EP CUBE 2.0

Installation Manual V1.3



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Revision History

S. No	Rev.	Update Description	Release Date	Author
1	V 1.0	Initial Draft	Sept-19-2025	Aaron
2	V1.1	• 2.2 Component Dimensions has been added.(Page 8) • The pictures of HMI and RTU have been updated.(Page 9/39/64) • Installation and wiring of HMI have been updated. (Page 39) • Knockout at the top of the Smart Gateway in 4.EP CUBE WIRING has been updated. (Page 37/46) • Images of ABB breaker preinstalled in the Smart Gateway have been updated. (Page 44/49/51/52/54) • The Wiring Connection of Grid in 4.2 For Whole Home Back up Configuration has been updated. (Page 51) • B. Communication Wiring for Additional Hybrid in 5.EXPANSION OF EP CUBE has been updated.(Page 67) • E. Commissioning via EP CUBE app in 6.EP CUBE COMMISSIONING has been updated.(Page 75) • AWG Wire Gauge in APPENDIX has been updated.(Page 91)	Mar-19-2026	Jane
3	V1.2	• 2.3 Optional Accessories updated with a note.(Page 9) • Image of Partial-Home Backup scenario updated.(Page 11) • Wall mounted : Install Wall-mount Kit and Base updated.(Page 23) • Anchoring details when mounting EP Cube 2.0 to the provided mounting bracket have been added.(Page 29/30/31) • All wire gauges have been updated in EP Cube Wiring. (Page 45/49/53/54/55/59/58/69) • ABB breaker is modified as Main breaker. • Description Extend Port 1& 2 updated.(Page 60) • Recommended Wire Gauges updated.(Page 94)	May-15-2026	Jane

S. No	Rev.	Update Description	Release Date	Author
4	V 1.3	• The SAP code of Wi-Fi dongle has been updated.(Page10) • Wall-mount Kit and Base in 3.3 Installation of Hybrid have been updated.(Page 24) • Wiring From the Hybrid to Smart Gateway in 4.1 Start Wiring & Connections updated.(Page 50/51) • Third Hybrid to Smart Gateway Wiring has been added in 5.EXPANSION OF EP CUBE.(Page 74/75) • A note of Smart Gateway in 6.EP CUBE COMMISSIONING has been added.(Page 83) • 8.Maintenance has been updated.(Page 97)	Aug-14-2026	Jane

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1.INTRODUCTION

This manual describes the installation process and provides a set of guidelines for EP Cube system installers. Please thoroughly read this manual before installation and follow the instructions during the entire installation process. If you have any further queries regarding the product, please contact the EP Cube service team. For more information about the EP Cube products, please refer to the product-specific User Manual and Data Sheet. The safety warnings found in the above-mentioned documents also apply to this manual.

This manual is only valid for the EP Cube US series.

⚠**WARNING:** EP Cube products can only be installed, repaired, replaced and maintained by the EP authorized personnel for safety and warranty purposes.

1.1 Warranty Registration

PRODUCT WARRANTY REGISTRATION IS A VERY IMPORTANT PART OF INSTALLATION. BE SURE TO COMPLETE THE COMMISSIONING PROCESS AND WARRANTY REGISTRATION.

For the detailed warranty policy, please refer to EP Cube LIMITED WARRANTY.

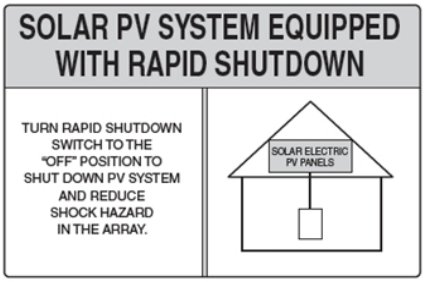
Document link: https://www.epcube.com/en-US/support/document

Login to the EP CUBE App to register and ensure system owner information is accurate to complete warranty registration.

1.2 Disclaimer

This document has gone thru rigorous technical review before being published to provide accurate information. However, EP believes in striving for continuous improvement of our products and specifications may change without prior notice. Thus, it will be revised regularly and any modifications and amendments will be included in subsequent issues. The illustrations and images in this manual are for demonstration purposes only. The responsibility of a safe and quality installation is of the qualified and licensed installation professional. Actual product details may vary in appearance on the installation site.

⚠**WARNING:** THIS PHOTOVOLTAIC RAPID SHUTDOWN SYSTEM (PVRSS) INCORPORATES ONE OR MORE PIECES OF EQUIPMENT THAT EXERCISE THE RAPID SHUTDOWN CONTROL OF PV SYSTEM CONDUCTORS REQUIRED BY SECTION 690.12 OF THE NEC (NFPA 70). OTHER EQUIPMENT INSTALLED IN OR ON THIS PV SYSTEM MAY ADVERSELY AFFECT THE OPERATION OF THIS PVRSS. IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT THE COMPLETED PV SYSTEM MEETS THE APPLICABLE RAPID SHUT DOWN FUNCTIONAL REQUIREMENTS. THIS EQUIPMENT MUST BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.



1.3 Copyright

All rights reserved. The disclosure, duplication, distribution, and editing of this document, or utilization and communication of the content are not permitted unless authorized in writing. All rights, including rights created by patent grant or registration of a utility model or a design, are reserved.

1.4 Abbreviated Terms

ABBR	Description
A	Ampere
AC	Alternating Current
CT	Current Transducer
COMM	Commissioning
DC	Direct Current
EV	Electric Vehicle
kW	Kilowatt
L (L1 L2)	Phase (1,2)
LED	Light-emitting Diode
LRA	Locked Rotor Amps
N	Neutral
RSD	Rapid Shutdown Device
PN	Part Number
PV	Photovoltaic
V	Voltage

1.5 Customer Services Contact

Contact EP via email below:

Email address: service.us@epcube.com

2.THE EP CUBE SYSTEM

2.1 Standard Components

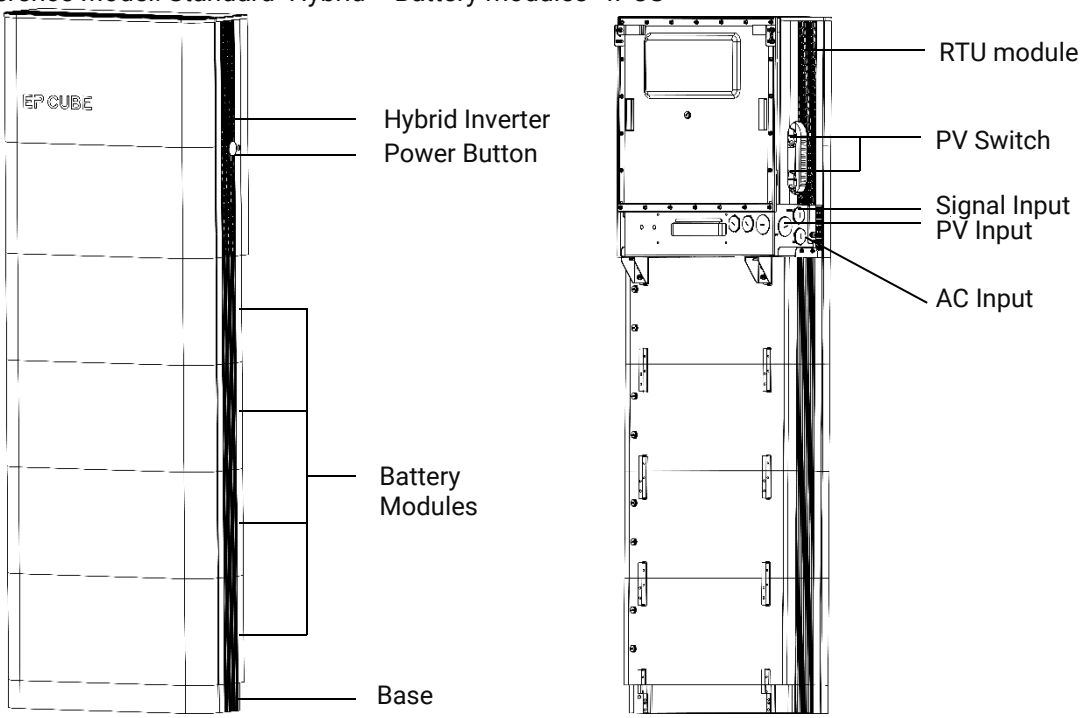
A. Hybrid

Hybrid is an integrated battery storage product that includes both Battery Modules and Hybrid Inverter. (Refer to US Specification for more details)

For multi-hybrids system, the number of battery modules in each hybrid must remain the same.

For example, in a two-hybrid system, if hybrid#1 has five batteries, hybrid#2 must also have five batteries.

Reference Model: Standard Hybrid + Battery modules*4PCS

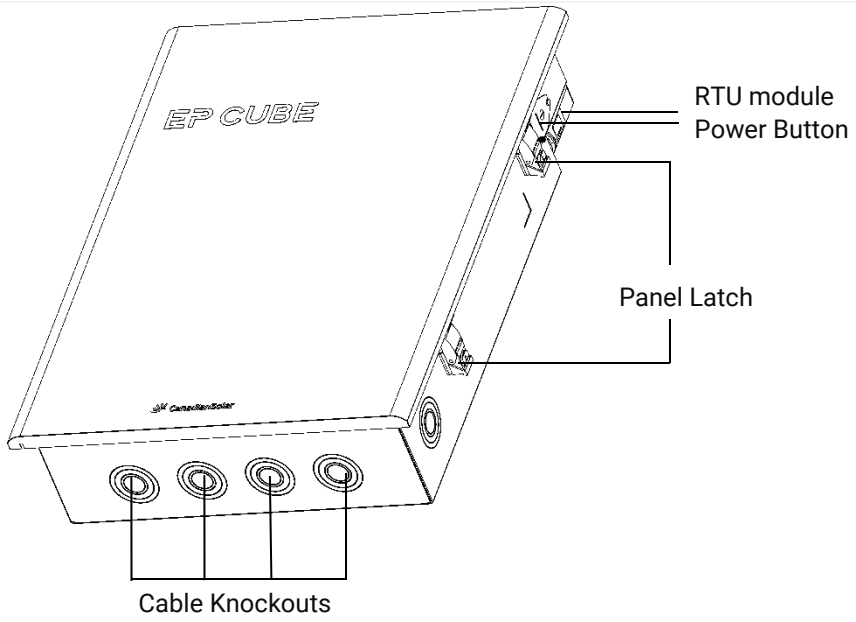


B. Smart Gateway

The Smart gateway works for home power generation and consumption management by connecting with the utility grid, PV Inverter, EP Cube Hybrid, and home appliances. (Ref. to US Specification for more details)

The EP CUBE 2.0 doesn't come with breakers and the installer need to prepare for it. Acceptable Circuit Breakers requirements as below:

Transformer Supply Current	Main Breaker	Branch Breaker
10kA	None Main Breaker A2A 250 TMF 200 Eaton BW2200	Eaton BR and compatible breakers Siemens QP
25kA	Eaton CSR2200N	Eaton BR



2.2 Component Dimensions

Dimensions and Weight

NO.	Component	Dimensions(inch)	Weight(lbs.)
1	EP Cube PCS	23.62"×23.62"×8.66"	94.8
2	Battery Module	23.62"×10.53"×7.89"	94.8
3	Base	23.62"×2.76"×7.89"	5.51
4	Long Base	53.15"×3.58"×7.89"	22.05
5	Long Base Top Cover	23.62"×3.98"×7.89"	5.29
6	Smart Gateway	20.87"×28.35"×6.69"	<55.12
7	Floor Mount Bracket(Base)	21.65"×3.27"×1.57"	1.65
8	Floor Mount Bracket(Long Base)	21.65"×3.27"×3.03"	2.43
9	Wall Mount Bracket	20.35"×11.77"×9.29"	8.16

NOTE: Smart Gateway has 2 models: SGNA2-200G1 and SGNA2-200G2. SGNA2-200G2 has one more Main Breaker circuit breaker and less than 55.12 lbs.

2.3 Optional Accessories

SAP Code	CSI SAP Code	SAP Product Description	Description	Figure
1003-00004-00	85000659	2nd Generation Smart gateway	Smart gateway, with paralled busbar*1, with extend port*2	
1003-00014-00	85000690	2nd Generation Smart gateway	Smart gateway, with paralled busbar*1, with extend port*2,with main breaker	
1004-00009-00	85000800	Long Base Kit	Long battery base for 5-8 battery stacks. Standard with top cover. Support ground leveling.	
1005-00044-00	85000801	Current transformer	100A, for 3rd party AC inverter. Suitable for AC Coupled EP Cube Lite 2.0. Standard with 20cm network cable	
1005-00045-00	85000802	Current transformer	200A, for Grid or non-backup port. Suitable for EP Cube Lite 2.0 or EP Cube 2.0 partial home backup. Standard with 10cm network cable	
3504-00011-00	85000820	Wi-Fi+4G dongle	4G version communication module. With Wi-Fi, Bluetooth, and 4G function.	
3504-00012-00	85000840	Wi-Fi dongle	Wi-Fi version communication module. With Wi-Fi and Bluetooth function.	
1005-00032-00	85000695	Wall-mount Kit	L' type wall mount kit, compatible with all EP Cube 2.0 system. For wall-mounted installation.	
1005-00039-00	85000696	HMI	7-inch, silver colar HMI controller	
1005-00050-00	85000821	Generator Adapter V1	EP Self-developed V1 Generator Adapter for small/portable generator, for emergency charging and driving loads. Using Mppts to charge.	
1005-00051-00	85000822	Generator Adapter V2	EP Self-developed V2 Generator Adapter for big/standby generator, using Mppts to charge, bypass for Smart gateway extend port.	

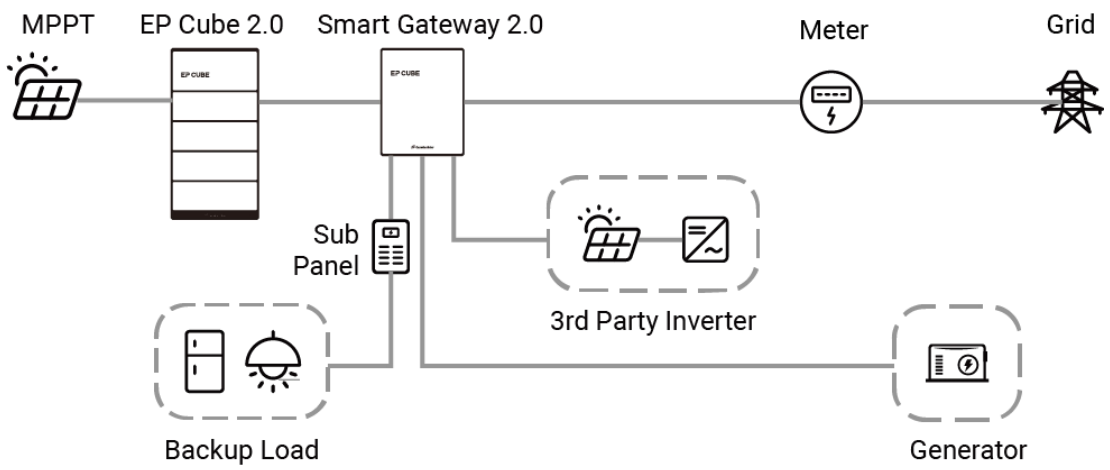
NOTE: Current transformers (CTs) that may be required must be ordered separately.

The EP Cube system consists of two standard components: the Hybrid and Smart Gateway. In addition to these components, users have a wide range of optional accessories available to choose from according to site and customer-specific needs.

