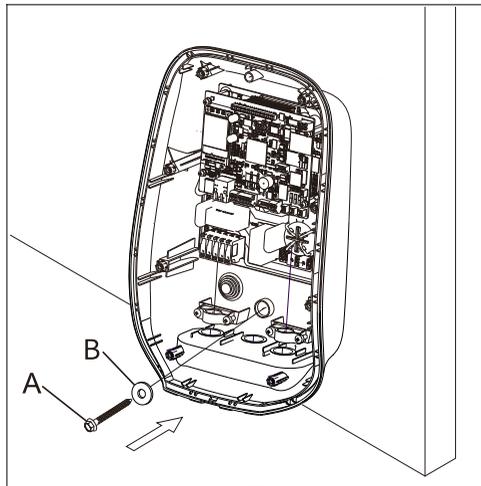


Figure 18

## Install the incoming AC supply cable



- All electrical installations must be done in accordance with all local and national rules.
- Ensure that all power sources have been electrically isolated before any electrical terminations have been made.

There are two options for installing the incoming AC supply cable.

Option 1:

Through the cable gland (A) located on the bottom of the enclosure.

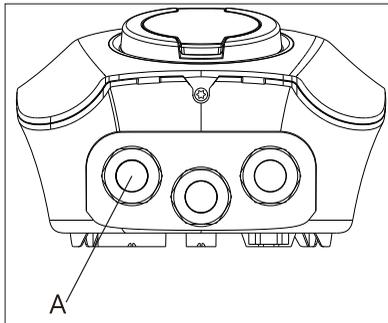


Figure 19

Option 2:

Drilling a hole through the rubber seal located on the rear of the enclosure (A).

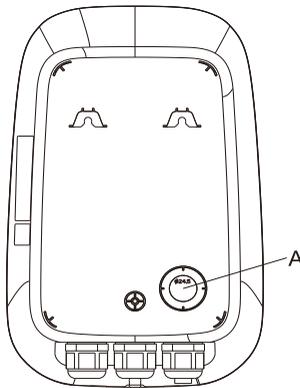
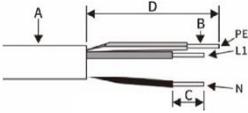


Figure 20

- Strip the incoming AC supply cable as shown below, and crimp the copper wire to the appropriate OT terminal (according to DIN 46228-4, provided by the customer).

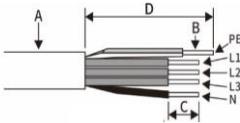
Sheet 8

Single phase



Object	Description	Value
A	External diameter	18-21mm
B	Copper conductor cross-section	4-16mm <sup>2</sup>
C	Stripping length of the insulated conductors	12mm
D	Stripping length of the cable outer sheath	75mm
Note: the PE conductor is at least 5mm longer than the L and N conductors.		

Three phase



Sheet 9

Object	Description	Value
A	External diameter	18-21mm
B	Copper conductor cross-section	4-16mm <sup>2</sup>
C	Stripping length of the insulated conductors	12mm
D	Stripping length of the cable outer sheath	75mm
Note: the PE conductor is at least 5mm longer than the L and N conductors.		

2. Install the incoming AC supply cable

Option 1

Remove the cable gland from the bottom of the enclosure.

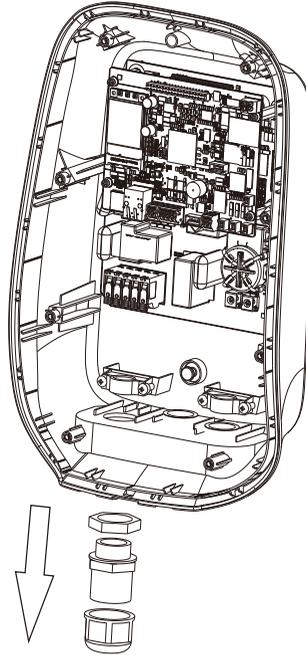


Figure 21

Thread the incoming AC supply cable through the cable gland, loosen the nut (A).

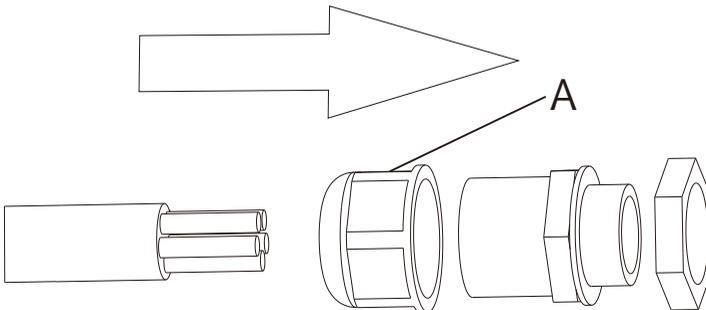


Figure 22

Install the cable gland on the bottom of the enclosure, fasten the nut (B) and then fasten the nut (A).

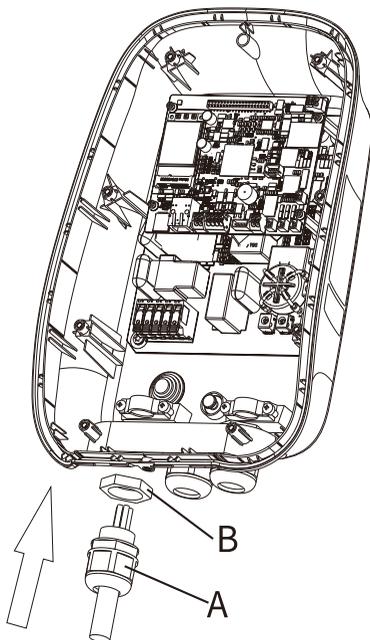


Figure 23

Option 2:

According to the diameter of the incoming AC supply cable, select the appropriate circle on the rubber seal to penetrate.

