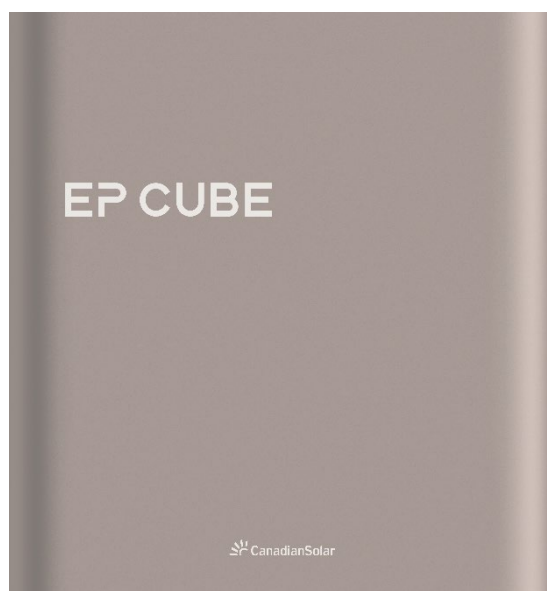




EP CUBE



Smart Gateway Installation Manual V1.2

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1. Safety Precautions

1.1 General Disclaimer

- The information in this manual is subject to change due to product updates or other reasons.
- This guide cannot replace the product labels or safety precautions in the installation manual unless otherwise specified.
- All descriptions in the manual are for guidance only. Before installation, read the Quick Installation Manual. For additional information, please refer to the installation manual.
- The installer must register with the EP Cube University and first take the installer training (mandatory), to receive the installer account for installing the EP Cube and to have access in the app to get it up and run.
- Verify that the delivered cables are correct, that the content is complete, and that the appearance is intact. Please contact after-sales service in case of any damage or missing components.
- Use insulation tools and wear personal protective equipment (PPE) when operating the equipment to ensure personal safety. Wear anti-static gloves, clothes, and wrist straps when touching electronic devices to protect equipment from damage. The manufacturer will not be liable for damage caused by static electricity.
- Strictly follow the installation, operation, and configuration instructions in this guide and related installation manual. The manufacturer shall not be liable for equipment damage or personal injury if you do not follow the instructions. For more warranty details, please visit: <https://epcube.com/en-UK/support/warranty>

1.2 Safety Disclaimer

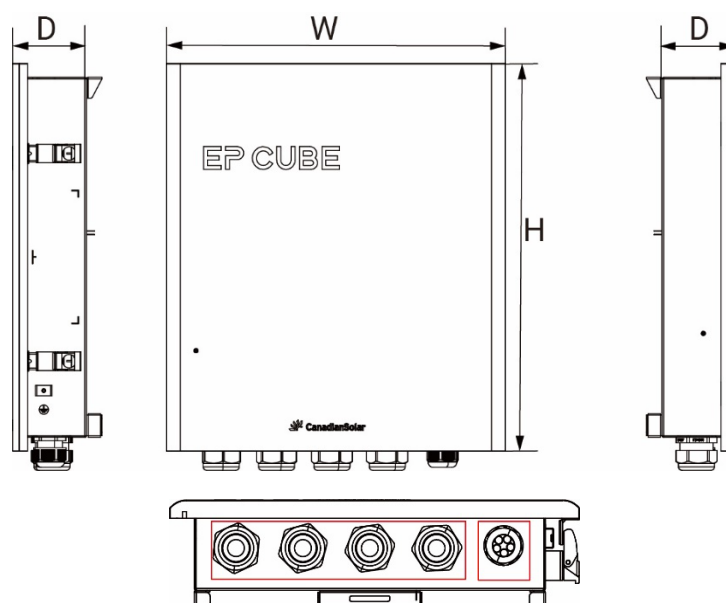
Please keep the power off before any operations to avoid danger. Strictly follow all safety precautions outlined in this manual and safety labels on the equipment during the operation.

2. EP Cube Smart Gateway Introduction

The Smart Gateway (SG) serves as an intelligent communication and control hub within the residential energy storage system. It enables the backup power function, allowing the system to automatically switch to backup mode during a grid outage and supply power to essential loads.

Additionally, the Smart Gateway provides interfaces for smart device integration, such as heat pump control or smart load management, enabling users to optimize energy usage according to system status or electricity pricing.

Through the Smart Gateway, the system ensures safer operation, coordinated control, and expanded compatibility with external devices. The Smart Gateway (SG) works with a nominal voltage of 400 Volt, supporting TN-S/TT/TN-C-S earthing systems.



W	H	D	Weight
490mm	590mm	130mm	18kg

No.	Name	Description
1	SG Power Port	Connect to Grid, PCS, Load
2	SG Com Port	Connect to PCS for communication

3. EP Cube Back Up Mode

Smart Gateway enables the back-up operation mode function for EP Cube.

During this mode, energy stored by the battery modules is reserved for backup only, and batteries get discharged only in case of grid blackout or other power failures.

This mode also offers the user the chance to set a threshold value for Reserve SOC in order to use stored energy for emergency/backup use only.