2.4 System Scenarios

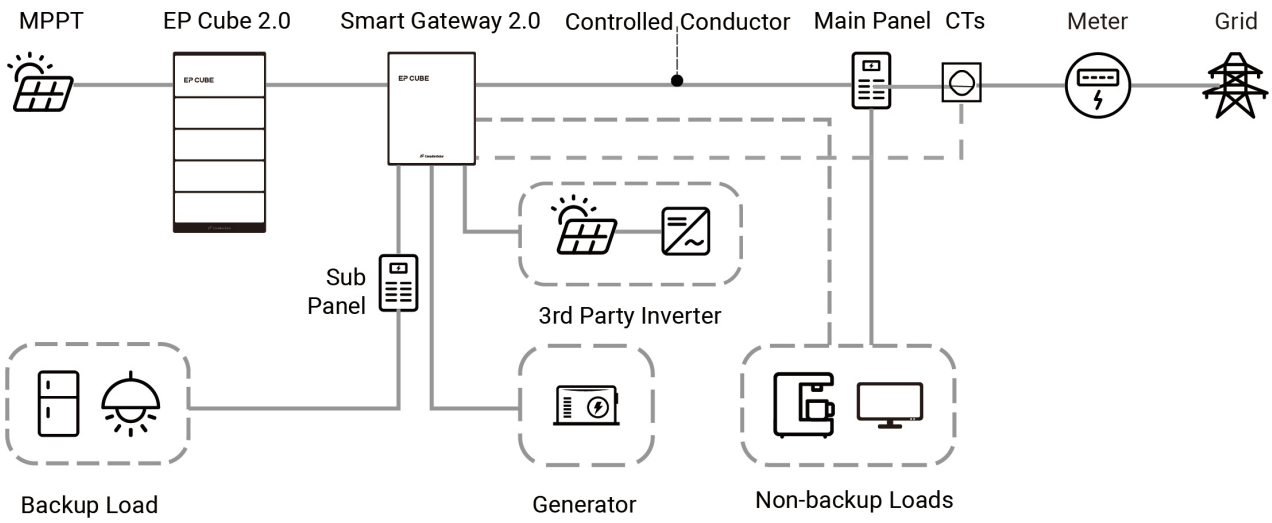
A. Whole-Home Backup

All home appliances can be powered by the EP Cube when a grid power outage occurs in the whole-home backup topology. With a whole home backup installation, the Smart gateway is installed between the meter with service panel and main load panel.



B. Partial-Home Backup

In this type of system layout, the EP Cube manages and optimizes the power supply for part of the property owner's loads. Only the backup loads will be powered when a grid power outage occurs in partial- home backup topology.



3.EP CUBE INSTALLATION

A single hybrid can manage up to 8 battery modules (40kwh) when floor mounted with an extended base or up to 4 batteries with a standard base on the floor.

For wall mounted installations up to 4 batteries can be stacked on a standard base with the optional wall mounting bracket.

3.1 Site Survey

Generally, the EP Cube gateway should be located as close to the meter as possible but 3’ from a gas meter and not below a drainage downspout. The Hybrid should be mounted as close to the gateway as possible but at least 3’ from doors or windows.

⚠ **CAUTION**:

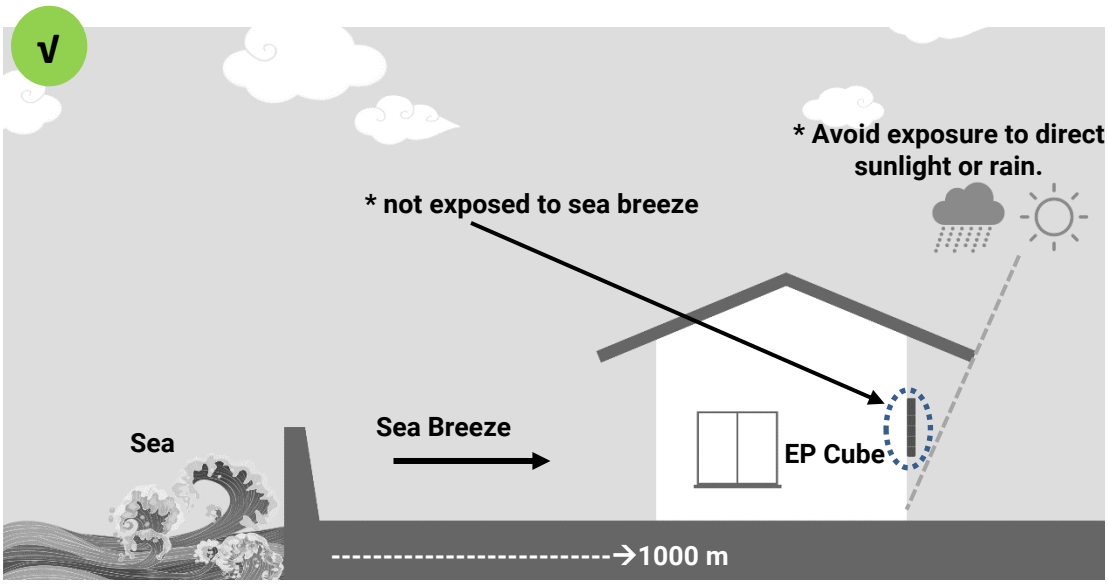
For EP Cube installation on exterior walls or near the openings (doors, windows), please refer to applicable local codes and UL 9540 23.2.

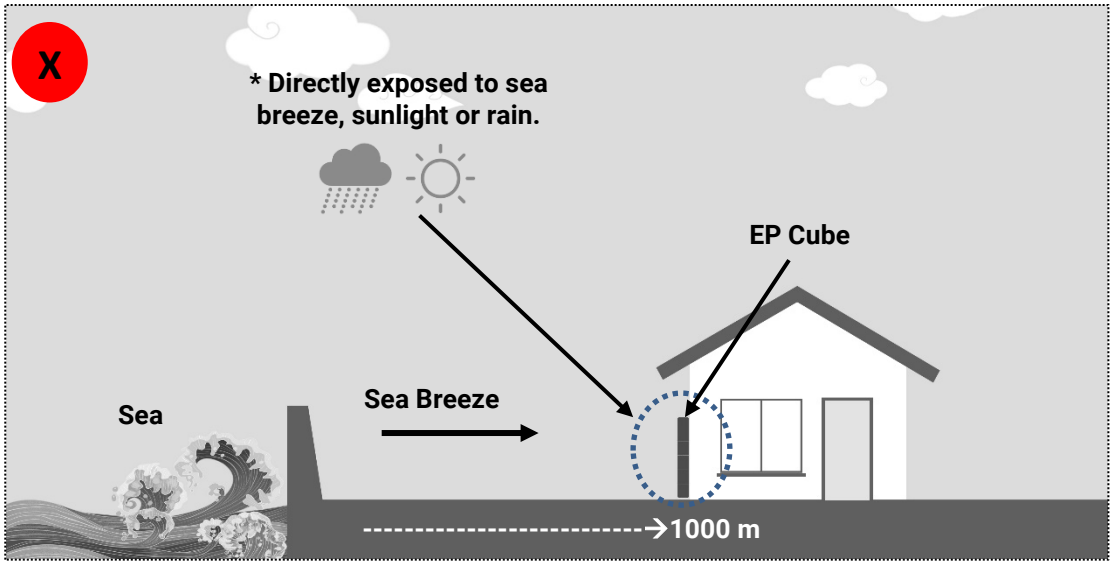
For EP Cube indoor installation, please refer to applicable local codes and UL 9540 42.6.

NOTE that the EP Cube Hybrid assembly is heavy! Installers should refer to the specifications for details about Hybrid weight and check with local regulations to confirm the wall mounting is viable.

See graphic below for location recommendations related to sea, sun, and rain exposure..

NOTE: Damage caused by outdoor installation in salt-affected areas is not covered in scope of limited warranties. A salt-affected area refers to the region within 1000 meters from the coast and in areas directly affected by scattered seawater or prone to sea breeze.





3.2 On-site Installation

⚠ **WARNING:**

EP Cube can only be installed, repaired, replaced, and maintained by the EP authorized personnel for safety and warranty purposes. It is prohibited to install any third-party component or devices inside the EP Cube without prior approval from the EP service team.

For personal protection and property safety, please read the safety chapter and ensure complete compliance during the entire installation process.

Please ensure to avoid the installation of the EP Cube in environments where it is exposed to excessive rain, direct sunlight, dust, flooding, or accumulating snow.

During the installation and handling of EP Cube batteries or Hybrid, extreme care is required to avoid dropping, bumping, or stomping the modules. This can lead to damage to the paint or bent edges.

NOTE: Wall mounting bolts for Hybrid Bracket C and Smart Gateway Bracket A2 need to be provided by the installer. Ensure complete compliance with the regional building codes when choosing suitable anchor bolts. EP Cube doesn't provide these fasteners.

3.3 Installation of Hybrid

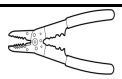
This section introduces the Hybrid assembly and installation process in sequence.

A. Preparation :

If the system design requires optional items, please review each associated instruction set to complete installation.

Make sure all necessary tools and materials are available before starting the installation process to avoid any inconvenience on site.

Table 1. Tools

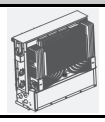
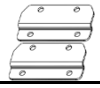
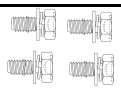
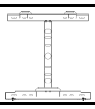
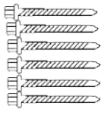
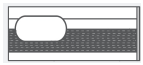
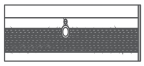
NO.	Icon	Tool Name
1		Marking pen
2		Phillips screwdriver
3		Cutter
4		Cable cutter
5		Nippers
6		Wire stripper
7		Crimping tool
8		Socket set (M5, M6, M8, M12 sizes)
9		Adjustable wrench
10		Hammer
11		Electric screwdriver (Phillips bit, 15cm or larger)
12		Drill Set
13		Digital multimeter
14		Tape Measure
15		Level Tool
16		Torque wrench

Examine and ensure that the following quantities are correct per placed order, and that no parts were broken or damaged during transportation. You may check off the unpacking inspection guide provided below.

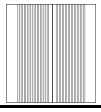
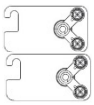
Packing List

Below figure and table lists down all the components that should be available for successful installation. Please carefully unpack, locate and promptly contact EP if a component is misplaced or damaged during transportation.

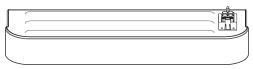
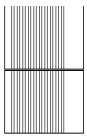
EP Cube PCS Box

NO.	Icon	Component	Quantity (PCS)
1		EP Cube PCS	1
2		PCS Side Bracket	2(Unnecessary)
3		M5×12 Screws	8 (Unnecessary)
4		Smart Meter Communication Cable (5m)	1
5		PCS top bracket	2(Unnecessary)
6		M6×16 Screws	4(Unnecessary)
7		Battery Top Bracket	2 (Unnecessary)
8		PCS Wall Mount Bracket	1
9		Self-drilling Screws	6
10		Inverter Front Cover	1
11		Inverter Left Cover	1
12		Inverter Right Cover	1

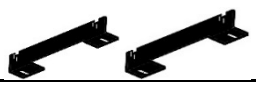
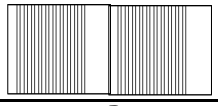
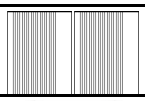
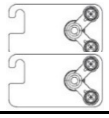
Battery Module Box

NO.	Icon	Component	Quantity (PCS)
1		EP Cube Battery Module	1
2		Battery Module Side Cover	2
3		Battery Side Bracket	2

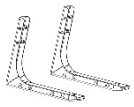
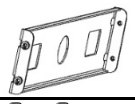
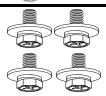
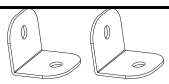
Base Modules Box

NO.	Icon	Component	Quantity (PCS)
1		Base	1
2		Hybrid Base Side Cover C	2
3		Base Bracket	1
4		Hybrid Base Bracket G_ M6	2

Long Base Modules Box

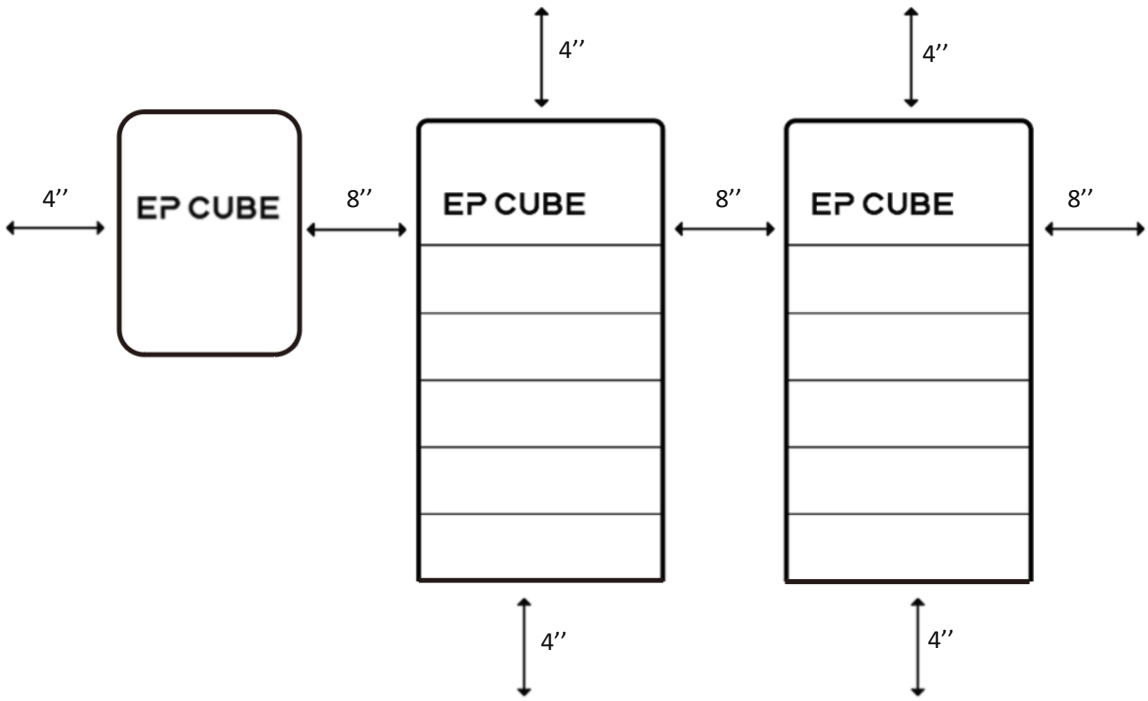
NO.	Icon	Component	Quantity (PCS)
1		Base	1
2		Base bracket	2
3		Base Side Cover	2
4		Base Bracket M6 Screws	4
5		Long Base Top Cover	1
6		Battery Cap side cover	2
7		Side Bracket	4
8		Pack Bracket	1
9		Top battery Bracket	2

EP Cube Wall Mounting Kit Box

NO.	Icon	Component	Quantity (PCS)
1		Wall Mount Bracket E1	2
2		Wall Mount-Bracket E2	1
3		Wall Mount-Bracket M6 Screws	4
4		Base Brackets	2

Installation Space

- The minimum space required for the heat sink on the back of the PCS is 3.346”, but for exact dimensions of the distance between the base and wall during installation, please refer to Step 4 on page 18.
- The EP Cube is UL9540A certified to have spacing between each EP Cube Hybrid Stack at 200mm (8 inches) for tight compact locations but it is recommended to install system with 12 inches (300mm) or more spacing for easier access to hybrid latches, mounting hardware and conduit routing”.
- For wall mounting installation, the minimum distance from the door, and windows should be 3 ft (914mm).