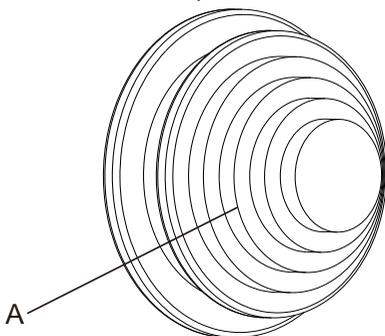


Figure 24

Thread the input cable through the rubber.

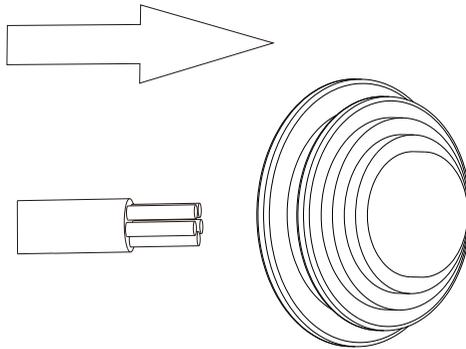


Figure 25

Install the rubber seal (A) on the rear of the enclosure (B).

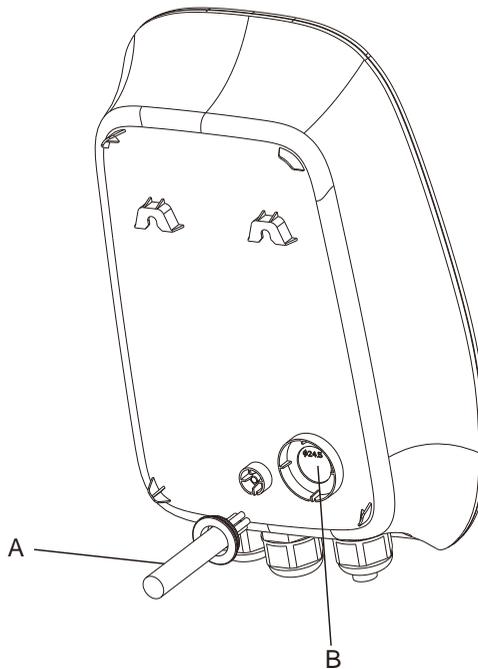


Figure 26

- Secure the cables (A) with the cable clip (B). Install the two screws (C) to secure the cable. (For Option 1)

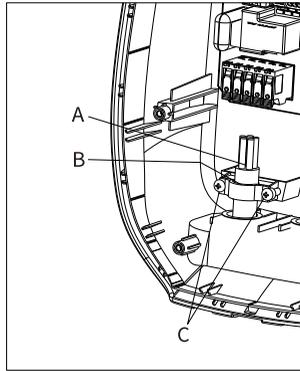


Figure 27

- Terminate the incoming AC supply cable.

### Single phase

Loosen the cable clamps (A) of the terminal block.

Insert the cables into terminal block (B).

Connect the below wires:

- Line (C)
- Neutral (D)
- Grounding (E)

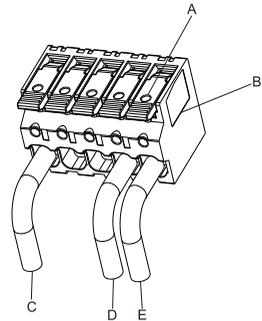


Figure 28

### Three phase

Loosen the cable clamps (A) of the terminal block.

Insert cable into the terminal block (B).

Connect the below wires:

- Line L1 (C)
- Line L2 (F)
- Line L3 (G)
- Neutral (D)
- Grounding (E)

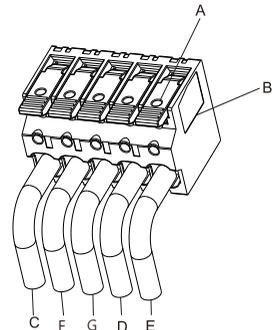


Figure 29

### Installing the Ethernet (RJ-45) (optional Ethernet)

To connect the EV charger to a router, ensure an ethernet cable is connected to the ethernet (RJ-45) port of the EV charger and to an RJ-45 port of the router. The pin assignment is as the table below.

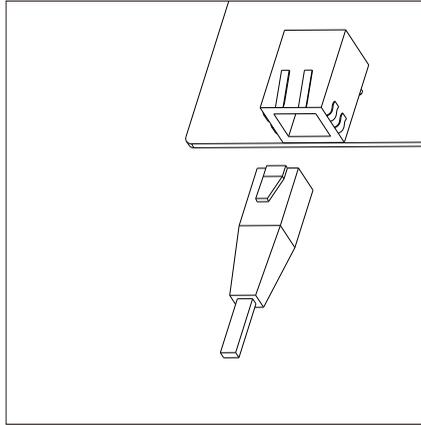


Figure 30

Sheet 10

Pin	Name	Description
1	TX+	Tranceive data+
2	TX-	Tranceive data-
3	RX+	Receive data+
4	N/C	Not connected
5	N/C	Not connected
6	RX-	Receive data-
7	N/C	Not connected
8	N/C	Not connected

### RS-485 communication cable for energy meter

- For RS-485 communication a standard ethernet cable is recommended. The pin assignments are shown below. Strip the wire as shown in the figure 31, and crimp the copper wire to the appropriate OT terminal (according to DIN 46228-4, provided by the customer) if the cable is multi strand flexible conductor. The other end of the cable should be connected

to the corresponding terminals of the energy meter, please refer to the energy meter manual for further information.