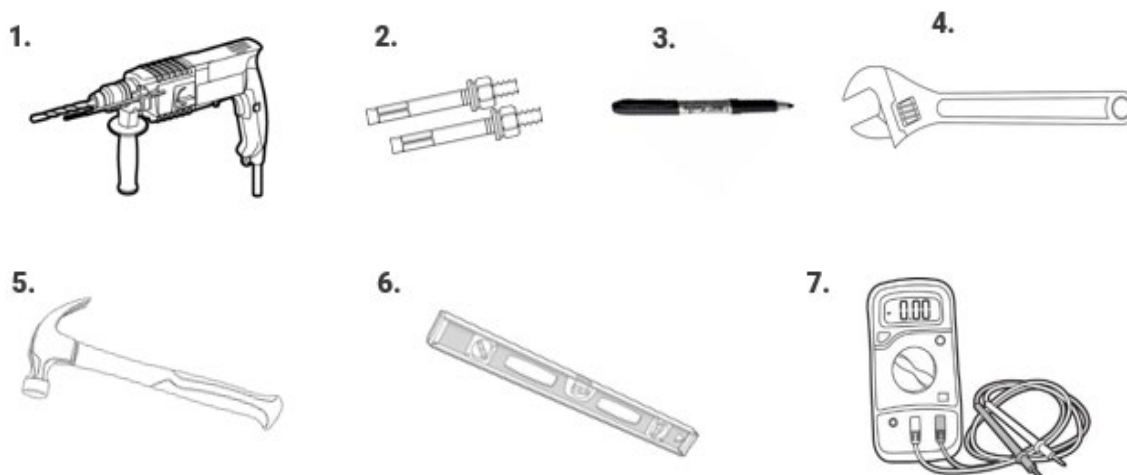
NOTE:

- During off-grid operation, only 24kW (2 12kW units in parallel) loads could keep operating. If the operating loads are larger than inverter ability, the system will enter overcurrent state and shutdown.
 - During off-grid operation, the battery SOC can only be discharged to 15%. Hence, the value set by the user can't be lower than 15%, otherwise it can't enter the backup mode.
-
- PV Power Usage Priority: Battery > Load > Grid
 - Load Energy Source Priority: Grid > PV > Battery
 - Battery Charging Source: PV > Grid

4. Preparation for Smart Gateway Installation

• Tools

Before beginning the installation, ensure you have the following tools and materials ready.



No.	Tool	Specs/Quantity
1	Drilling Machine	With Drill bits
2	Anchor Bolts	As required, $\Phi 5.5 \times 60$, 4 PCS
3	Marking Pen	1 PCS
4	Wrench	1 PCS
5	Hammer	1 PCS
6	Spirit Level	1 PCS
7	Digital Multi-meter	1 PCS

• Wires

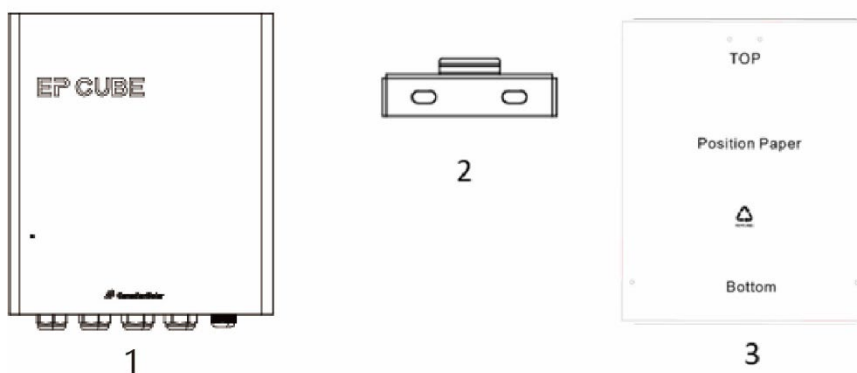
Wires	Descriptions	Specifications
PCS Communication Cable	CAT5E outdoor shielded cable	Cross-sectional area: 26~24AWG Outer diameter: 4~8mm
Heat Pump Cable	2-core outdoor shielded twisted pair cable	Cross-sectional area: 0.2~1.5mm ² Outer diameter: 4~8mm
Inverter Input Cable	5-core(L1/L2/L3/N/PE)	Cross-sectional area: 4~6mm ²

Wires	Descriptions	Specifications
Inverter Input Cable	outdoor copper cable	Outer diameter: 10~32mm
Grid Input Cable	5-core (L1/L2/L3/N/PE) outdoor copper cable	Cross-sectional area: 4~16mm ² Outer diameter: 10~32mm
Backup Load Cable	5-core (L1/L2/L3/N/PE) outdoor copper cable	Cross-sectional area: 4~16mm ² Outer diameter: 10~32mm
PE Cable	Single-core outdoor copper cable	Cross-sectional area: 16mm ²

5. Installation of the Smart Gateway

This section introduces the Smart Gateway installation and wiring process in sequence.

5.1 Packing list



No.	Tool	Specs/Quantity
1	Smart Gateway	1 PCS
2	Bracket	1 PCS
3	Position Paper	1 PCS

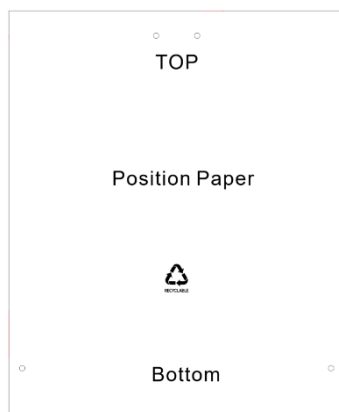
NOTE:

- Please prepare 4 anchor bolts to assist with installation on the wall.
- The recommended size is $\Phi 5.5 \times 60$.