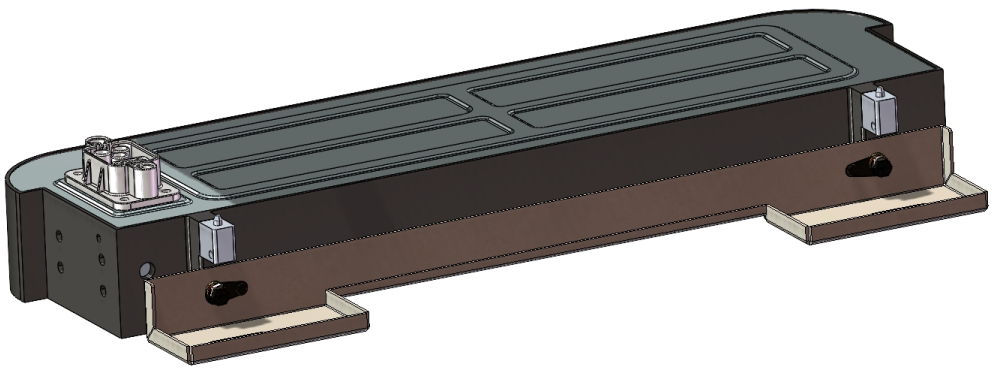


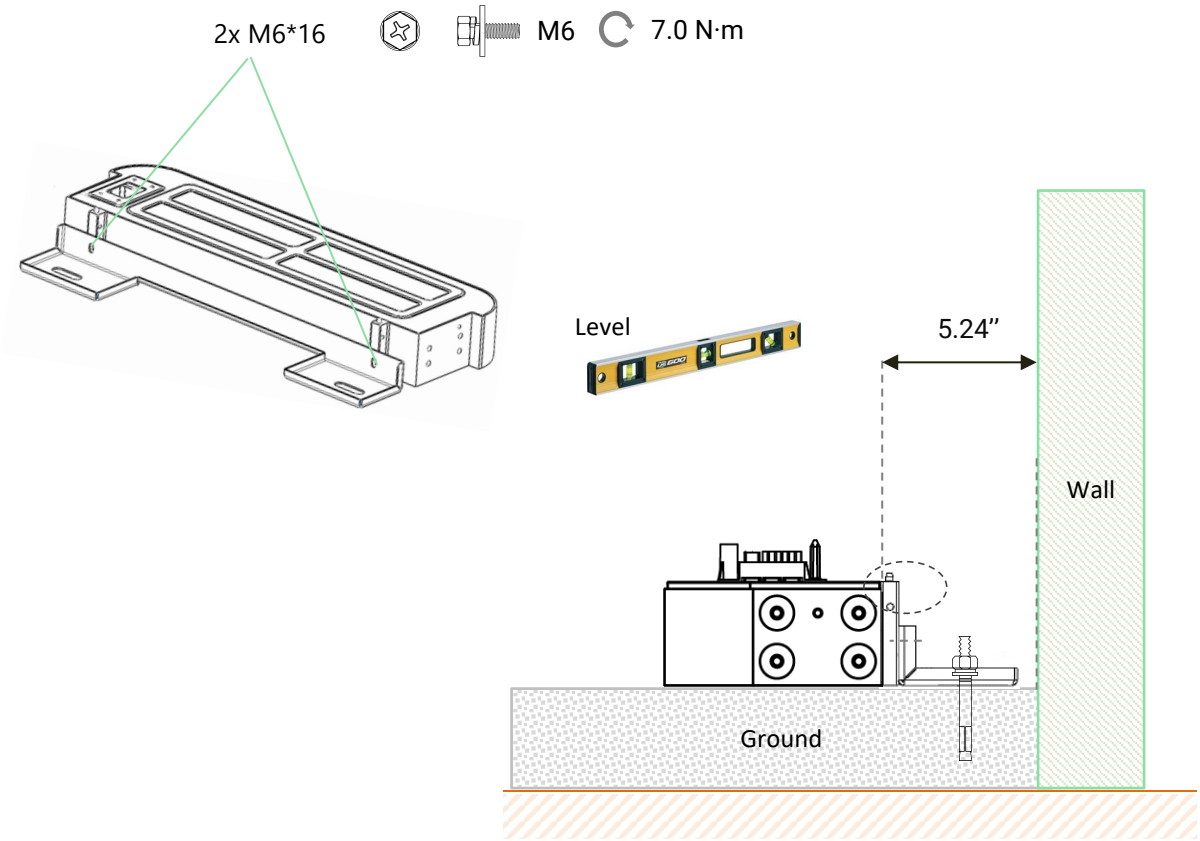
* Minimum clearance required from all sides.
* All the dimensions are in inch units.

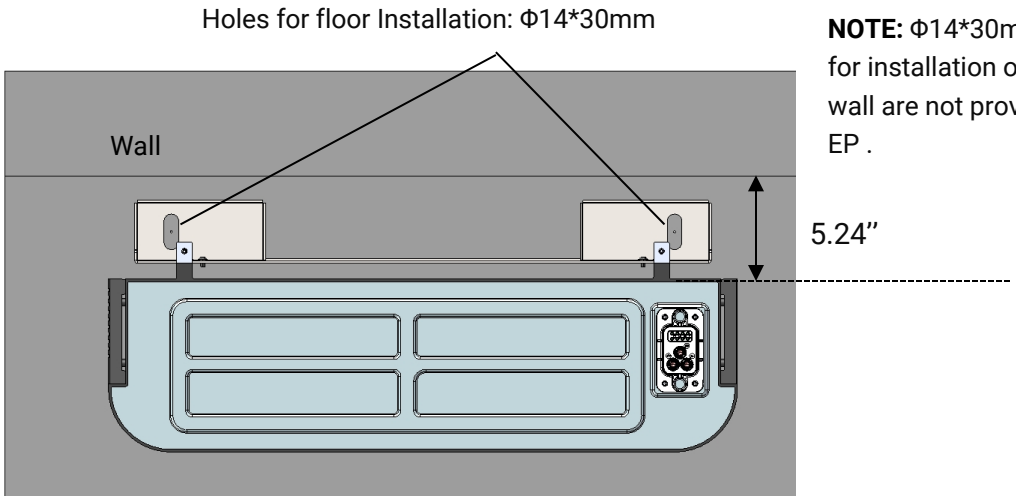
B. Start Installation

Floor mounted : Install the EP Cube Base on the floor (EP Cube Base2-G2)

a. Adjust the distance from the back of the base to the wall to 133mm (5.24 inches), mark it on the ground, and drill holes.

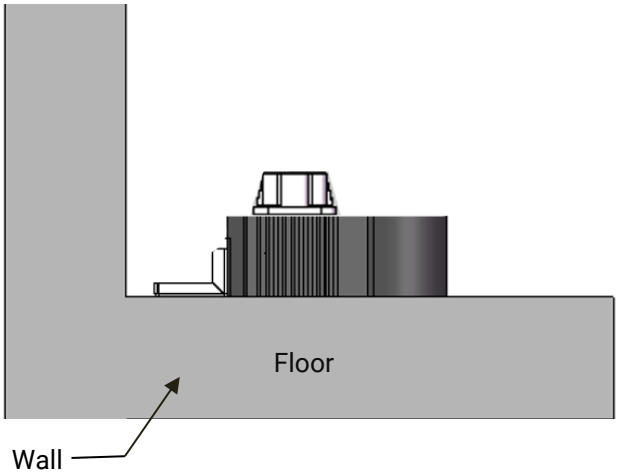






NOTE: Φ14*30mm bolts for installation on the wall are not provided by EP .

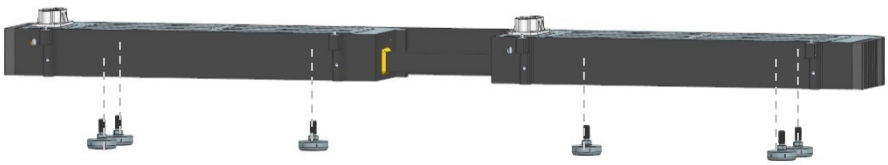
c. Install ground bolts and adjust the distance from the back of the base to the wall to 133mm (5.24 inches), then tighten the bolts.



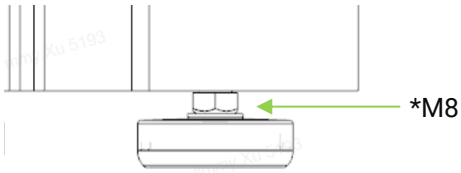
⚠ **CAUTION:** Please keep a safe distance between the EP Cube HES and other objects.

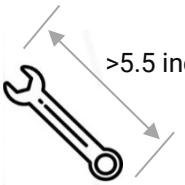
Floor mounted : Install the EP Cube Base on the floor (EP Cube Base2-G3)

a. Install the foot cups. Please screw all 6-foot cups tightly onto the base bracket.



NOTE: Please check whether the floor is level. If not, please use wrench to adjust the height, until the base leveling is ok and use leveling tool to double check here.





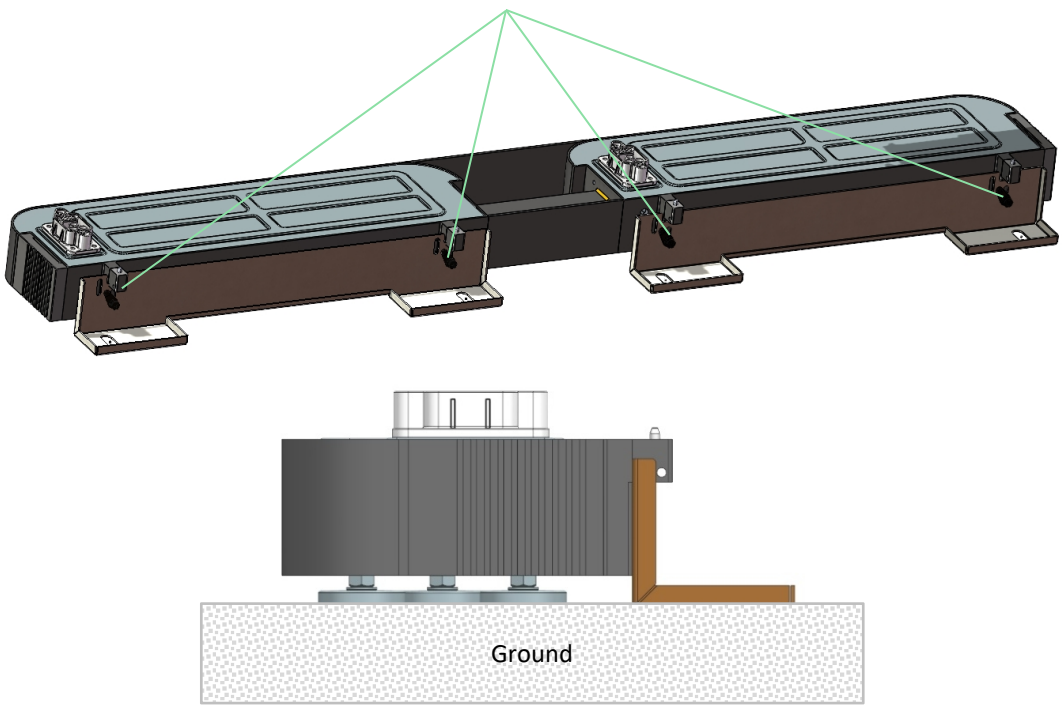
wrench



Level

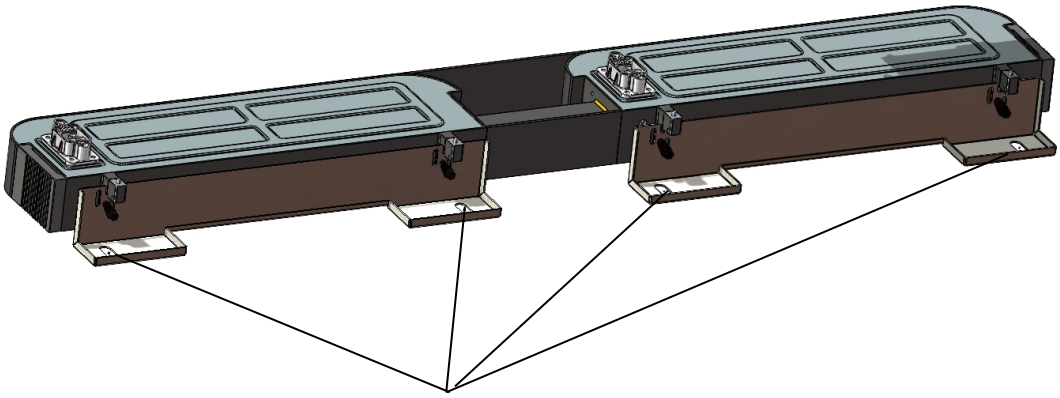
b. Install the four screws on the base bracket, adjust the position of the base bracket so that the other side of the base bracket is grounded.





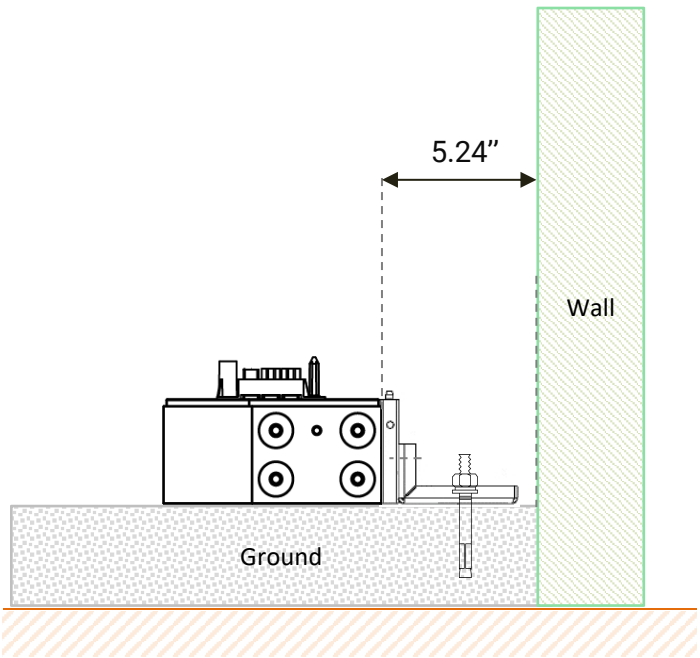
c. Adjust the distance from the back of the base to the wall to 133mm (5.24 inches), mark the drilling position on the ground, move the base away, and proceed with drilling.

d. Install ground bolts and adjust the distance from the back of the base to the wall to 133mm (5.24 inches), then tighten the bolts.



Holes for floor Installation: Φ14×30mm

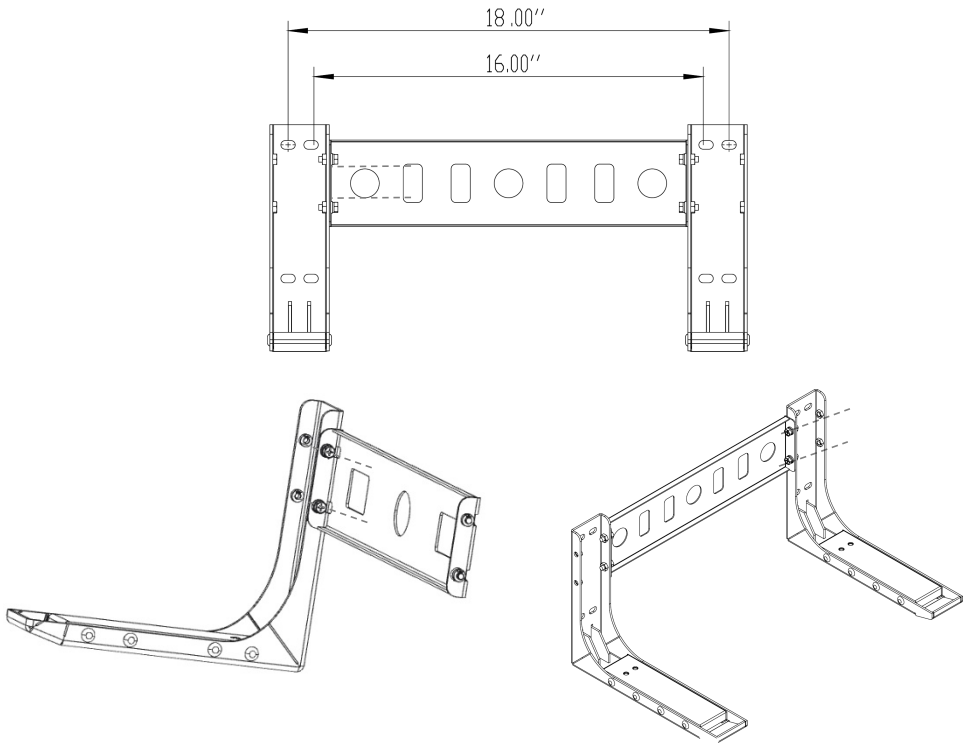
NOTE: Φ14×30mm bolts for installation on the wall are not provided by EP .