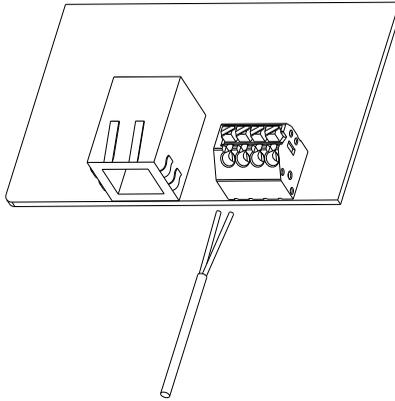


Figure 31

Sheet 11

Pin	Name	Description
1	RS-485A-1	For communication with an energy meter
2	RS-485B-1	
3	RS-485A-2	For communication with an energy meter
4	RS-485B-2	

- Remove the middle cable gland (A) at the bottom of the enclosure.

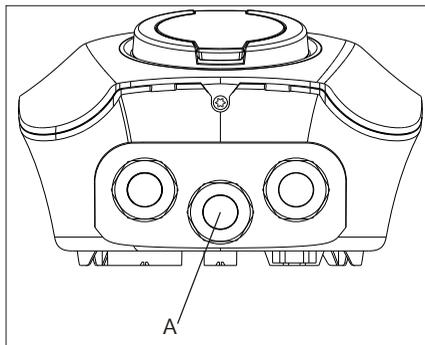


Figure 32

3. Remove the external nut (A), then remove the rubber plug (B). Next, insert the ethernet cable into the hole (C). Repeat the similar step for the RS-485 cable installation.

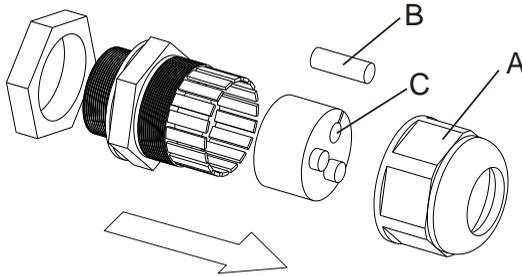


Figure 33

4. Assemble the cable gland and loosen the external nut (A).

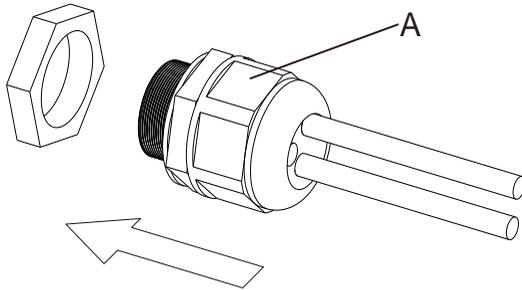


Figure 34

5. Install the cable gland at the bottom of the enclosure and fasten the nut (B), afterwards fasten the nut (A).

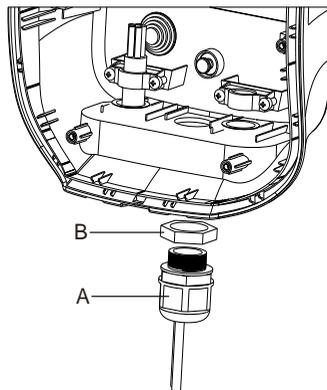


Figure 35

6. Insert the RJ-45 plug of the ethernet cable in the RJ-45 socket (A). Connect the RS-485 cable in the RS-485 socket (B).

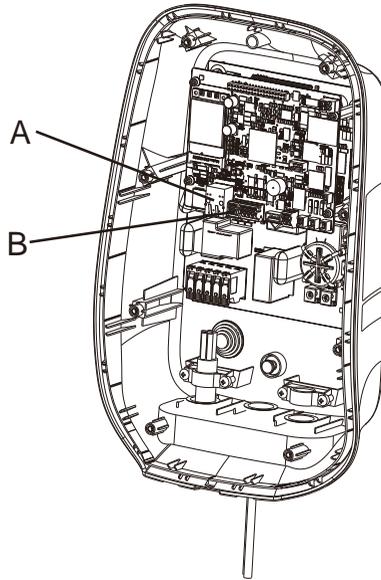


Figure 36

**Insert 4G SIM card (optional)**

Insert the SIM card (A) into the sim card holder (B). Ensure the position of the connection points are correct.

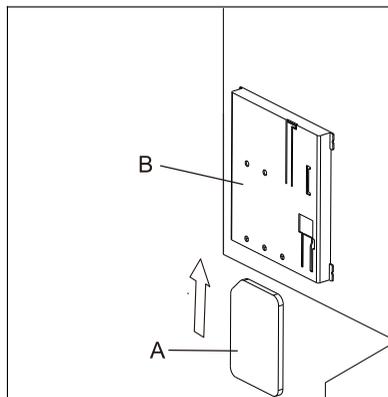


Figure 37

## Access to parts

### Removing the decorative cover

Removing the following parts:

Screws (A)

It is recommended to start at the bottom of the enclosure (C) when removing the decorative cover (B).