5.2 Start Installation

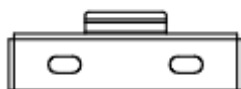
Step 1: Locating the mounting holes.

Mark the drill positions for the holes on the installation area by using position paper and pen. Place the position paper on the wall, choose and mark the appropriate hole positions.

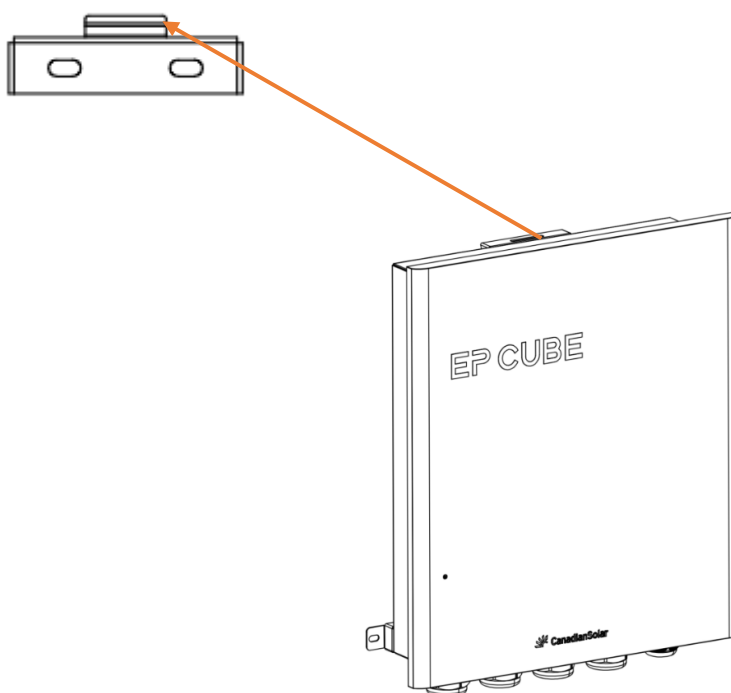


Step 2: install the bracket with 2 screws, fasten it on the wall.

NOTE: Place the level tool on the bracket to measure its level and tighten the nuts.

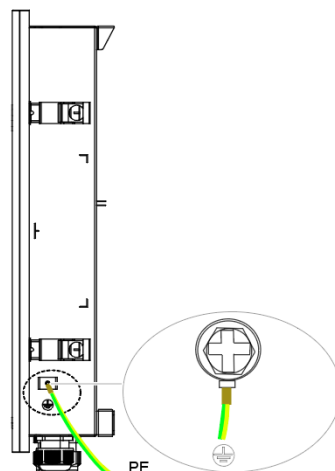


Step 3: Hang the SG on the bracket, then tighten the screws on the left and right side.



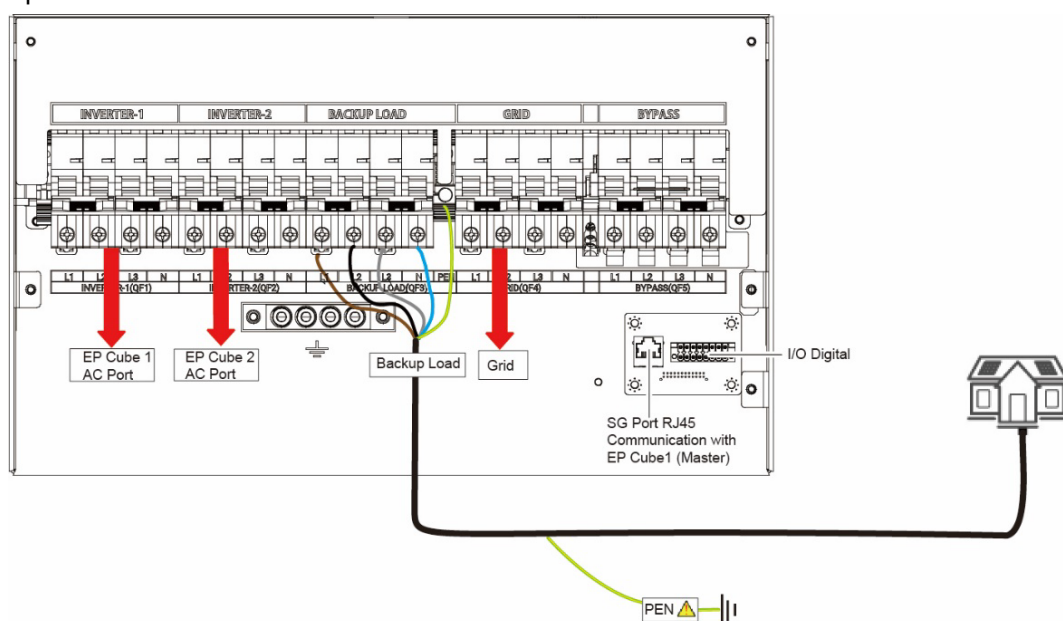
5.3 EP Cube Smart Gateway Wiring

NOTE: Ensure that the smart gateway is correctly connected to the main earth of the building and that the casing of the SG itself is also correctly connected as shown below:



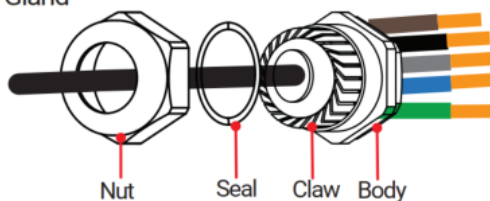
⚠ CAUTION:

- Please ensure all circuit breakers are turned off and PPE is properly worn before getting started. Please also ensure that the main breaker of the Grid is turned off and protected with Lockout/Tagout.
- The PEN cable (marked with ⚠ in the picture below) must be connected to the PE bar of the main panel.