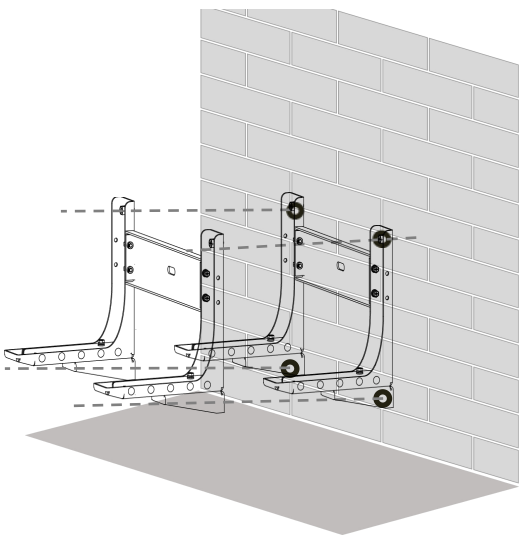
⚠ **CAUTION:** Please keep a safe distance between the EP Cube HES and other objects.

Wall mounted : Install Wall-mount Kit and Base

a. Assemble the Wall-Mount bracket (referred as E), attach Bracket E1 to the Bracket E2 from the left and right sides with the M6 bolts. Tighten the bolts by using the screwdriver.



b. Place and align wall-mount kit (Bracket E) on the wall and mark the mounting holes positions. Ensure that the bracket is straight and level with the help of spirit level to avoid improper installation.



c. Once drilling positions are marked, remove the base and use an appropriate drilling machine with a drill bit of Φ M8 to drill through the concrete wall. In case of a wooden wall, drilling is not required.

NOTE: For more wall materials and anchoring details, please refer to page 29~31.

d. After drilling the holes, insert anchor bolts in the drilled holes. Remove the washers and nuts. Place the wall-mount bracket on the bolts, place the washers and fasten the nuts manually. Check the level of installed wall mount bracket with sprit level, and use electric screwdriver to tighten nuts to properly install the wall-mount kit on wall.

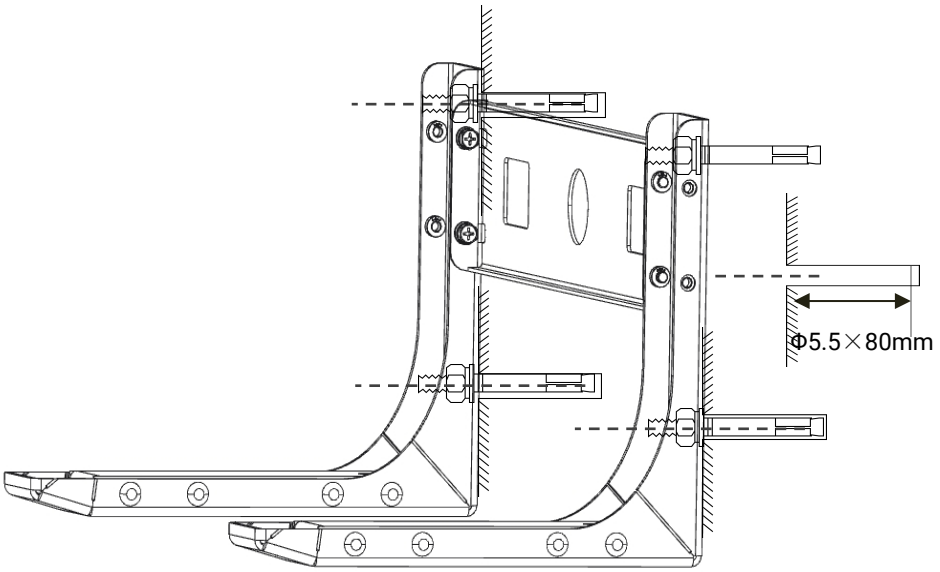


Fig. 4x Φ5.5 anchor bolts to install the Wall-mount Kit.

NOTE:

For hybrids with a number of battery packs greater than or equal to 3, 5/16-inch (8 mm) expansion bolts shall be used on the L-shaped bracket.

e. Align the base bracket oval holes with the holes on the base, then use the screws (M6×20mm) to fasten together.

f. Now, place the base with pre-installed base bracket on the wall-mount kit. Align the round holes of the base brackets with the holes on the wall mount kit, and use screws (M6*20mm) to fasten base to the wall-mount kit. Verify that the Base is level using the level tool.

NOTE: Wall-mount kit only support Base2-G2, not support Base2-G3.

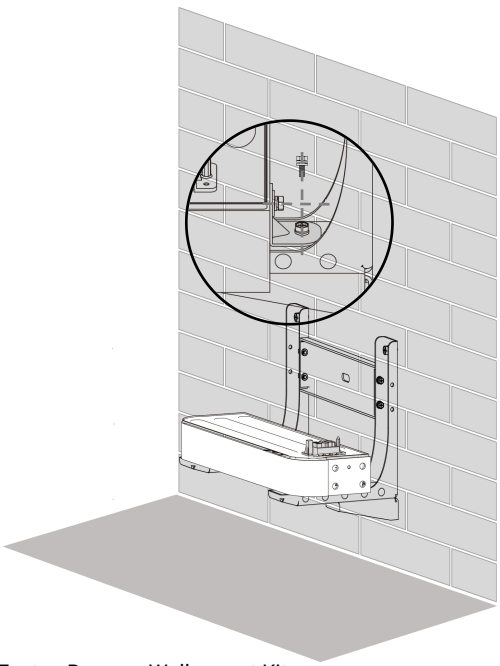
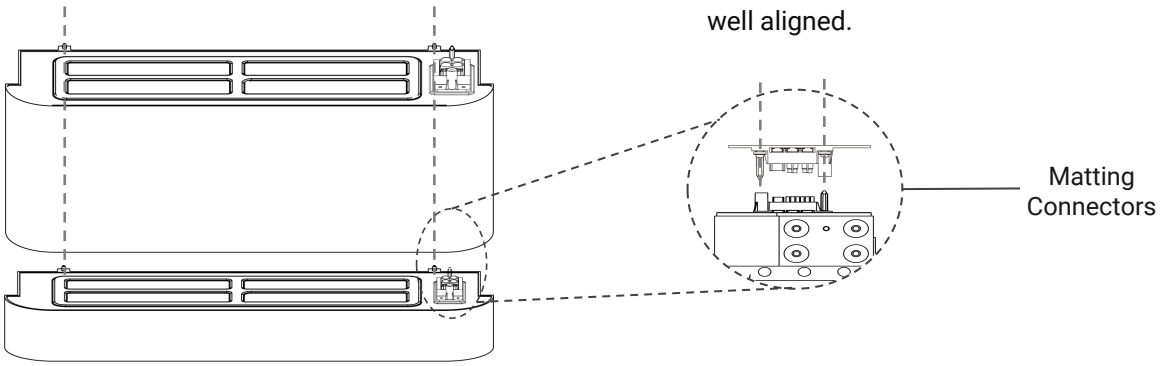


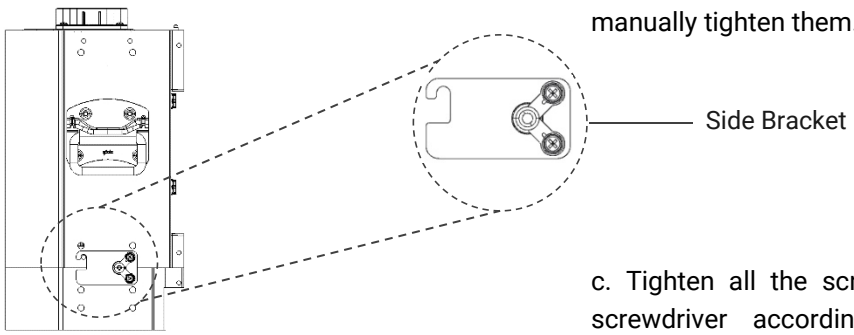
Fig. Fasten Base on Wall-mount Kit

Install the Frist Battery Module

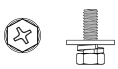
a. Carefully place the **Frist Battery Module** on top of the base and ensure that battery mating connector sockets are well aligned.



b. Fasten Side Brackets between adjacent battery module and base, on both the left and right sides with the screws, and manually tighten them.

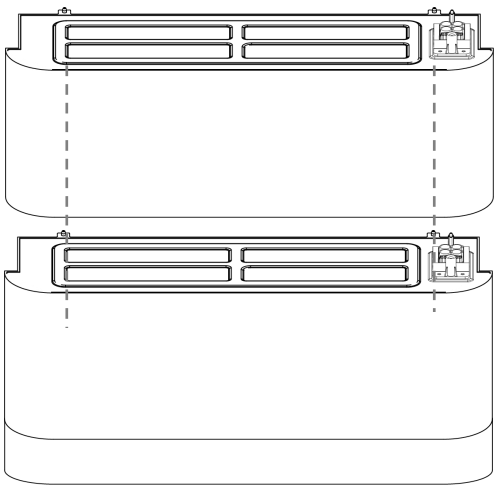


c. Tighten all the screws with an electric screwdriver according to the specified torque values.



5 N·m

NOTE: Side brackets have the screws latched with the brackets.



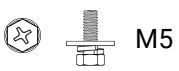
Install the Second Battery Module

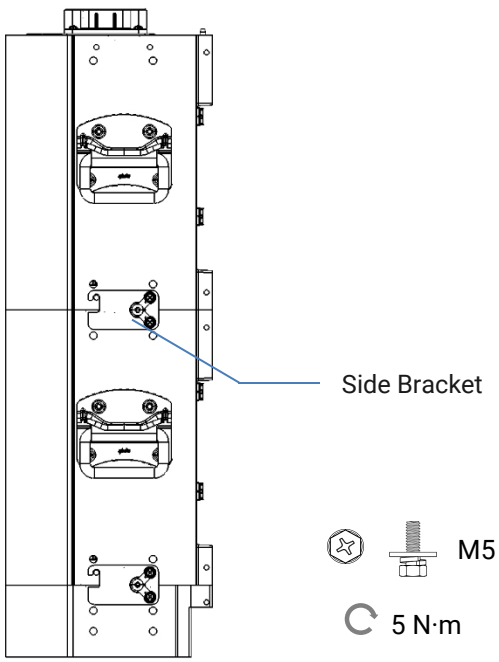
a. Carefully place the **Second Battery Module** on top of the first Battery module and ensure that battery mating connector sockets are well aligned.

b. Attach side brackets between adjacent battery modules, on both the left and right sides with the screws, and manually tighten them.

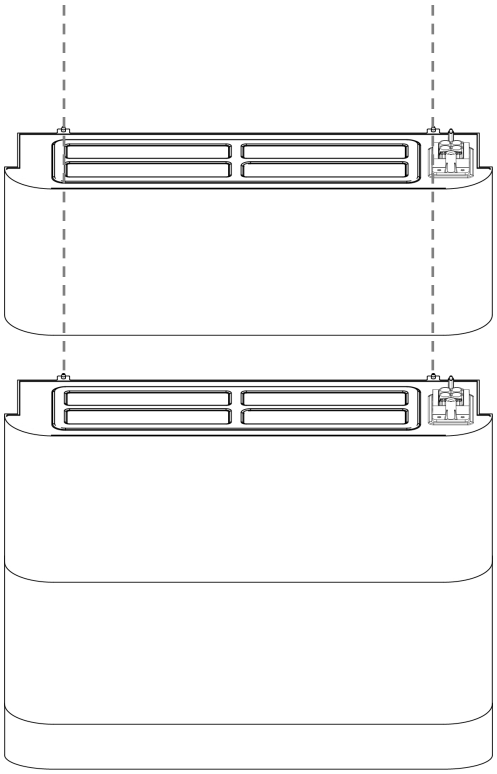
c. Tighten all screws with electric screwdriver according to the specified torque values.

Repeat steps and to stack the required number of battery modules on top of the base according to the configuration.





⚠ **CAUTION:** The battery module is heavy. For safety reasons, , use lifting tools or multiple people to lift it, especially when doing the installation of the top modules.
For multi-hybrids system, the number of battery modules in each hybrid must remain the same.

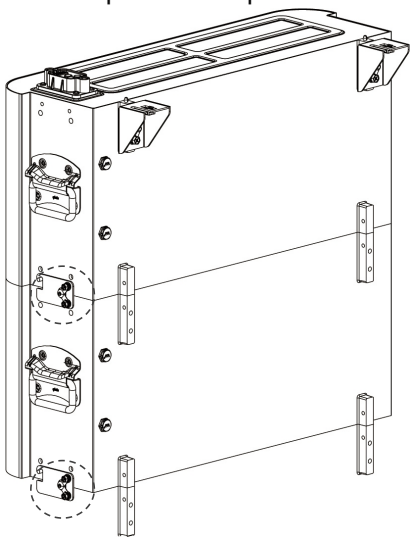


Install the remaining Battery Modules

Carefully install the remaining **Battery Modules** one by one by repeating the steps “a and d”. Ensure that battery mating connector sockets are well aligned for each battery module.

The pair of protruding columns at the back of each module also have a locating pin on top to help with the alignment of adjacent modules.

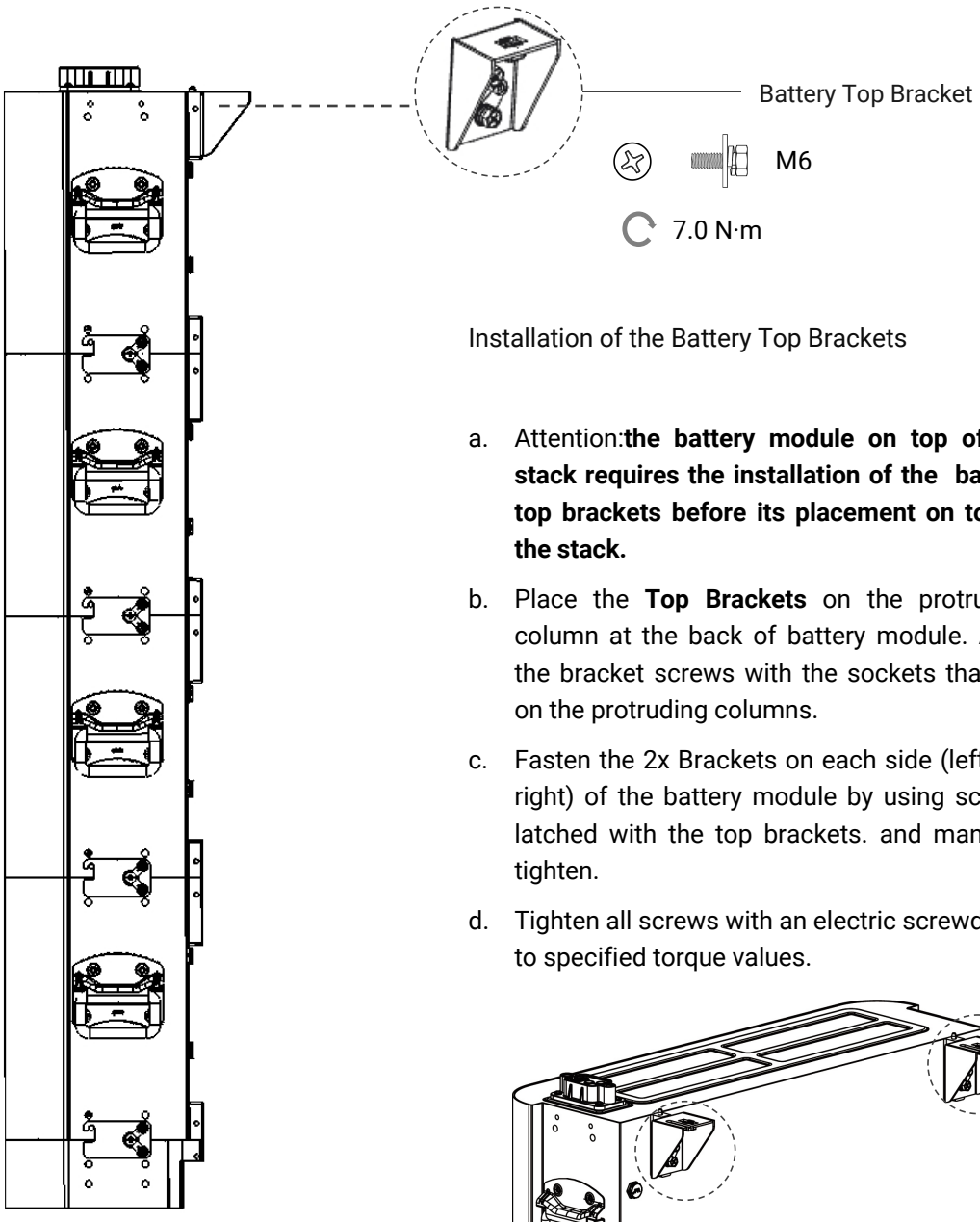
Tighten all screws with an electric screwdriver to specified torque values.