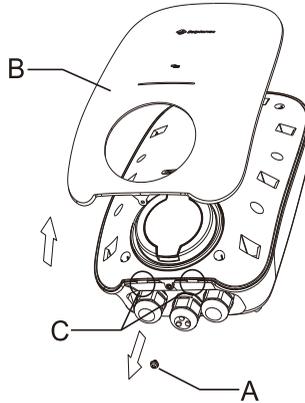


Figure 38

### Installing the decorative cover

Install the following parts:

Screw (A)

Decorative cover (B)

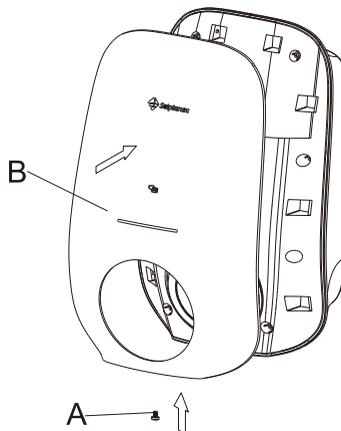


Figure 39

## Removing the top cover

Remove the following parts:

Screws (A)

Top cover (B)

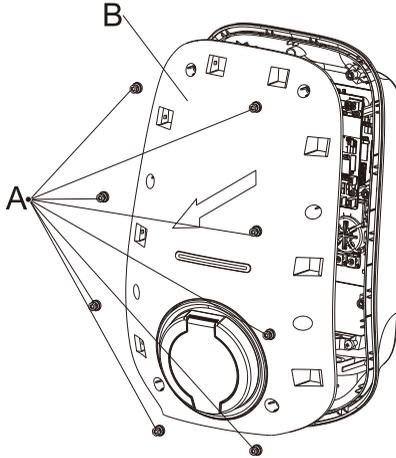


Figure 40

## Installing the top cover

Install the following parts:

Screw (A)

Top cover (B)

The recommended torque is 0.8Nm.

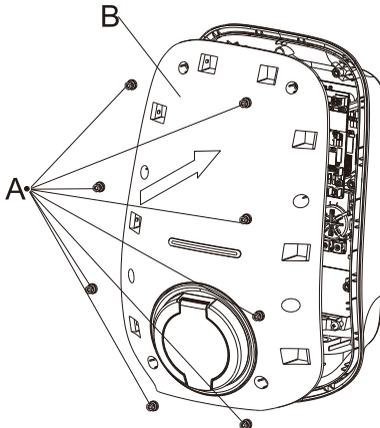


Figure 41

## 6 Commissioning and operation

### NOTICE

#### Risk of injury due to incorrect installation!

- We strongly recommend carrying out preliminary checks before commissioning to avoid possible damage to the device caused by faulty installation.

### 6.1 Mechanical checks

Carry out the main mechanical checks to ensure the EV charger is waterproof and ready for use.

- ① Ensure the EV charger has been correctly mounted with the supplied mounting screws.
- ② Ensure the AC input cable has been correctly installed.

#### ⚠ Warning!

**If the AC input cable neutral line is connected opposite to the L line, the EV charger will become damaged due to the higher voltage.**

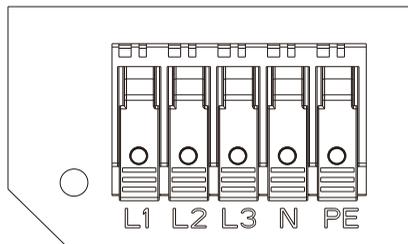


Figure 42

- ③ Ensure the communication cable has been correctly wired and secured.
- ④ Ensure the cable gland has been correctly installed and secured.

## 6.2 Electrical checks

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Carry out the main electrical tests as follows:

- ① Close the circuit breaker or isolating device that supplies power to the EV charger.



### **DANGER**

#### **Danger to life due to the presence of AC voltage!**

- Only touch the insulation of the AC cables.
- Do not touch the electrical live parts of the EV charger.
- Wear personal protective equipment such as insulating gloves.

- ② The EV charger will carry out a series of self-tests (duration of approx. 10 seconds).
- ③ The LEDs will illuminate ice blue after the self-tests, if there is an error, the LED will illuminate red.

## 6.3 Establish a connection to the Ai-charging app

---

### **Requirement:**

A mobile device with the Ai-charging app.

- ① Download the Ai-charging app from the Google Play Store or Apple Store.
- ② Start the Ai-charging app.
- ③ Follow the instructions in the Ai-charging app user manual for set-up and operation.

Remark: the Ai-charging app can establish a direct connection via BLE, WIFI, 4G or Ethernet, depending on EV chargers' hardware. For detailed information, please refer to the Ai-charging app user manual.

## 6.4 Activate the RFID card

---

### **Requirement:**

The EV charger should be powered on, and the charging cable disconnected from the electric vehicle.

- ① Place RFID card in the front of the card reader on the EV charger.

② The EV charger will emit a “beep” and the LED strip will turn ice blue and blink twice, which means that the card has been successfully bound and activated. (Max 3 RFID cards can be bound to one EV charger.)

## 6.5 Charging EV

---

### Charging with the cable version EV charger

- ① Connect the EV charger charging cable to the electric vehicle, the colour of the EV charger LED strip changes from green to ice blue.
- ② Start the EV charger with the Ai-charging app or RFID card.
- ③ The EV charger begins charging the electric vehicle.