NOTE: For the power wire, we suggest to use 5-core 4 ~ 6 mm² to connect PCS, Backup load and Grid.

Cable Gland

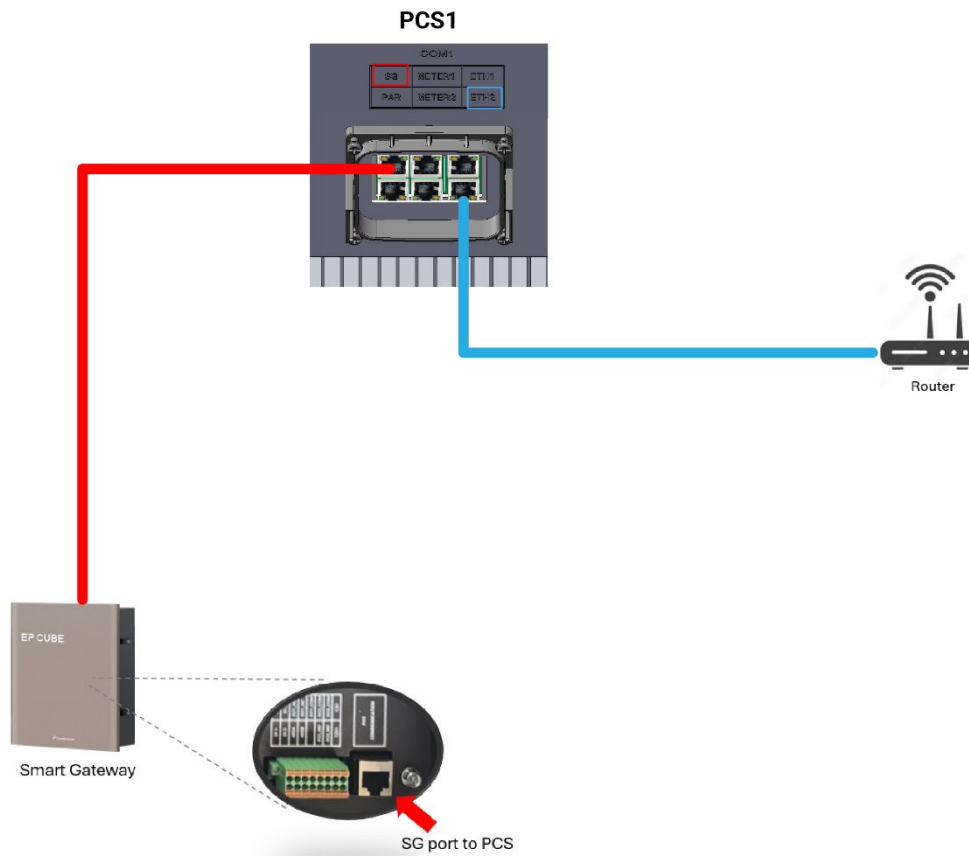


For the I/O Digital ports:

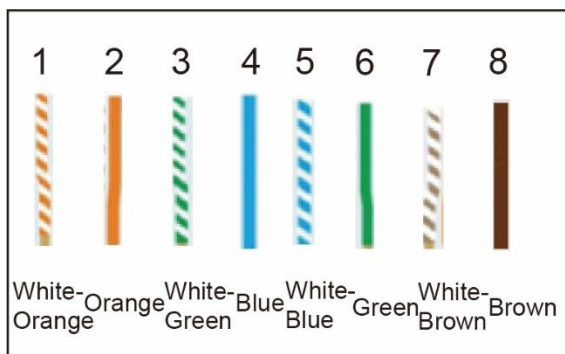
Interface Description	Definition	Function	Description
DI1(Digital input 1)	DI+	Digital input 1+	Universal DI interfaces (e.g. Supporting FNN box input signal).
	DI-	Digital input 1-	
DI2(Digital input2)	DI+	Digital input 2+	
	DI-	Digital input 2-	
DO2(Dry Contact 2)	DO1_NO	Digital output 2-Normal Open	Universal digital output interface, DO2 and DO3 can connect to smart load such as heat pump.
	DO1_COM	Digital output 2-Normal Common	
DO3(Dry Contact 3)	DO1_NO	Digital output 3-Normal Open	
	DO1_COM	Digital output 3-Normal Common	
12V AUX PWR (Auxiliary Power)	12V+	Auxiliary power supply+	Isolated auxiliary power supply output can provide power for external sensors, low-power devices, etc.12V,1A.
	12V-	Auxiliary power supply-	

NOTE: DO2 and DO3 are only compatible with SG ready heat pump.