Attention: The battery module on top of the stack requires the installation of the battery top brackets before its placement on top of the stack.

NOTE: Only the battery module on top of the stack needs additional brackets. Refer to the next page for more details.

⚠ **CAUTION:** The battery module is heavy, use lifting tools or multiple people to lift it for personnel safety especially when doing installation for top modules.
For multi-hybrids system, the number of battery modules in each hybrid must remain the same.



Installation of the Battery Top Brackets

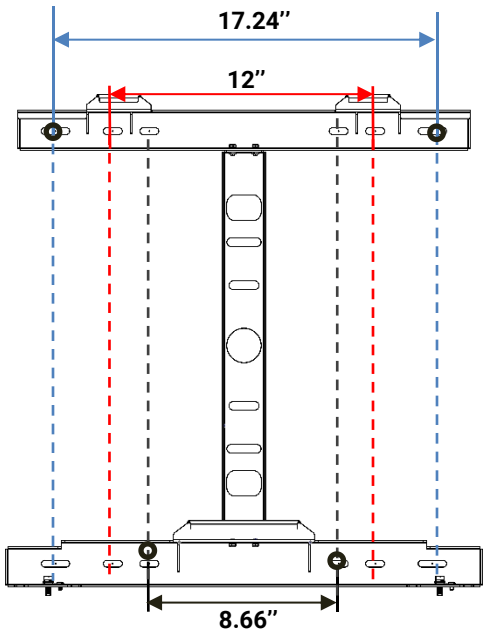
a. Attention:**the battery module on top of the stack requires the installation of the battery top brackets before its placement on top of the stack.**

b. Place the **Top Brackets** on the protruding column at the back of battery module. Align the bracket screws with the sockets that are on the protruding columns.

c. Fasten the 2x Brackets on each side (left and right) of the battery module by using screws latched with the top brackets. and manually tighten.

d. Tighten all screws with an electric screwdriver to specified torque values.

e. Finally, install the battery module by repeating the steps a to d on page 26.



An overview on the Wall Bracket

The wall bracket supports different spacing based on selection of mounting holes positions. Choose any 2 holes on both upper and lower branch of the wall bracket.

Choose the holes and mark them on the wall through the bracket using a pencil.

Drill the holes to mount the EP Cube PCS Wall Bracket.

1. Reference these anchoring details when mounting EP Cube 2.0 to the provided mounting bracket.

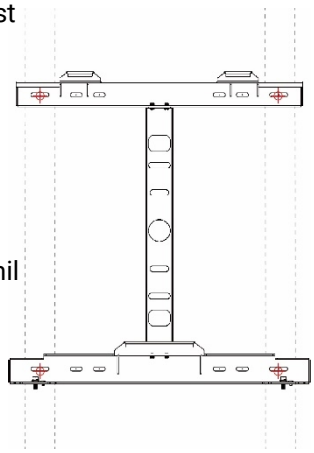
NOTE:

For any of the following mounting configurations:

- Maximum washer outer diameter is 1.08''.
- Maximum fastener head height is 0.47''.
- Maximum fastener shaft diameter is 0.39''.

a. Wood Studs (spaced at 16 or 18 inches)

If anchoring directly into wood studs, use at least four (one in each corner) #14 (approx. ¼ inch dia.) wood screws with washers, of sufficient length for at least 2-½ inch embedment into the studs.



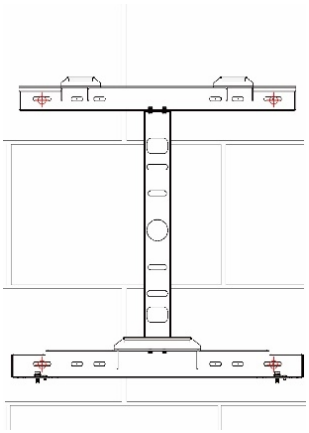
NOTE: See figure(Page 31) below for stud spacing greater than 18 inches, up to 24 inches.

b. Metal Studs (spaced at 16 or 18 inches)

If anchoring directly to metal studs, studs must be minimum 18 gauge or 43 mil thickness (0.043 in). Use at least four (one in each corner) ¼ inch or #14 sheet metal screws with washers, of sufficient length to penetrate at least 3 threads beyond the stud.

NOTE: See figure(Page 31) below for stud spacing greater than 18 inches, up to 24 inches.

2. EP Cube 2.0 Wall Bracket Anchoring Details for Wall-mounting or Ground-mounting on Approved Foundation



- **Concrete Masonry Unit Wall**

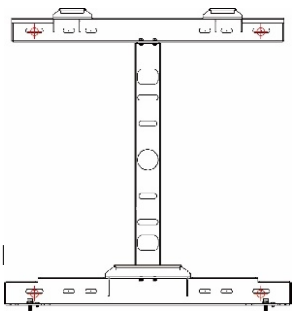
Minimum strength must be 2000 PSI.

Use at least four (one in each corner, in any available anchor slot) 3/8-inch concrete anchors of sufficient length for the embedment listed below.

ESR 1056 for Simpson Titen HD 3/8-inch concrete anchor. Minimum 2-¾ inch (70 mm) embedment required.

ESR 3056 for Hilti KH-EZ 3/8-inch concrete anchor (for fully grouted CMU cells only). Minimum 1-5/8-inch (41.3 mm) embedment required

Anchors shall not be installed within 12 inches (305 mm) of wall edges or 1-½ inches (38 mm) of masonry block edges.



NOTE: Fasteners shall not be installed in mortar joints.

- **Solid Concrete Wall**

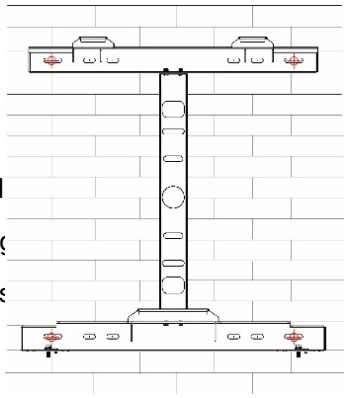
Minimum strength must be 2500 PSI.

Use at least four (one in each corner, in any available anchor slot) 3/8-inch concrete anchors of sufficient length for at least 2-½ inch embedment into the wall

ESR 2713 for Simpson Titen HD 3/8-inch concrete anchor

ESR 3056 for Hilti KH-EZ 3/8-inch concrete anchor

- **Brick Wall(Double and Single Layer of Brick Masonry)**



Minimum strength must be 2500 PSI.

Use at least four (one in each corner, in any available anchor slot) ¼ inch masonry anchors of sufficient length for the embedment listed below.

Kwik Conn 2 (No ESR). Minimum 1-¾ inch (44.5 mm) embedment required

NOTE: Brick depth must be verified to be nominal 4" thick prior to mounting

Brick thickness of 3-5/8" or less is not permitted for brick-only attachments and other wall type attachments need to be investigated.

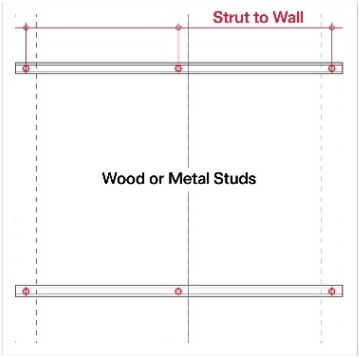
NOTE: Fasteners shall not be installed in mortar joints.

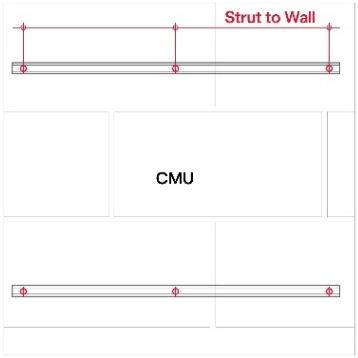
- **Channel Strut (Unistrut)**

Struts must be minimum 12 gauge and 1-5/8 inch.

NOTE:

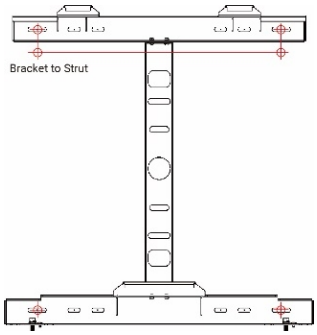
1. The horizontal strut must be attached to all vertical studs within in the span.
2. When mounting to wood, metal studs, concrete and CMU, use the fastener requirements noted in the applicable sections above.
3. Channel strut shall have a maximum unsupported span of 24 inches (610 mm).
4. For wood or metal studs, one fastener is required to attach the horizontal strut at each intersection of the vertical framing members of the wall (e.g. if a strut crosses 3 stud members, 3 fasteners are required).

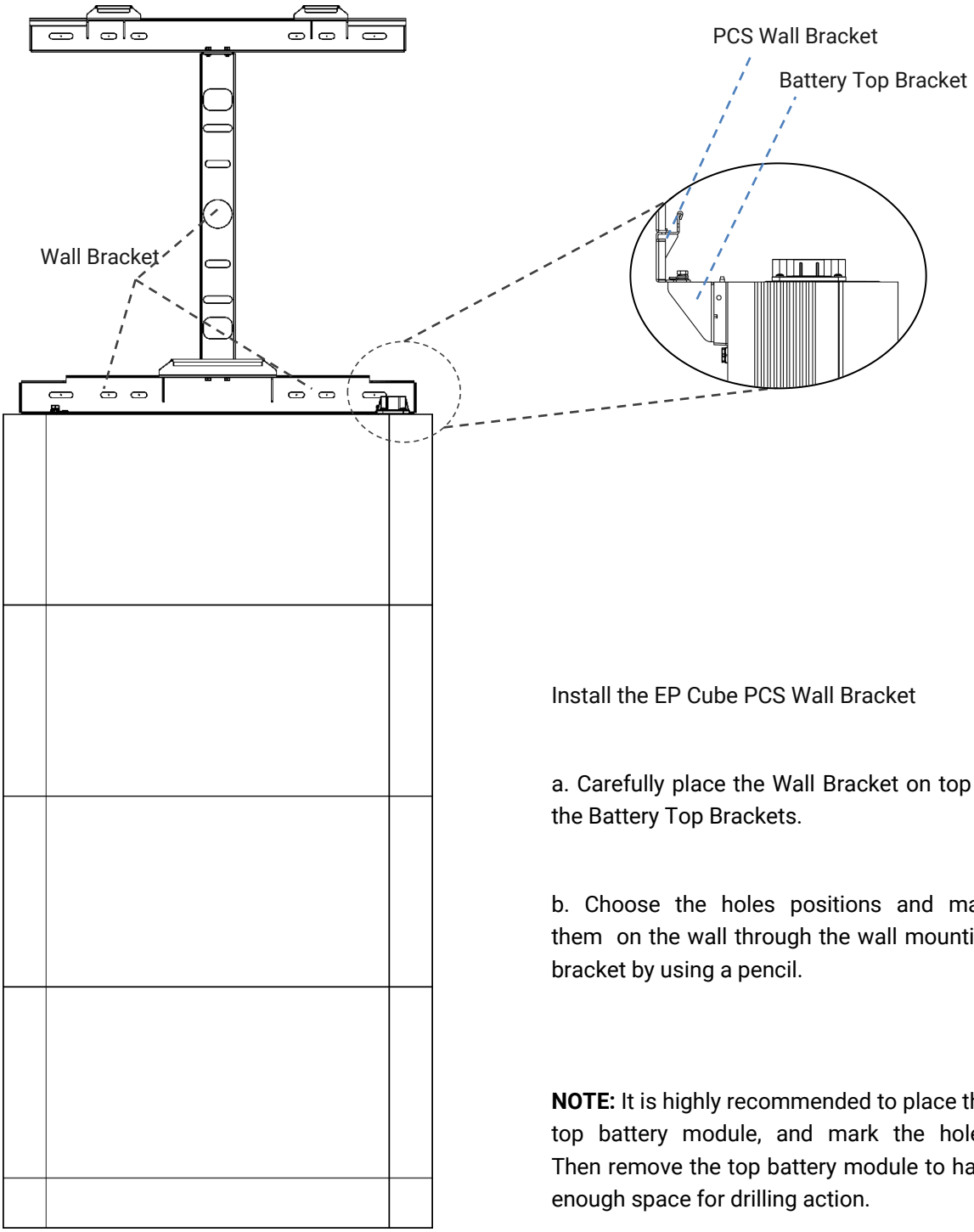




connect strut with 3 concrete anchors at 10 inches minimum.

To attach the bracket to the struts, use at least four (one in each corner) 3/8-inch hex head screws with washers and strut nuts.





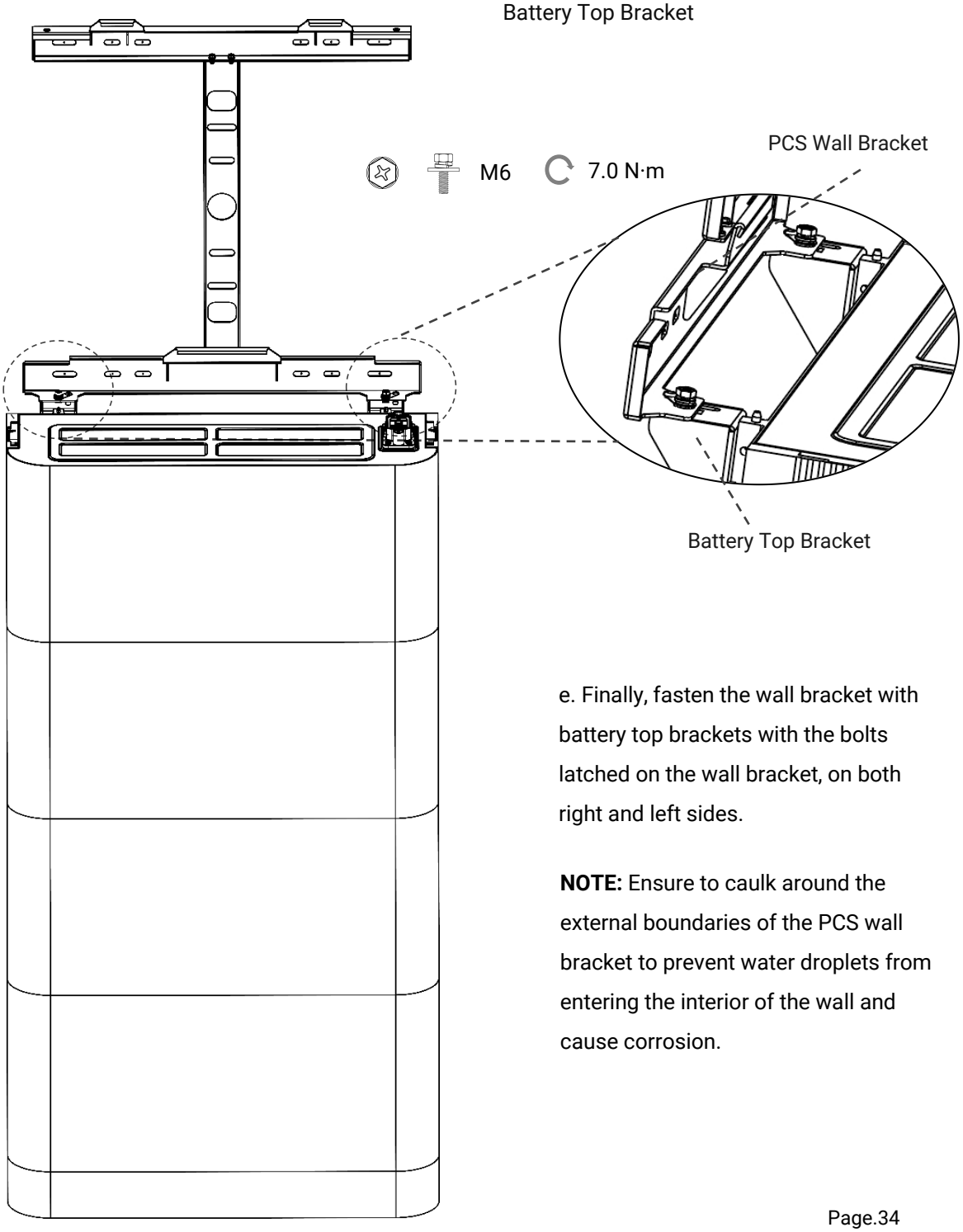
Install the EP Cube PCS Wall Bracket

a. Carefully place the Wall Bracket on top of the Battery Top Brackets.

b. Choose the holes positions and mark them on the wall through the wall mounting bracket by using a pencil.