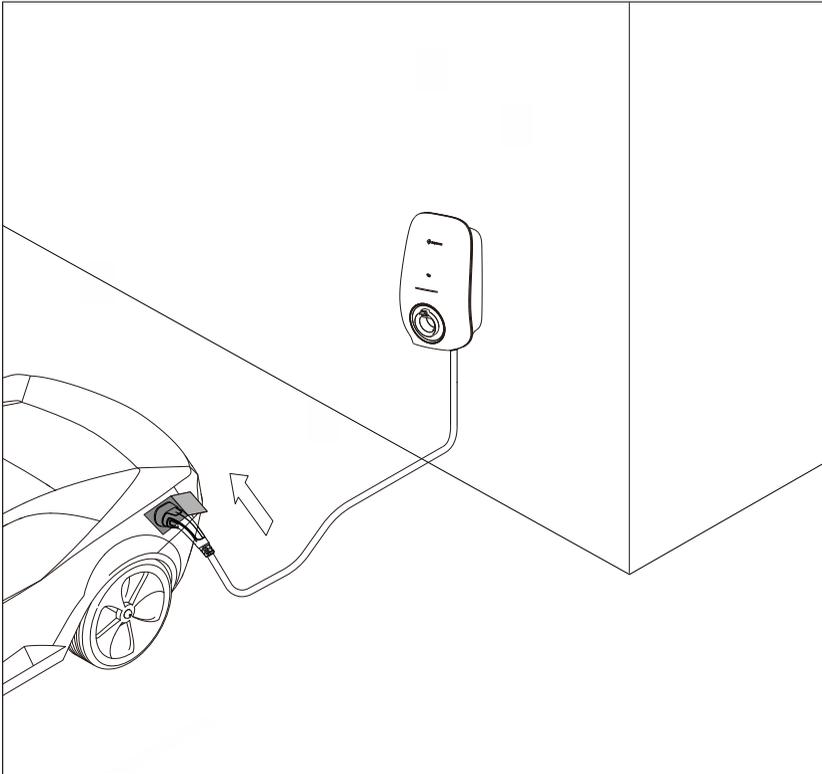


Figure 43

### Start charging with the socket version EV charger

- ① Connect the charging cable to the EV charger and to the electric vehicle, the colour of the EV charger LED strip changes from green to ice blue. Wait for 5s, and the EV charger will lock the charging cable connector automatically.
- ② Start the EV charger with the Ai-charging app or RFID card
- ③ The EV charger begins charging the electric vehicle.

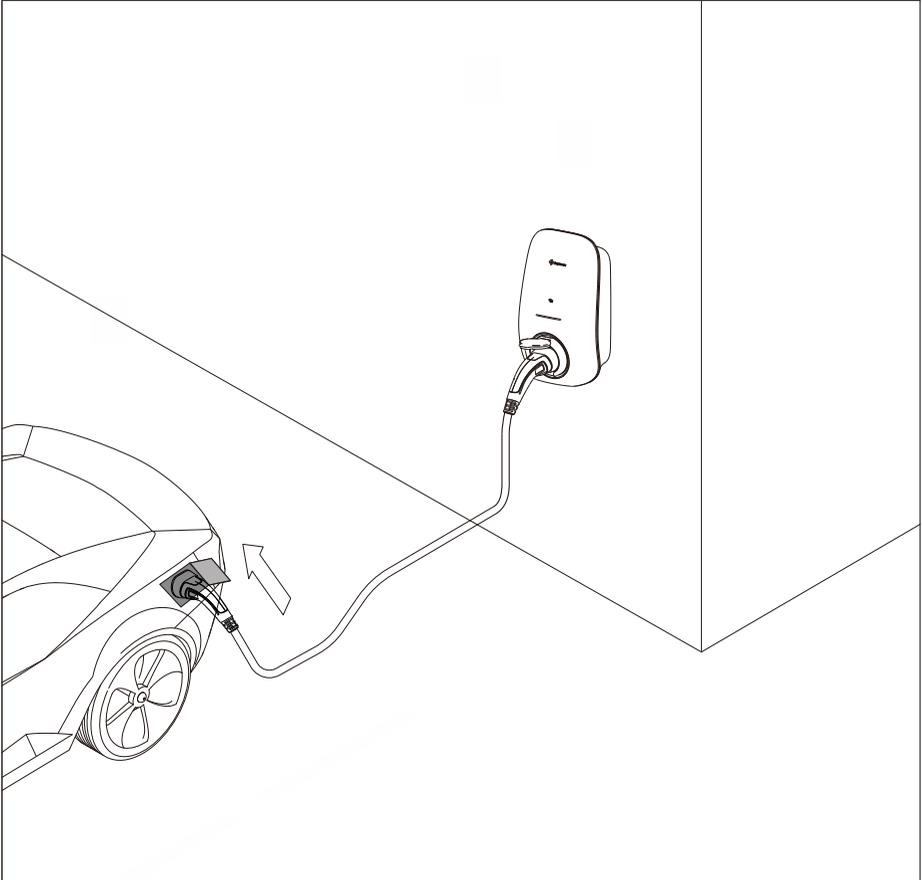


Figure 44

## 6.6 Stop charging

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### Stop charging with the cable version EV charger

- ① Stop the EV charger with the Ai-charging app or RFID card.
- ② The EV charger stops charging the electric vehicle. The colour of the EV charger LED strip changes from pulsing blue/green/ice blue to ice blue.
- ③ Disconnect the charging cable from the electric vehicle, the colour of the EV charger LED strip changes from ice blue to green.
- ④ Wrap the charging cable around the enclosure.