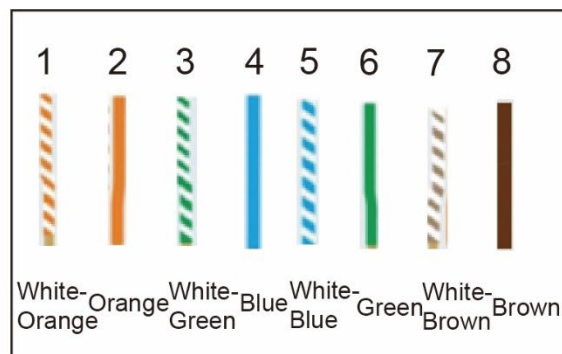
COMM Connection between PCS and SG



The cables from SG port to PCS are connected as below:

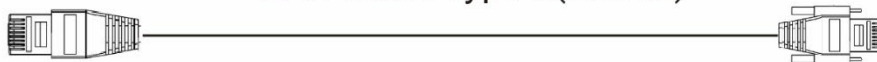


T568B (Type B)



T568B (Type B)

LAN Cable Type B(CAT5E)



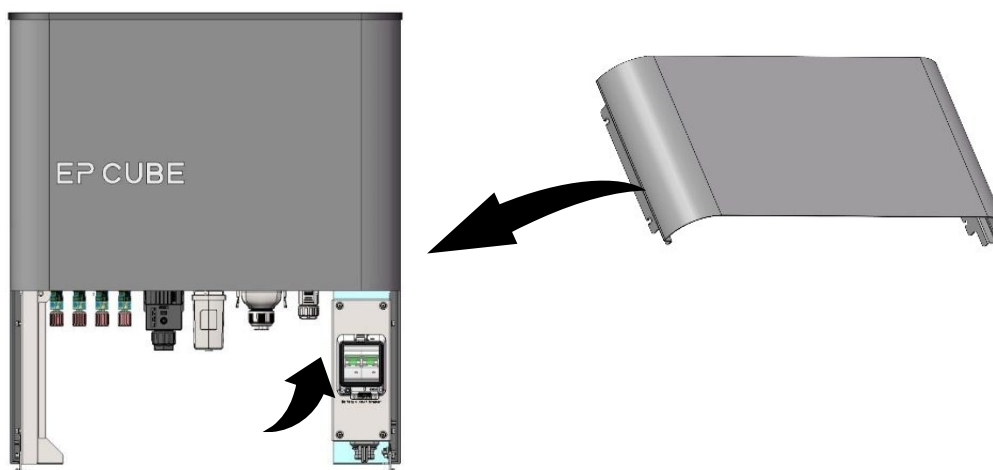
NO.	Port
1	PCS_SGND
2	PWMA PCS
3	+ PCS_15V
4	CANL2
5	CANH2
6	I/O PCS
7	CANL1
8	CANH1

6. EP Cube Start Up

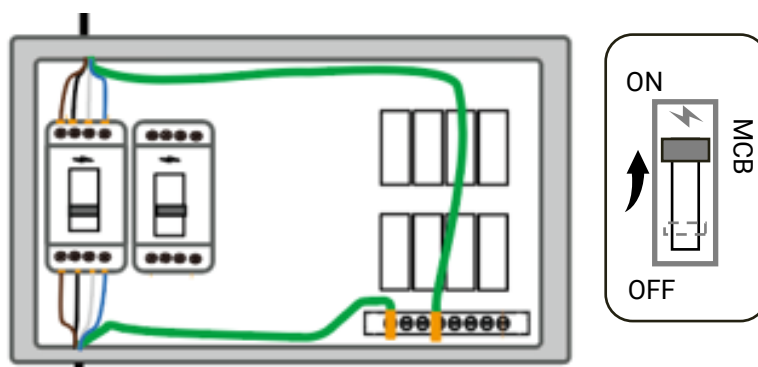
CAUTION:

- Please ensure PPE is properly worn before getting started.
- EP Cube commissioning requires EP Cube PCS to have AC Power. It must be ensured that Grid MCB is at “on” state, but do not press the power on/off button on the left side of the EP Cube PCS.

Step 1: Turn on the battery breaker of the PCS.



Step 2: Turn on the Grid MCB inside the Main Home Electrical panel.