NOTE: It is highly recommended to place the top battery module, and mark the holes. Then remove the top battery module to have enough space for drilling action.

Fasten the EP Cube PCS Wall Bracket to the Battery Top Bracket



e. Finally, fasten the wall bracket with battery top brackets with the bolts latched on the wall bracket, on both right and left sides.

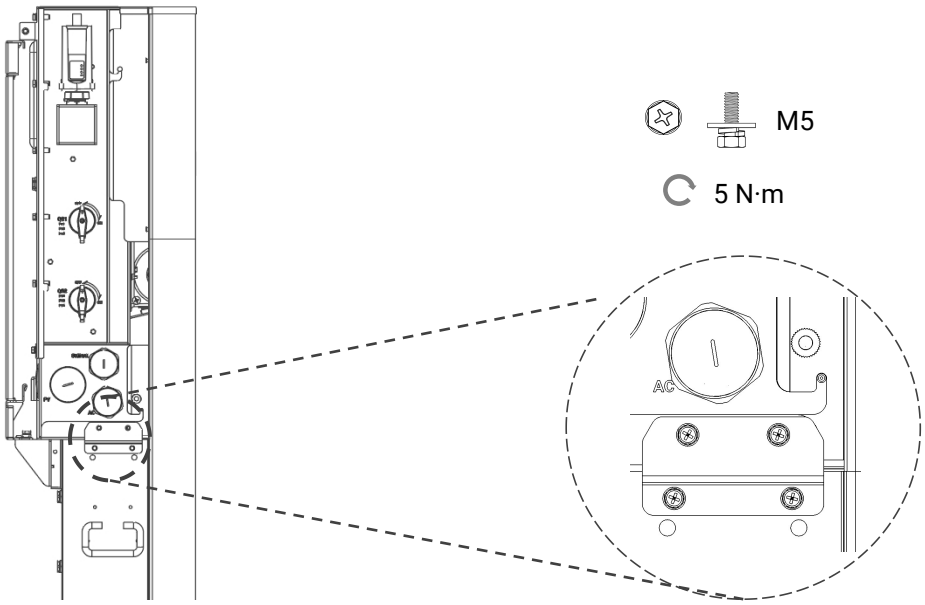
NOTE: Ensure to caulk around the external boundaries of the PCS wall bracket to prevent water droplets from entering the interior of the wall and cause corrosion.

Install the EP Cube PCS

a. Carefully place the EP Cube PCS on top of the Battery stack.

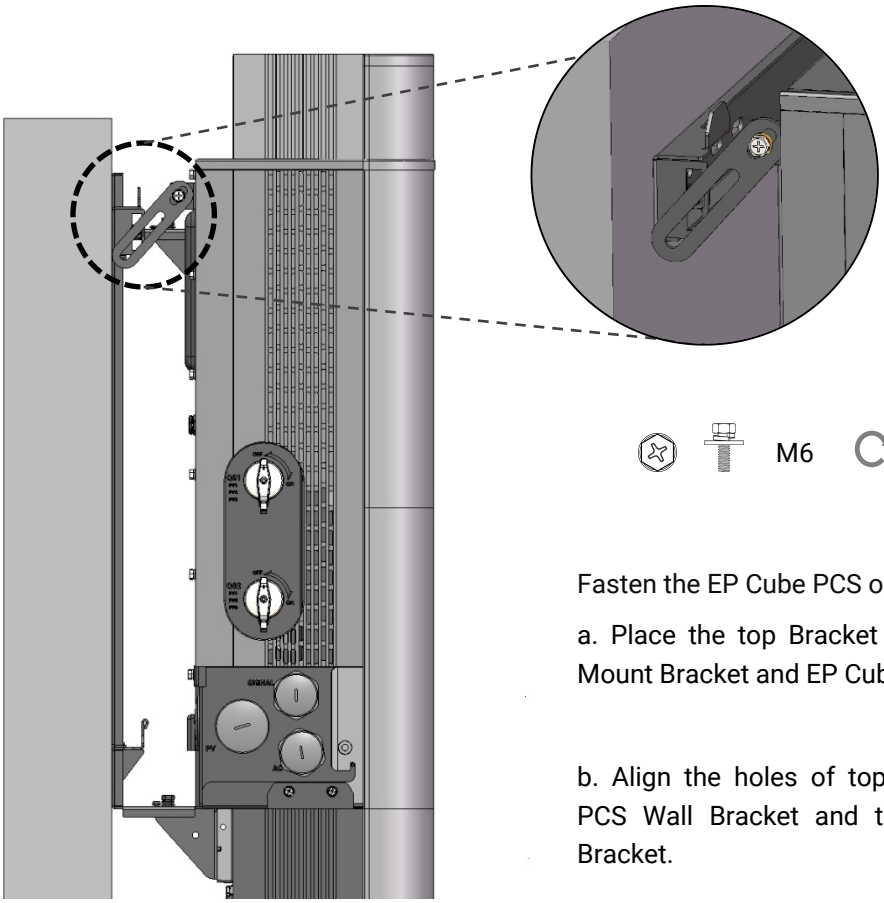
b. Align the edges of both the EP Cube PCS and the Battery Module.

c. Fasten PCS Side Brackets between the EP Cube PCS and adjacent top battery module, on both the left and right sides with the two M5 screws, and manually tighten.



d. Align the holes on the top of EP Cube PCS Bracket and PCS Wall Bracket with the holes on the PCS top Bracket.

⚠ **CAUTION:** The Side Brackets between the EP Cube PCS and top battery module must be installed first, only after that fasten the EP Cube PCS Bracket & PCS Wall Bracket with the help of PCS top Bracket.
The EP Cube PCS is heavy, Please use lifting tools or multiple people to lift it for your own safety.



Fasten the EP Cube PCS on the wall

a. Place the top Bracket on the PCS Wall-Mount Bracket and EP Cube PCS Bracket.

b. Align the holes of top Bracket with the PCS Wall Bracket and the EP Cube PCS Bracket.

c. Tighten all screws to fasten the EP Cube PCS with the PCS Wall Bracket by using an electric screwdriver to specified torque values.

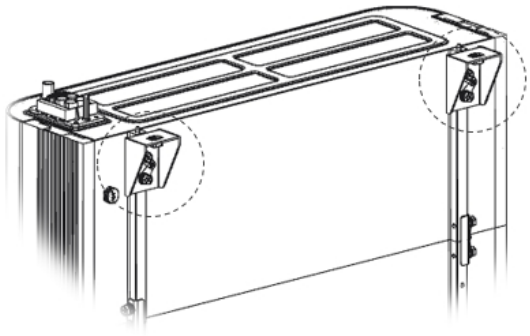
d. After finishing installation, make sure there is no visible gap between the PCS and the battery top module.

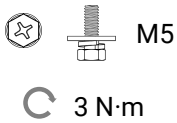
⚠ **CAUTION: NON-FLAT WALL ALERT!! Do not fix the last two screws (right and left top brackets to the wall side) until you make that check.**

The EP Cube PCS is heavy, Please use lifting tools or multiple people to lift it for your own safety.

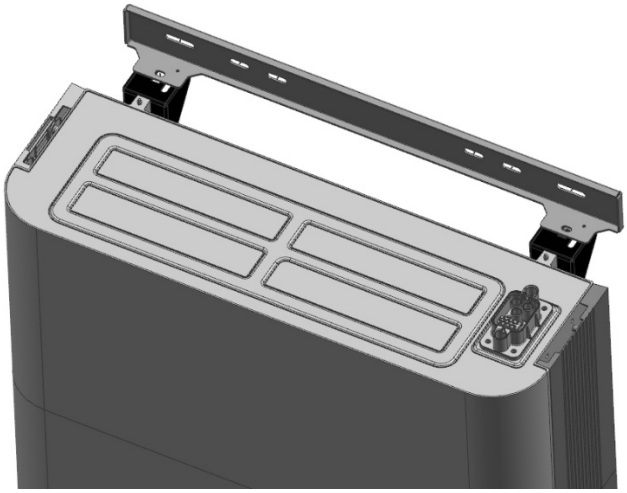
Install the top Battery Module in the long base

1. Install the top battery brackets on the top battery.



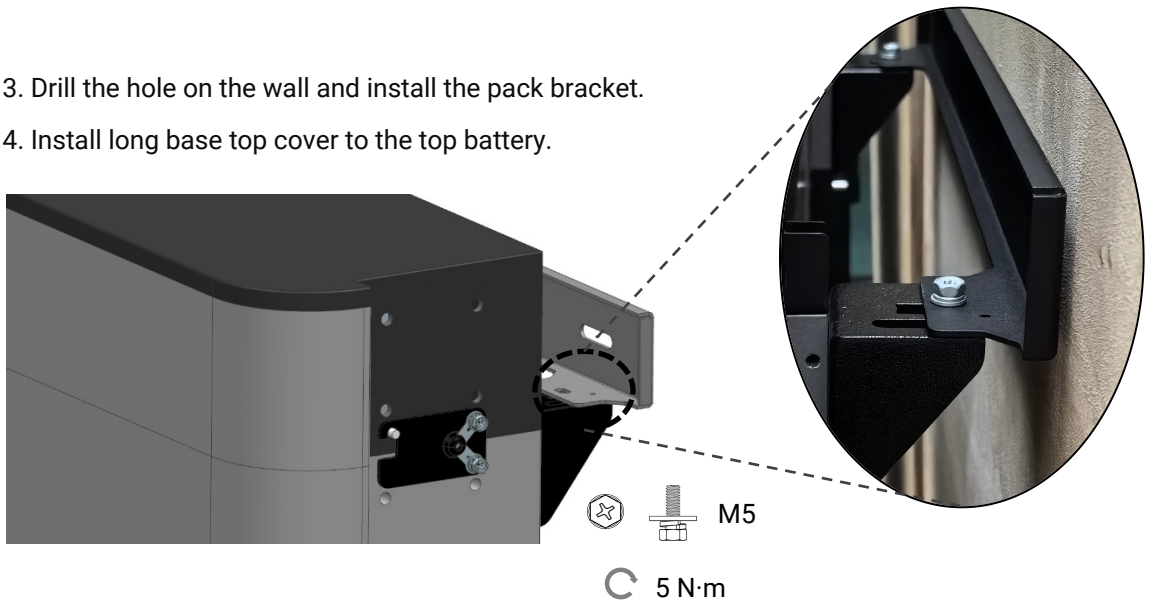


2. Pre install the pack bracket on the top battery bracket, mark the hole on the wall.



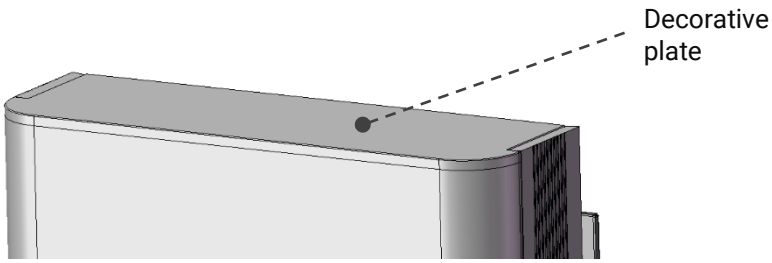
3. Drill the hole on the wall and install the pack bracket.

4. Install long base top cover to the top battery.



5. Install the side bracket to connect the battery. Lock the nuts in the battery and long base top cover.

6. Install the decorative plate on the top cover. As the figure below.



NOTICE: Please lock the screws in the long base top cover.

3.4 Installation of Smart Gateway

This section introduces the Smart gateway installation process in sequence.

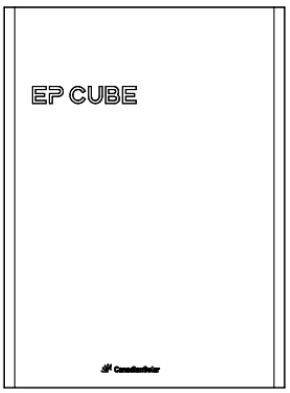
A. Preparation :

- Check if there are optional accessories that need to be installed. If so, please install the accessories first.
- Make sure all necessary tools and materials are available before starting installation.

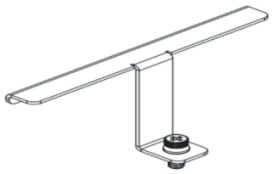
Examine and ensure that the following quantities are correct as per placed order, and that no parts were broken or damaged during transportation. You may check off the unpacking view provided below.

Smart Gateway Box

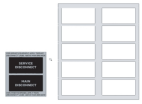
1.



2.



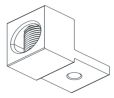
3.



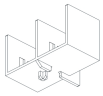
4.



5.



6.



NO.	Component	Quantity (PCS)
1	Smart Gateway	1
2	Circuit breaker fixture	1
3	Circuit breaker adhesive label	1
4	Sealing washers	4
5	Terminal block	2
6	Terminal block base	1

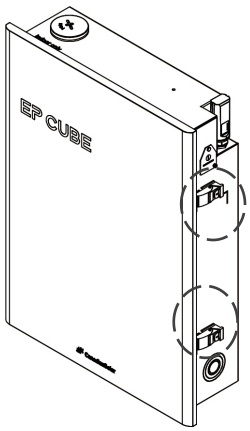
B. Start Installation :

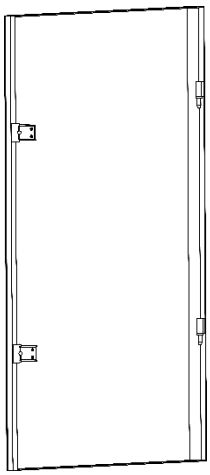
Step-1

Uninstall the door of Smart Gateway

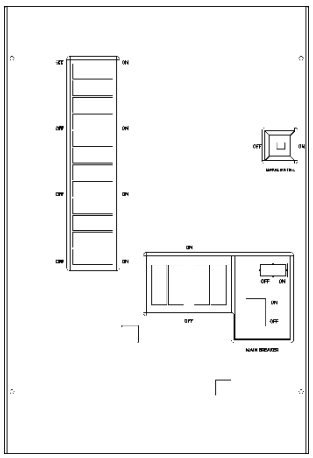
a. Remove the Smart Gateway covers:

- Open the two latches, upward and remove the cover.
- Use the electric screw driver to detach the screws and remove Insulated front cover.