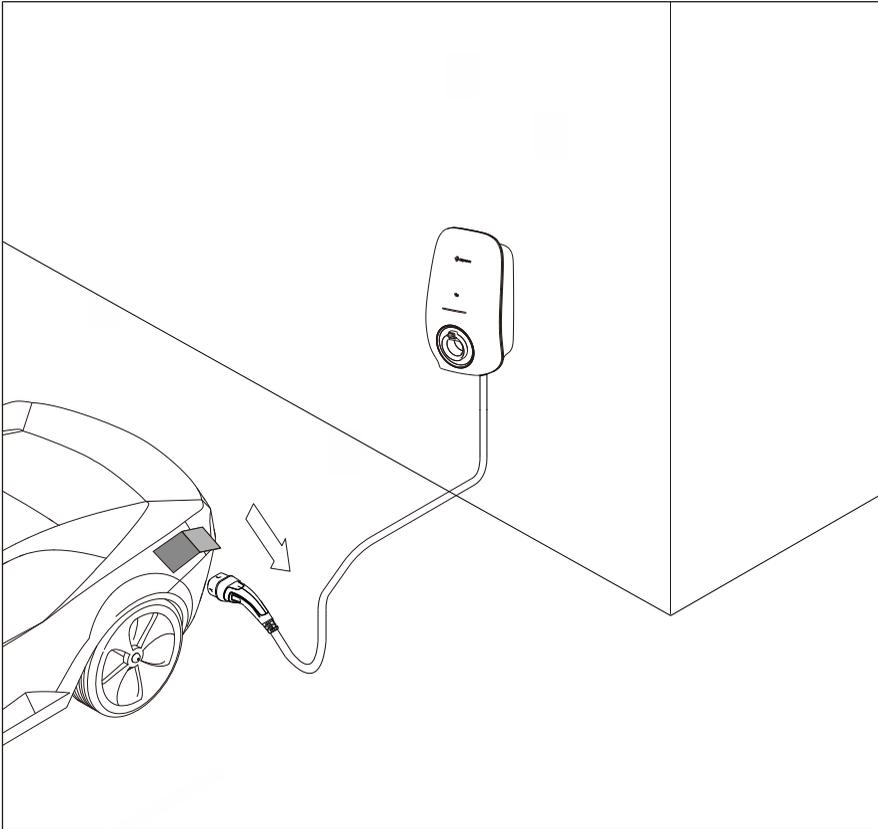


Figure 45

### Stop charging with the socket version EV charger

- ① Stop the EV charger with the Ai-charging app or RFID card.
- ② The EV charger stops charging the electric vehicle. The colour of the EV charger LED strip changes from pulsing blue/green/ice blue to ice blue.
- ③ Disconnect the charging cable from the electric vehicle, the colour of the EV charger LED strip changes from ice blue to green.
- ④ The EV charger unlocks the charging cable.
- ⑤ Disconnect the charging cable from the EV charger.

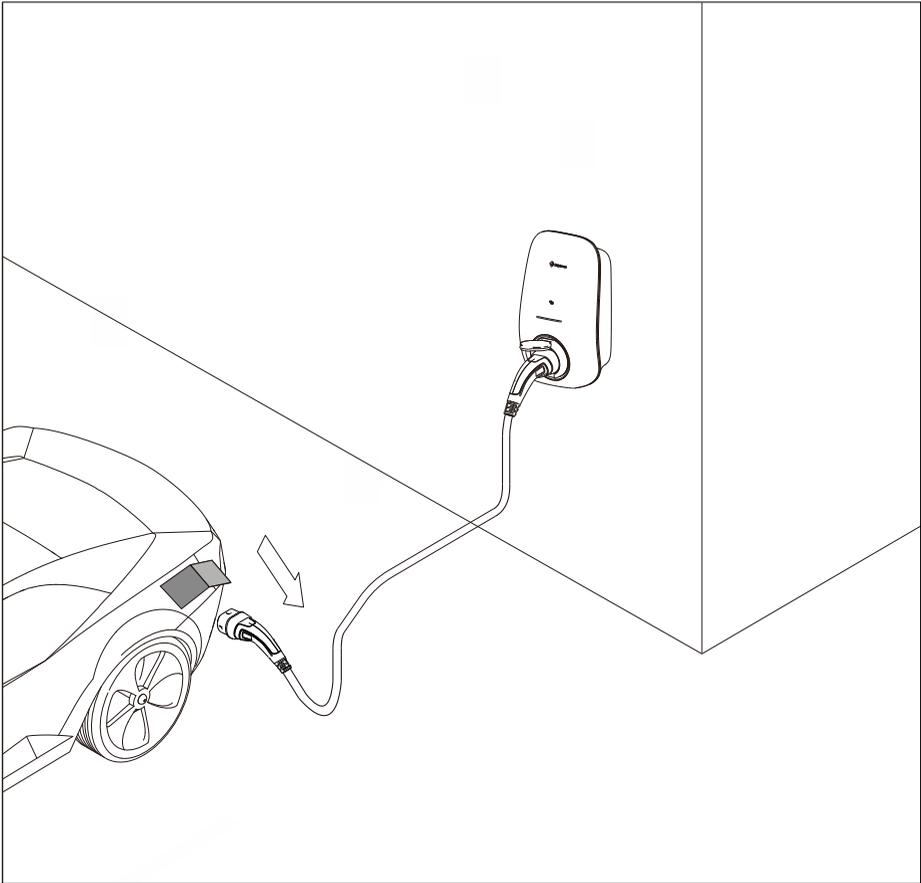


Figure 46

## 7 Cleaning and Maintenance

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Normally, the EV charger requires minimal maintenance with no need for calibration. It is good practice to regularly inspect the EV charger and the cables for visible damage. Disconnect the EV charger from all power sources before cleaning with a soft cloth.



### CAUTION

#### **Risk of injury due to hot enclosure!**

- The enclosure temperature may exceed 50 during operation. Do not come into contact with the EV charger during operation.
- Wait approx. 10 minutes before cleaning until the enclosure is cool enough to touch.
- Ground yourself before touching any component.

The charging cable must be regularly checked for any damage or deterioration.