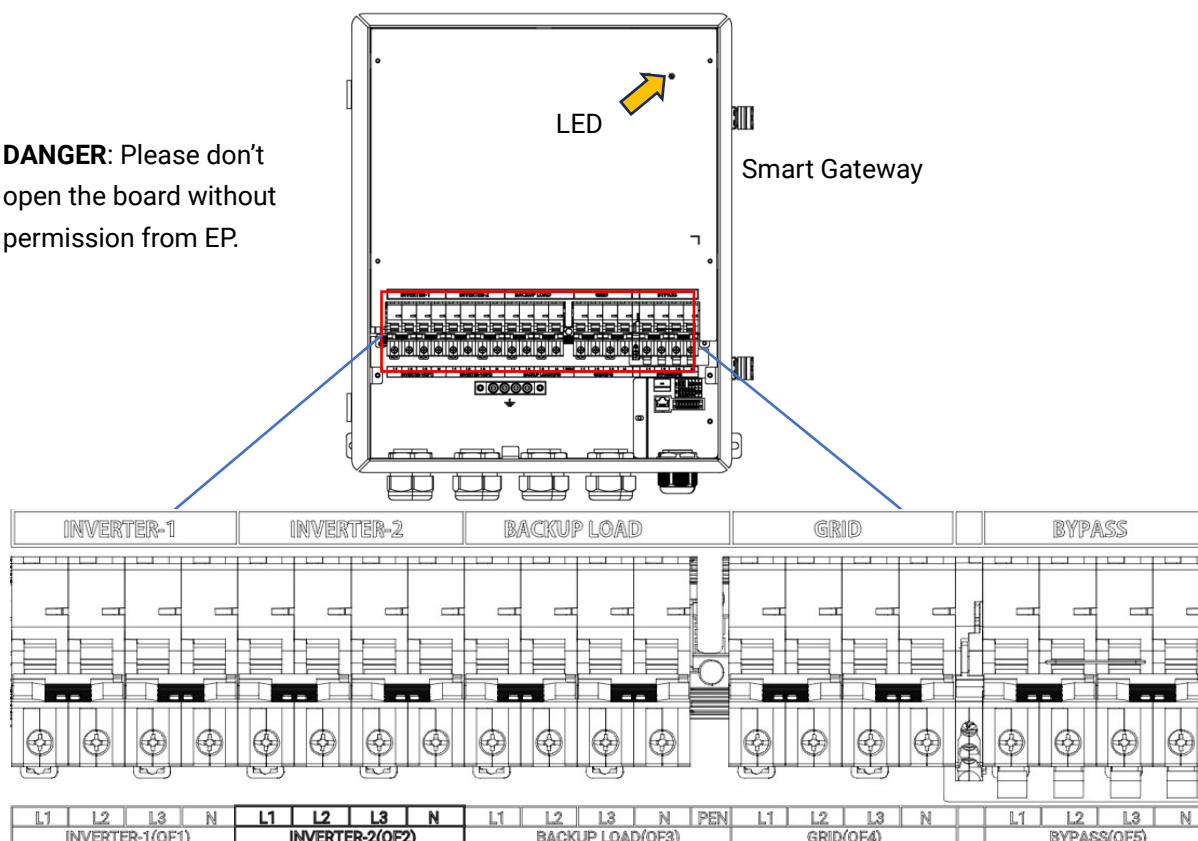
Step 3: Turn on the MCBs (QF1, QF3, QF4) inside the SG. If you connect 2 EP Cube, please also turn on QF2. Ensure that the Bypass MCB is turned off, locked out & tagged out.

LED Colour	Description
Green	On grid mode
Yellow	Off grid mode
Red	Fault state

Normally, the LED in Smart Gateway will turn green, if in yellow, please wait several minutes to let the led turn green, if in red, please contact with aftersales team to check the status.

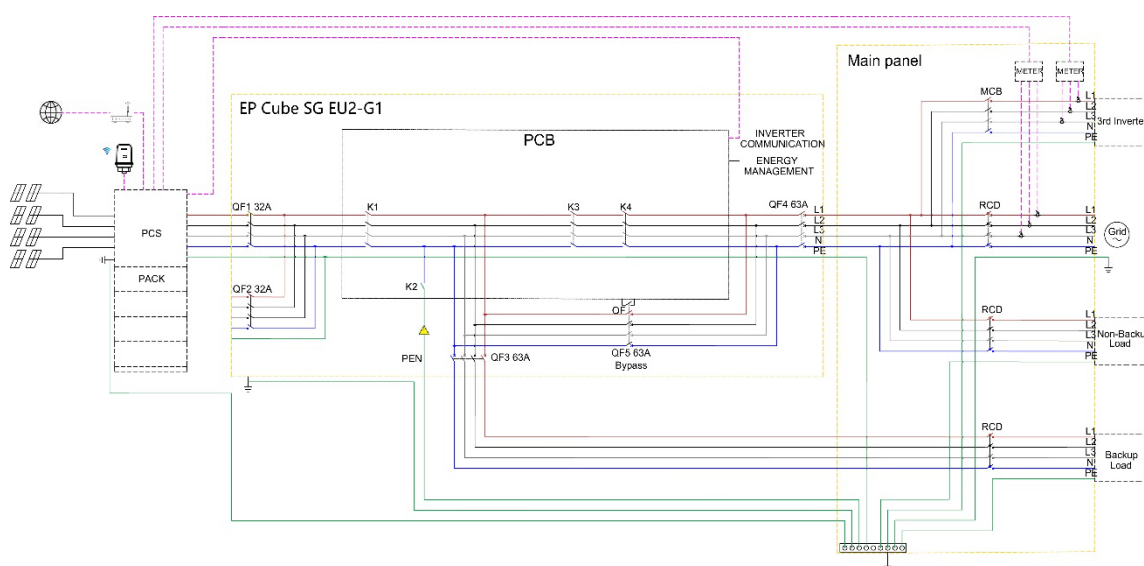
The LED lights on the WI-FI module will turn on upon completion of start-up steps.

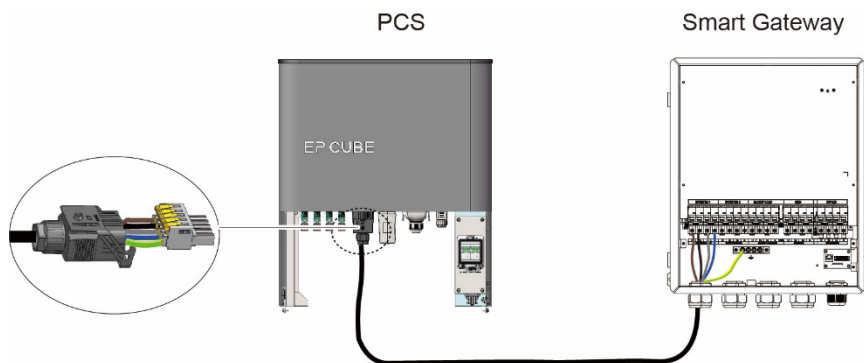
⚠ DANGER: Please don't open the board without permission from EP.