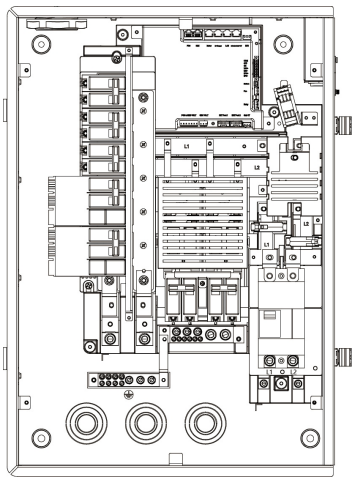




Smart Gateway cover



Insulated front cover



Smart Gateway without covers

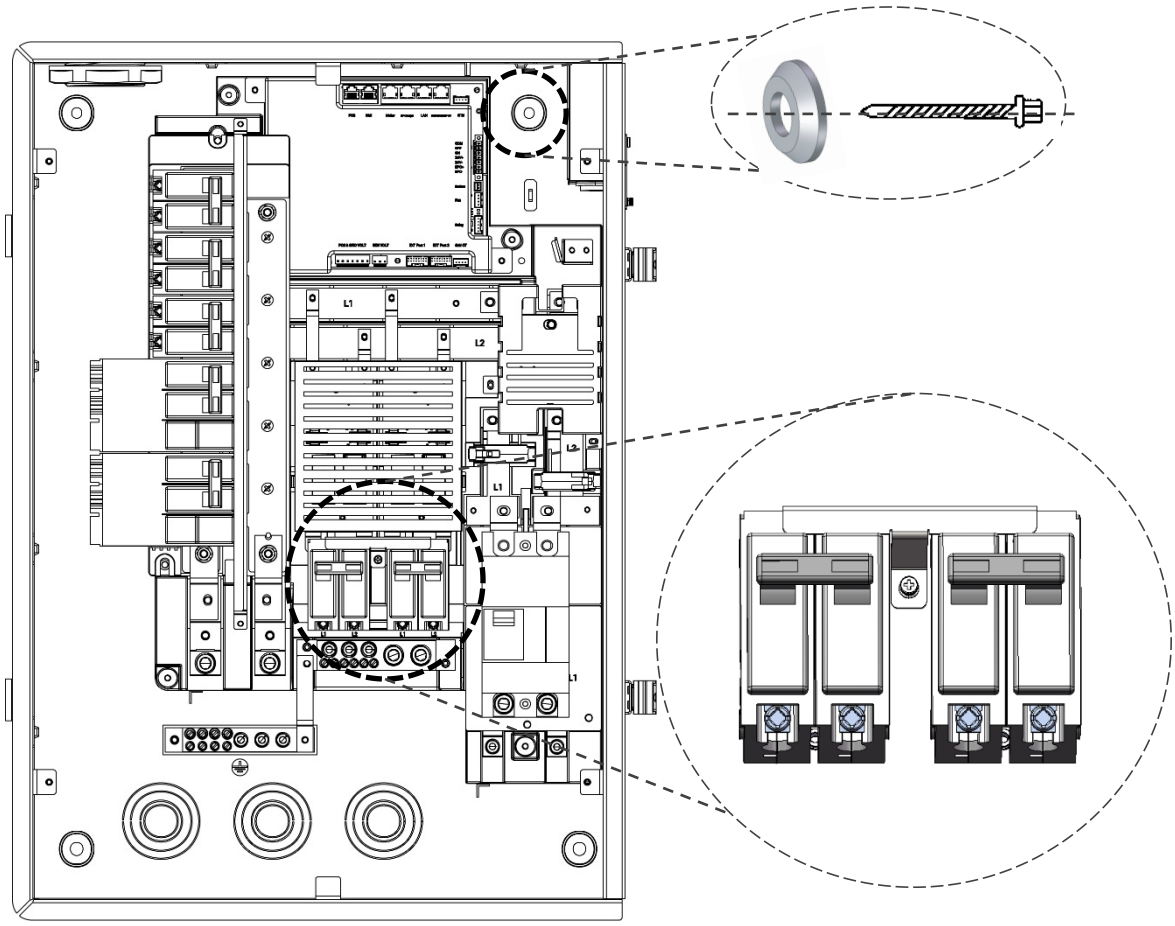
Step-2

Mark and drill the hole on the wall

a. Place the SG against the wall, calibrate its position with a level ruler to keep it level, and mark the drilling position on the wall with a pencil.

b. Drill holes at the marked positions and fix the SG to the wall with M6 self-tapping screws.

c. Install the Circuit breaker fixture as shown in the picture



3.5 Installation of HMI (Optional)

This section introduces the HMI installation process in sequence.

A. Preparation :

- Check if there are optional accessories that need to be installed. If so, please install the accessories first.
- Make sure all necessary tools and materials are available before starting installation.

Examine and ensure that the following quantities are correct as per placed order, and that no parts were broken or damaged during transportation. You may check off the unpacking view provided below.

HMI Box

1. 

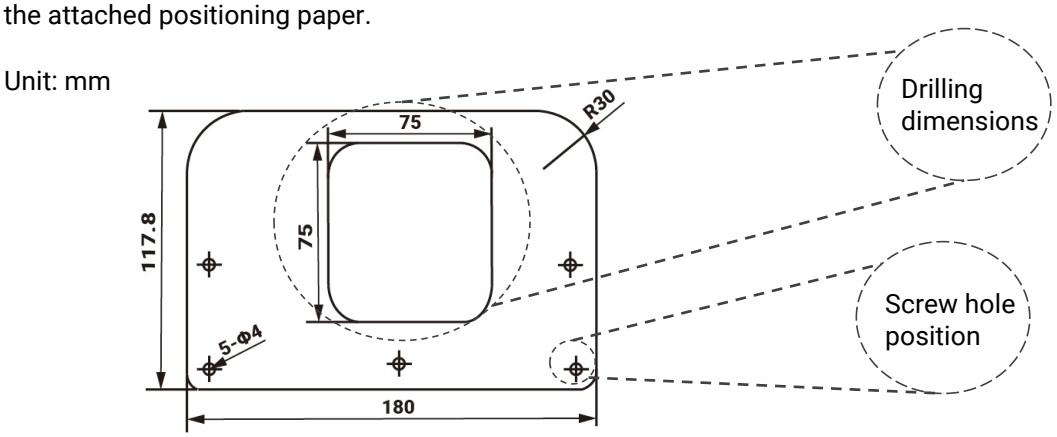
2. 

NO.	Component	Quantity (PCS)
1	HMI	1
2	HMI cable 30m	1

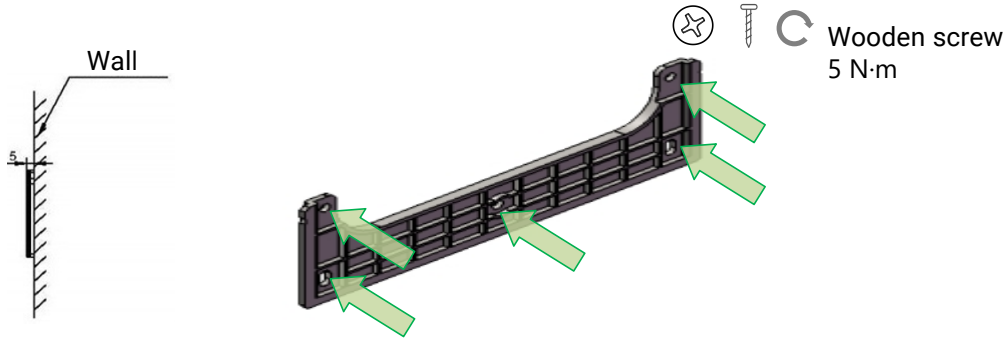
B. Start Installation

a. Mark the wall drilling position and the 5 screw hole positions with a marker pen according to the attached positioning paper.

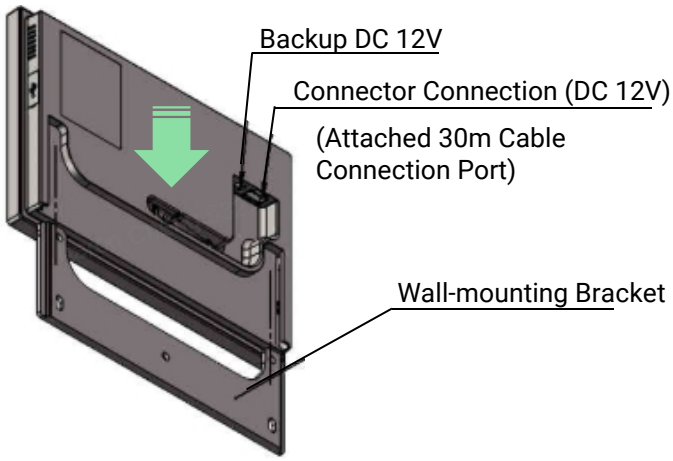
Unit: mm



b. Fix the wall-mounting bracket at 5 positions with wooden screws.



c. Slide the HMI from above and insert it.



4.EP CUBE WIRING

This section introduces the EP Cube system wiring connections steps.

⚠ WARNING:

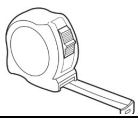
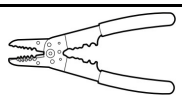
The EP Cube does not require any annual maintenance. If a malfunction or hidden error occurs, the product may only be installed, repaired, or replaced by the EP authorized personnel for safety and warranty purposes.

For personal protection and property safety, please read the safety chapter and ensure complete compliance during the entire installation process.

Preparation

According to the formulated EP Cube system configuration and wiring scheme：

- Prepare the appropriate quantity and dimensions of electrical and installation materials.
- Prepare the appropriate auxiliary tools and equipment.

NO.	Icon	Tools & Materials
1		Phillips head screwdriver and precision screwdriver
2		Tape Measure
3		Multimeter
4		Wire Stripper
5		Marking Pen
6		Hammer
7		Crimping tool
8		Socket set (M5, M6, M8, M12 sizes)

4.1 Start Wiring & Connections

⚠ **CAUTION**: Please ensure all circuit breakers are turned off. Wear the appropriate PPE before beginning.

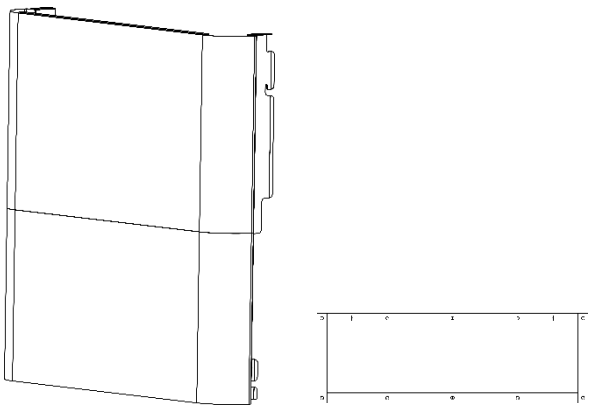
A. Wiring From the Solar Panels to the Hybrid

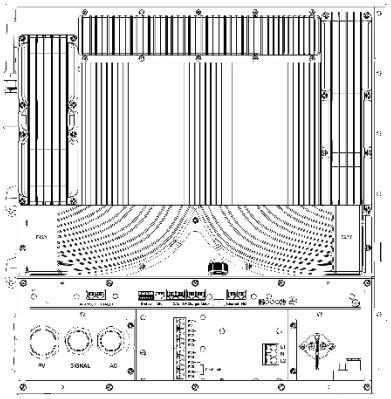
Step-1

Open the Hybrid Inverter for Wiring

a. Remove the Hybrid inverter panel covers:

- Loose the cover screws on the left and right sides.
- Upward and remove the inverter cover.
- Use the electric screw driver to detach the screws and remove inverter dead front cover.
- Use the socket wrench with hex head to remove the three port caps on the left side of the Hybrid for the conduit.





Step-2

Connect PV Wiring Cables to Hybrid Inverter

a. Prepare the conduit for PV wiring connections with the Hybrid.

- Install a threaded adapter or cable gland to tighten up the conduit to Hybrid. (Adapter OD thread must be NPT 1-1/4").

⚠ **NOTE**: Each set of PV cables, PV+ and PV-, must connect to the correct terminal of the Hybrid.

b. Route the PV cables through the conduit and connect to the designated terminal blocks in the Hybrid inverter.（Ref. Figure 1）

- Use a flat-head screwdriver to press the PV- and PV+ terminal blocks to open and insert cables and then release to terminate the PV wires in place.

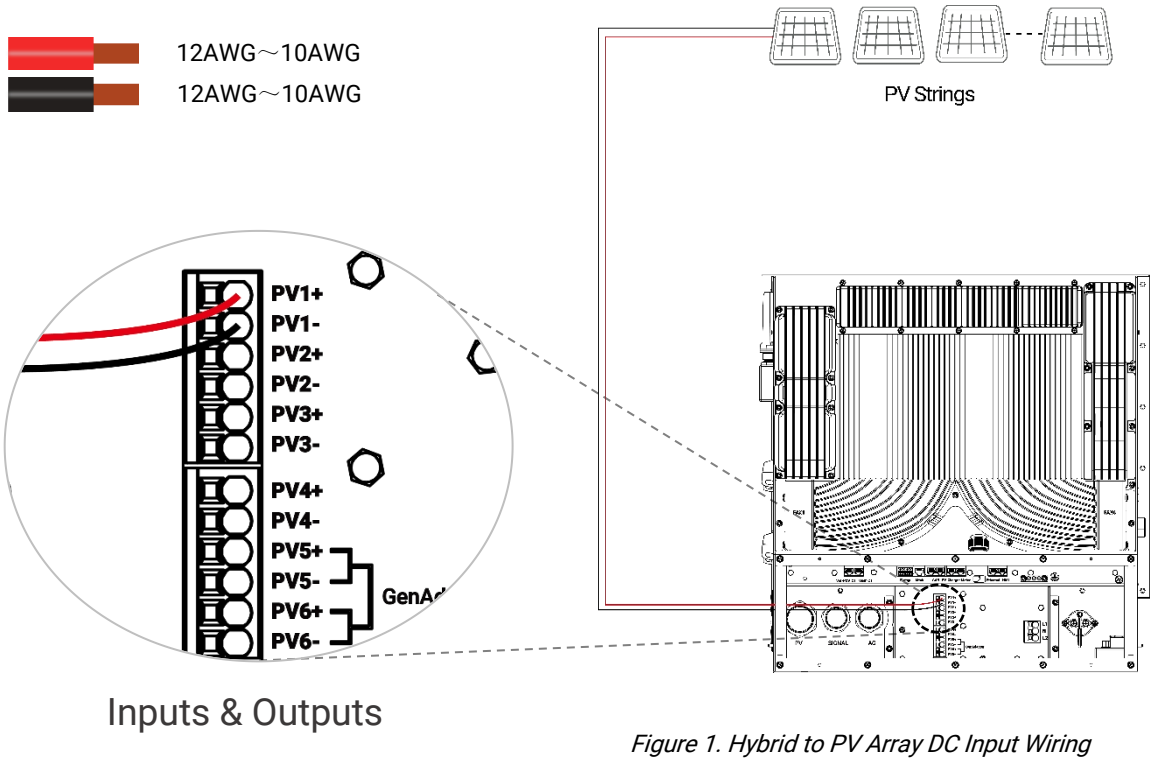


Figure 1. Hybrid to PV Array DC Input Wiring

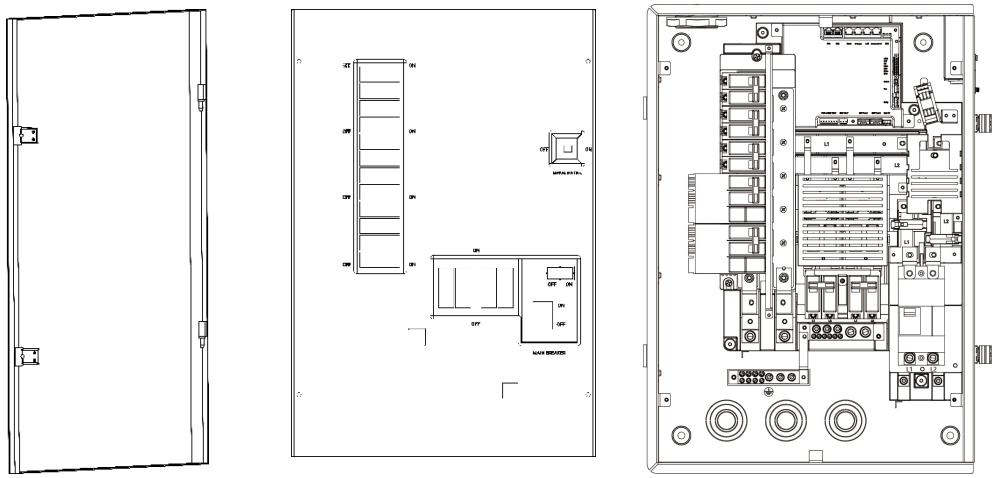
B. Wiring From the Hybrid to Smart Gateway