Figure 47

## 8 Troubleshooting

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When the EV charger appears not to be operating as per this manual, we recommend the following troubleshooting steps. If an error occurs, the error messages are displayed by the LED strip blinking red. There will be "Event Messages" displayed in the Ai-charging app. The troubleshooting steps are as follows:

Sheet 12

<b>Red LED Status</b>	<b>Causes</b>	<b>Solution</b>
No light	No power or incorrect connection or EV charger fault or PEN is disconnected in TN-C system.	Please check if the circuit breaker is turned on and supply cables are connected securely and correctly.
Blinking - once	The EV charger detects a charging CP signal error.	Please contact the Solplanet service provider.
Blinking - twice	The EV charger detects a PEN fault.	Please contact the Solplanet service provider.
Blinking - 3 times	The EV charger detects that the supply voltage is too high.	Please check that the supply voltage is between 185 and 275V. If it is not within this range, please contact your local electricity supplier. If it is within this range, please contact the Solplanet service provider.
Blinking - 4 times	The EV charger detects that the supply voltage is too low.	Please check that the supply voltage is between 185 and 275V. If it is not within this range, please contact your local electricity supplier. If it is within this range, please

		contact the Solplanet service provider.
Blinking - 5 times	The EV charger detects over current.	Please contact the Solplanet service provider if it occurs frequently.
Blinking - 6 times	The EV charger detects that the leakage current is over the prescribed limit.	Please contact the Solplanet service provider.
Blinking - 7 times	The EV charger detects an RCD module fault.	Please contact the Solplanet service provider.
Blinking - 8 times	The EV charger detects a Phase loss fault.	Please contact the Solplanet service provider.
Blinking - 9 times	The EV charger detects a short circuit on the output terminal or a cable short.	Please contact the Solplanet service provider.
Blinking - 10 times	The EV charger detects an internal meter device fault.	Please contact the Solplanet service provider.
Blinking - 11 times	The EV charger detects a relay fault.	Please contact the Solplanet service provider.
Blinking - 12 times	The EV charger detects an overtemperature fault.	Please check whether the ambient temperature around the EV charger is too high or whether it is exposed to direct sunlight. Please stop charging for a few hours and wait for the temperature of

		the EV charger to cool down. Contact the Solplanet service provider if it occurs frequently.
Blinking - 13 times	The EV charger detects a low temperature fault.	Please check whether the ambient temperature around the EV charger is too low. Please stop charging for a few hours and wait for the temperature of the EV charger to heat up. Please contact the Solplanet service provider if it occurs frequently.
Blinking - 14 times	The EV charger detects an over-frequency fault.	Please check that the power supply frequency is between 49Hz and 61Hz. If it is not within this range, please contact your local electricity supplier. If it is within this range, please contact the Solplanet service provider.
Blinking - 15 times	The EV charger detects an under-frequency fault.	Please check that the power supply frequency is between 49Hz and 61Hz. If it is not within this range, please contact your local electricity supplier. If it is within this range, please contact the Solplanet service provider.
others	/	Please contact the Solplanet service provider.

## 9 Technical data

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### 9.1 Inputs and Outputs (AC)

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Sheet 13

<b>Parameter</b>	<b>SOL7.4H (1P)</b>	<b>SOL11H (3P)</b>	<b>SOL22H (3P)</b>
Rated active power	7.4kW	11kW	22kW
Rated AC input voltage	230V	400V	
AC power frequency	50/60Hz		
Standby power consumption	<5W		
Max. output current	32A	16A	32A
Max. output overcurrent protection	35.2A	17.6A	35.2A
Conductor cross-section, rigid or flexible	3x6mm <sup>2</sup>	5x6mm <sup>2</sup>	
Conductor cross-section, rigid	3x10mm <sup>2</sup>	5x10mm <sup>2</sup>	

## 9.2 General data

Sheet 14

General data	7.4kW / 11kW / 22kW	
	Cable Version	Socket Version
Communication	WIFI/BLE/RS-485/LAN <sup>1</sup>	
RFID/NFC Reader	●	
Status Indication	LED Light Strip	
Smart App	●	
Built-in 4G	○	
Degree of protection	IP65 (Enclosure)	
Operating Temperature	-25°C...+50°C	
Storage Temperature	-40°C...+70°C	
Relative Humidity	5%-95% Non-condensing	
Altitude	Up to 2000m	
Cooling Concept	Natural Convection	
Impact Protection Class	IK10	
Connector Type	Type 2 cable	Type 2 socket <sup>2, 3</sup>
UV Resistant	●	
Mounting	Wall	
Dimensions (W/H/D)	230/360/130mm	
Weight	6kg	2.5kg
Cable Holder	●	-
Cable Length	5m/7.5m	-
Color	● Morandi Blue / ● Black	