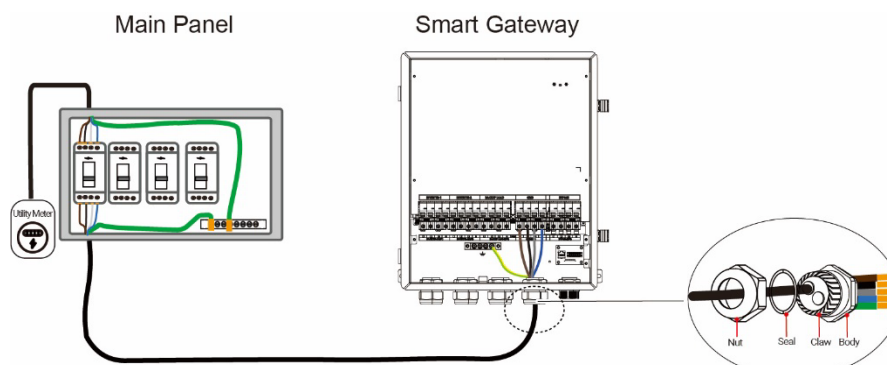
NOTE: If you need to bypass the backup loads to grid, QF1(inv1 breaker) and QF2(inv2 breaker) must be switched off before closing the QF4(bypass breaker).

⚠ WARNING: This procedure prevents possible short circuit.





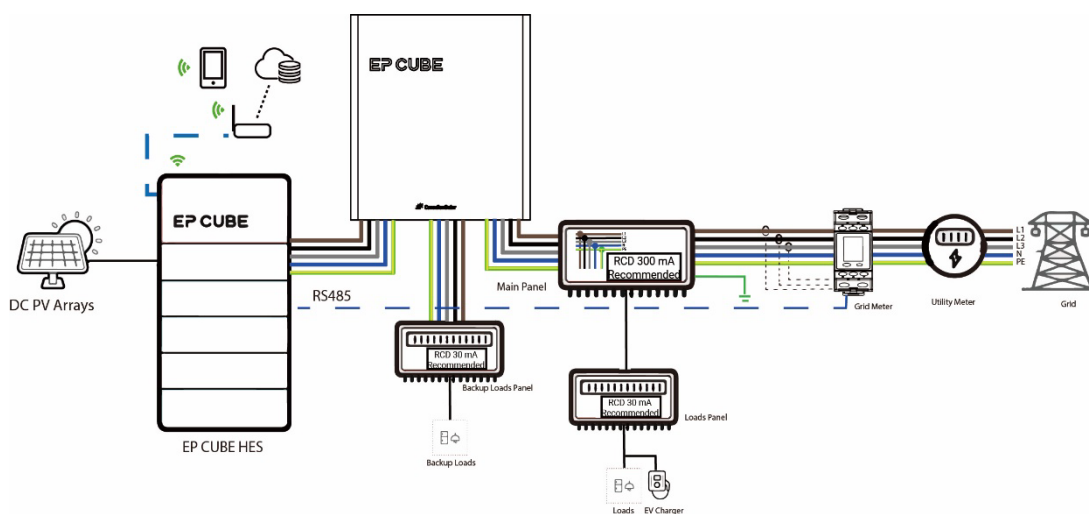
Smart Gateway and PCS Wiring



Smart Gateway and Main Panel Wiring

7. EP Cube Topology with Smart Gateway

The diagrams below show the EP Cube Three Phase System Topology with SG.

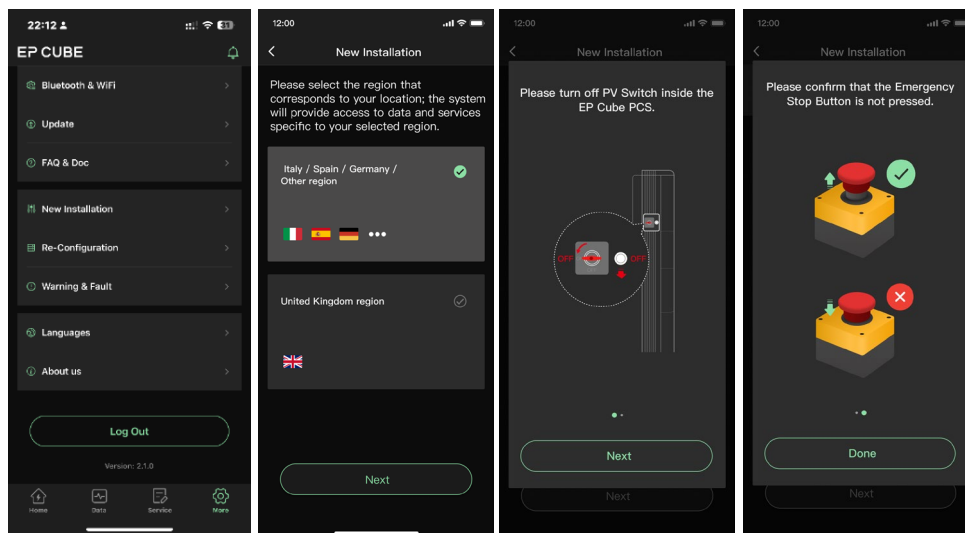


NOTE: The Smart Gateway is an optional component. If a homeowner chooses not to install it, then EP Cube can only support the on-grid function. In this scenario, the back-up port will not be connected.