**Remark:**

● Standard features / ○ optional features / – not available

1) LAN is optional

2) Self-closing cover and built-in electronic lock is standard

3) Shutter for cover is optional

**Optional energy meter is needed or must be installed for solar charging function and Dynamic Load Balancing.**

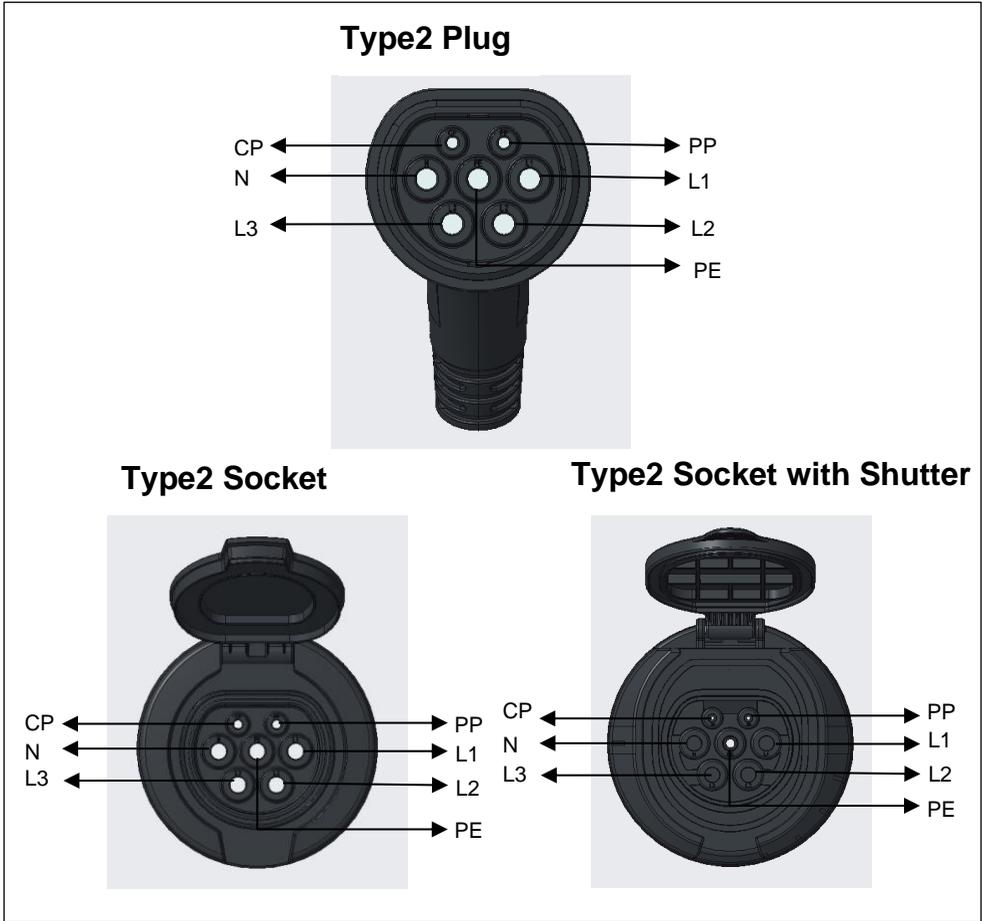


Figure 48



The Shutter version socket connector has a shutter on the conductor pins to prevent accidental contact. Shutter version is mandatory in France.

### 9.3 Safety regulations

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Sheet 15

<b>Protective devices</b>	<b>7.4kW / 11kW / 22kW</b>
Residual Current Detection	DC 6mA
DC Leakage Protection	•
Surge Protection (EN60664)	• (Type III)
Certification	CE, TUV/EN/IEC 61851-1
Overvoltage category	III(AC)
Over current	Integrated
Over/Under Voltage	
Ground fault	
Over temperature	

## 9.4 Wireless network specifications

Sheet 16

	Frequency Range	Maximum transmitted power
4G WCDMA band I	TX:1922.6 – 1977.4MHz RX:2112.6 – 2167.4MHz	316mW
4G WCDMA band VIII	TX:882.4 – 912.6MHz RX:927.4 – 957.6MHz	
4G LTE Band 1	TX:1922.5 – 1977.5MHz RX:2112.5 – 2167.5MHz	200mW
4G LTE Band 3	TX:1710.7 – 1784.3MHz RX:1805.7 – 1879.3MHz	
4G LTE Band 7	TX:2502.5 – 2567.5MHz RX:2622.5 – 2687.5MHz	
4G LTE Band 8	TX:880.7 – 914.3MHz RX:925.7 – 959.3MHz	
4G LTE Band 20	TX:834.5 – 859.5MHz RX:793.5 – 818.5MHz	
4G LTE Band 28	TX/RX:704.5 – 731.5MHz	
4G LTE Band 38	TX/RX:2572.5 – 2617.5MHz	
4G LTE Band 40	TX/RX:2302.5 – 2397.5MHz	
4G GSM 900	TX:880.2 – 914.8MHz RX:925.2 – 959.8MHz	1800mW
4G GSM 1800	TX:1710.2 – 1784.8MHz RX:1805.2 – 1879.8MHz	950mW
Wifi module	TX/RX:2412 – 2484MHz	90mW
BT module	TX/RX:2402 – 2480MHz	8mW
NFC module	TX/RX:13.56MHz	Receive Distance : 4cm

## 10 Recycling and disposal

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1. This device is used to charge electric vehicles and is subject to the EU directive 2012/19/EU on waste electrical and electronic equipment (WEEE).
2. Disposal must be according to national and regional Regulations for electrical and electronic equipment respectively.
3. Old devices and batteries must not be disposed of with household waste or bulky waste. Before the device being disposed of should it be rendered inoperable.
4. Dispose of the packaging material in the region's usual collection container for cardboard, paper, and plastics.



## 11 EU declaration of conformity

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Within the scope of the EU directives:

- Electromagnetic compatibility 2014/30/EU (L 96/79-106, March 29, 2014)(EMC)
- Low voltage directive 2014/35/EU (L 96/357-374, March 29, 2014)(LVD)
- Radio equipment directive 2014/53/EU (L 153/62-106, May 22, 2014)(RED)



AISWEI New Energy Technology (Yangzhong) Co., Ltd. confirms herewith that the EV chargers mentioned in this document are in compliance with the fundamental requirements and other relevant provisions of the above mentioned directives.

The entire EU Declaration of Conformity can be found at [www.solplanet.net](http://www.solplanet.net).

## 12 Contacts

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If you have any technical problems with our products, please contact our service.

Provide the following information when you initiate a service request:

- EV charger type
- EV charger serial number
- Error code (LED flash code / status)
- Mounting location
- Proof of purchase

### Service Contact:

Website: <https://solplanet.net/contact-us/>

You can submit your claims online by visiting website:

<https://solplanet.net/claims/>

You will receive a response within 24 hours.

AISWEI New Energy Technology (Yangzhong) Co., Ltd.

Add.: No.588 Gangxing Road, Yangzhong Jiangsu, China

Web: <https://solplanet.net>