8. Commissioning

Step 1: Download and Install the EP CUBE app to commission and remotely monitor the EP Cube.

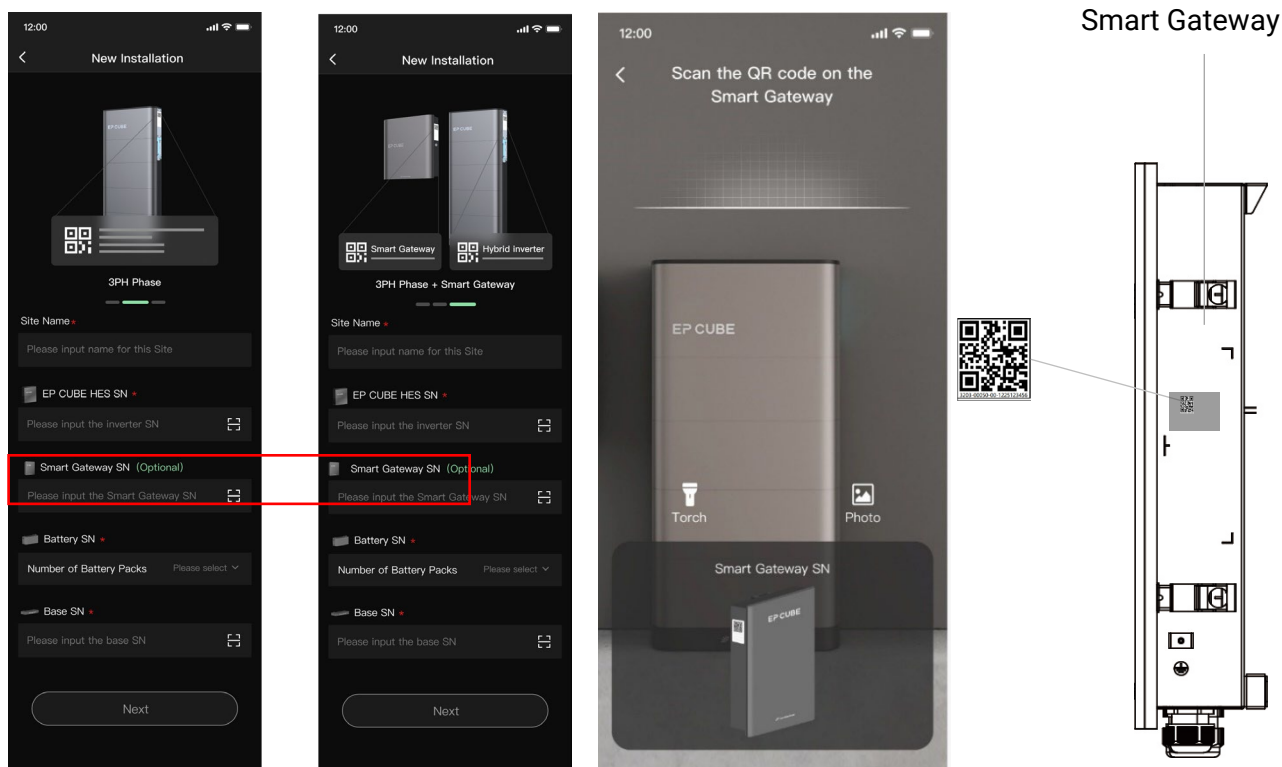
Step 2: Follow the step-by-step process till the end to complete the system configuration.



Step 3: Carefully add all the EP Cube devices installed by using either QR Codes on the labels or by manually inputting the serial numbers of the devices.

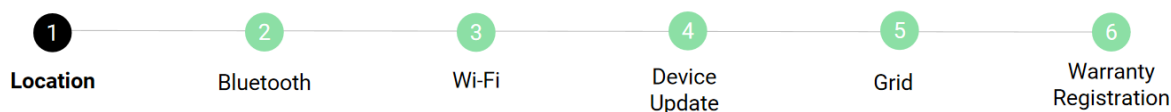
NOTE: Please refer to the *EP Cube_Installation Manual_3PH_EU_English* for more details.

Step 4: After SG installation is completed, the SN code of Smart Gateway should be scanned or manually input to complete the step.



Step 5: The follow steps are present in the standard wizard.

Location, Bluetooth, Wi-Fi, Device Update, Grid (country standards), and Warranty Registration to complete the commissioning procedure.



NOTE: For additional information regarding the SG communication cable, please refer to the *SG Technical Note*. You can contact our team for any further questions.

9. Contact Us

Eternalplanet Energy Co. Ltd

- Hotline (Italy): +39 347 54 62 350 (support in English and Italian)
- Hotline (Germany): +49 89 519 9689 6506 (support in English and German)
- Hotline (Spain and Portugal): +49 89 519 9689 2529 (support in English and Spanish)
- Hotline (UK and South Africa): +49 89 519 9689 2530 (support in English)

- Email: service.it@epcube.com (For Italy only)
- Email: service.de@epcube.com (For Germany only)
- Email: service.es@epcube.com (For Spain only)
- Email: service.pt@epcube.com (For Portugal only)
- Email: service.uk@epcube.com (For UK only)
- Email: service.sa@epcube.com (For South Africa only)