Step-1

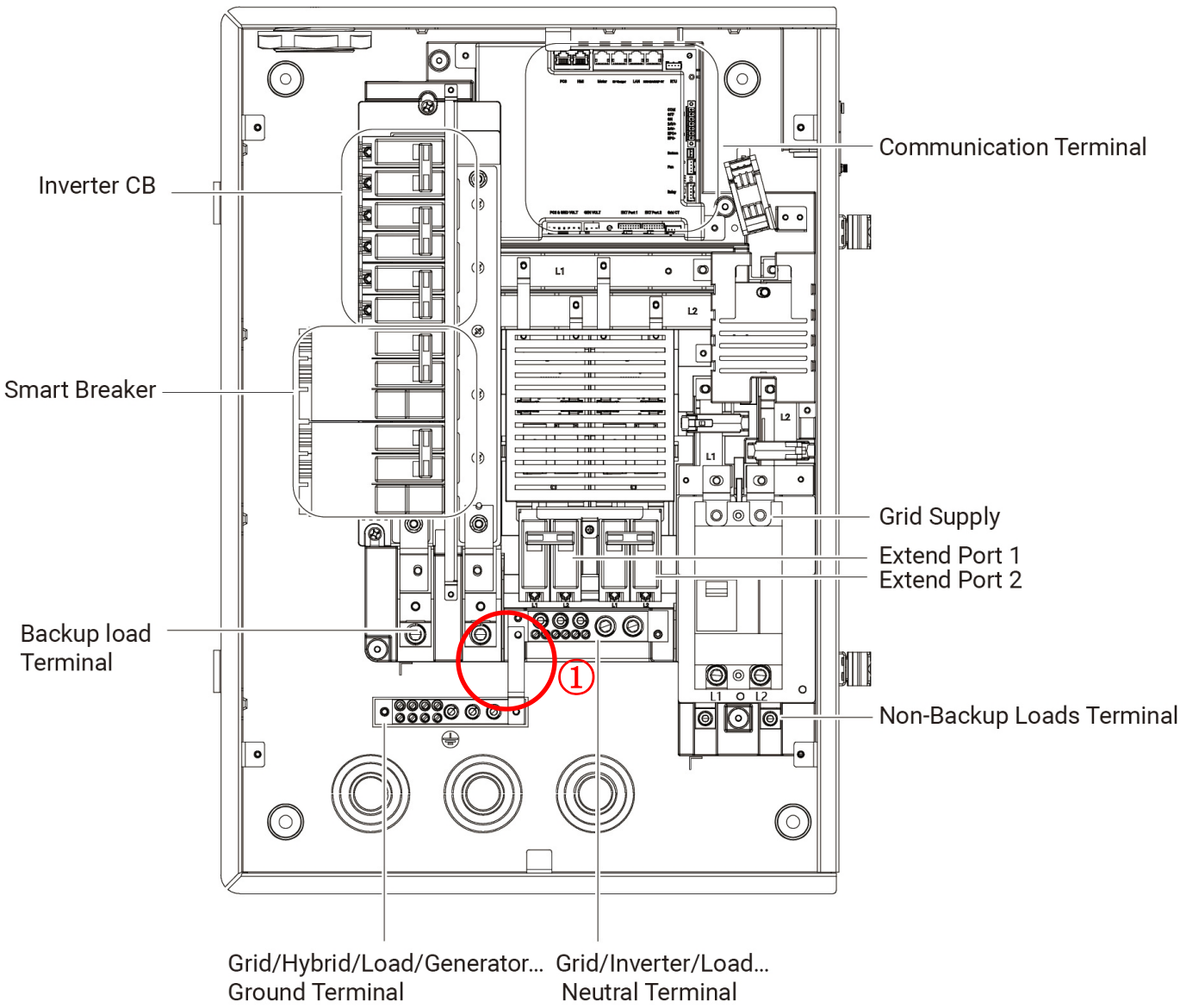
Open the Smart gateway for wiring

a. Remove the Smart gateway panel covers:

- Open the two Smart Gateway panel latches and open the cover.
- Use the electric screw driver to remove screws and remove the Smart Gateway dead front cover.



a) Main breaker preinstalled in the Smart Gateway.

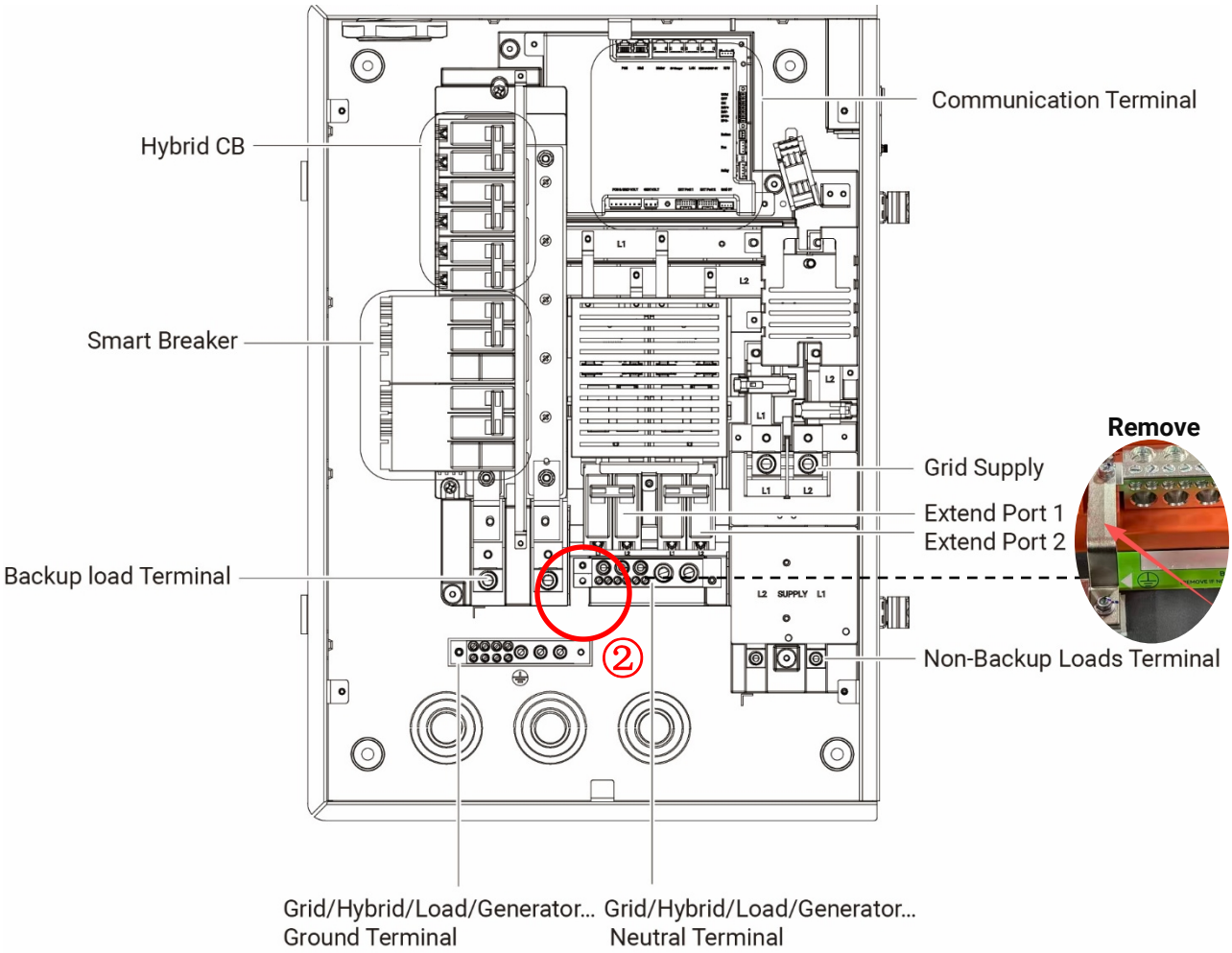


⚠ **WARNING:**

① When the SG serves as the main panel, Please keep neutral (N) and ground (G) bound point together in the Smart Gateway.

The system does not permit two or more N-G bonding points. Otherwise, it may damage household loads and the EP CUBE.

b) No main breaker preinstalled in the Smart Gateway.



⚠ **WARNING:**

② When the SG doesn't serve as the main panel. Please remove the neutral (N) and ground (G) bound point in the Smart Gateway.

The system does not permit two or more N-G bonding points. Otherwise, it may damage household loads and the EP CUBE.

Step-2

Connect Hybrid Wires to Smart Gateway

a. Prepare the conduit for the hybrid power cables to the Smart gateway hybrid breaker and other terminals.

b. Open the Smart gateway COMS and the Hybrid port to mount conduits:（Ref. Figure 2）

- Use the hammer to drill the Smart gateway bottom “COMS port” and “HYBRID port” with a hole saw for cable gland installation.
- Install the cable gland and tighten up the conduit to the Smart gateway.
- Install a threaded adapter or cable gland to tighten up the conduit to the Hybrid.(Adapter OD thread must be NPT 1”).
- Affix the conduit onto the wall with the proper distance between clamps.

⚠ **NOTE:** Knockout at the bottom of the Smart Gateway can be used to install a cable gland with a diameter of 3/4” - 2’’.

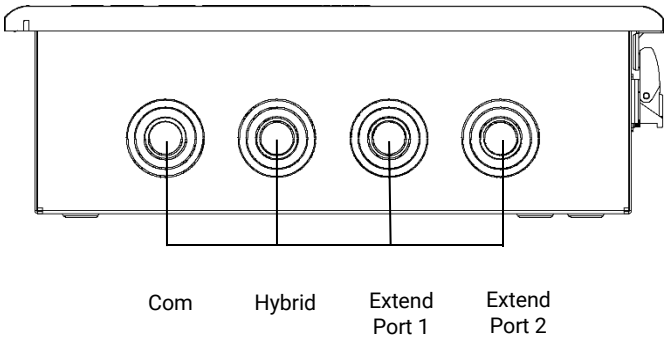
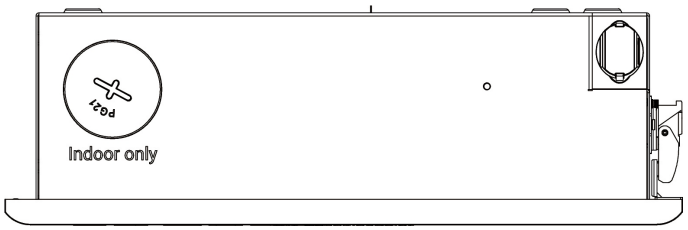


Figure 2. Smart Gateway Knockouts



⚠ **NOTE:**

- **Knockout at the top of the Smart Gateway is indoor only.**
- Please note that the sign indicating "Indoor Only" was not displayed in the prior version. And the knockout at the top of the Smart Gateway does not allow outdoor installation.

c. Route the Hybrid cables through the conduit to connect it to the Smart gateway hybrid breaker:（Ref. Figure 3）

- Follow the local standards to select different colours for 4 AWG cable for L1, N, L2, and ground between hybrid and the Smart Gateway.
- Strip the wire ends using a wire stripper, use a flat-head screwdriver to unscrew the breaker terminals, then insert the cables and fasten the screws.
- Refer to figure 3 for wiring the AC output L1, N, L2, and ground cable between the Hybrid and Smart gateway breaker.

⚠**NOTE:** If more than one Hybrid is connected with the Smart Gateway, please refer to Chapter of Expansion of EP CUBE for instructions on wiring.

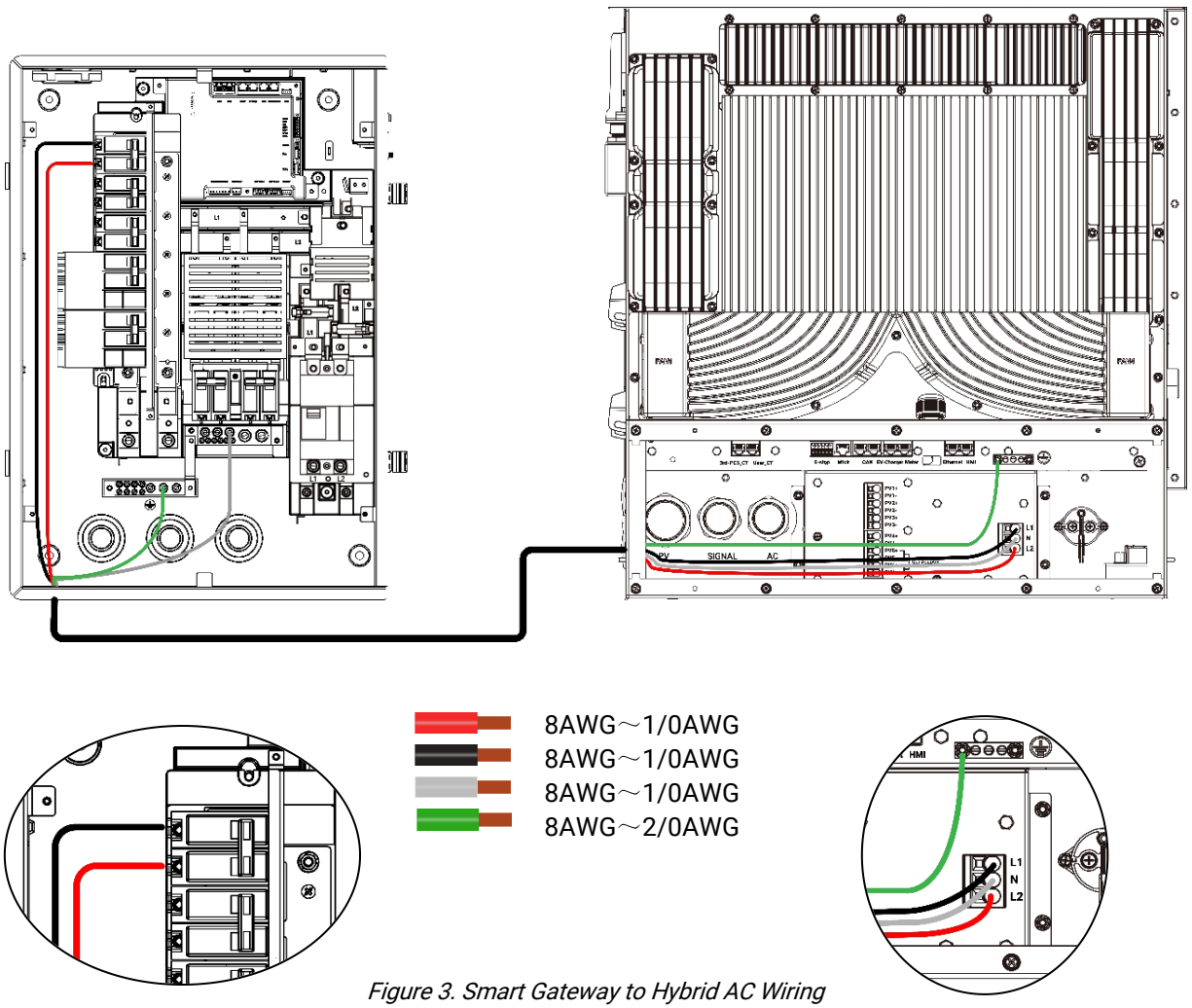


Figure 3. Smart Gateway to Hybrid AC Wiring

d. Route the Hybrid signal wire through the conduit to connect it to the Smart gateway CAN terminal:（Ref. Figure 4)

- Press the RJ45 connector to insert and lock the signal wire. The table below shows the terminal in Smart Gateway and Hybrid.

SG Terminal	Hybrid Terminal
PCS	CAN

e. Inspect the pre-installed resistors in the inverter_CAN1,CAN2 terminal. Both resistors should be installed.

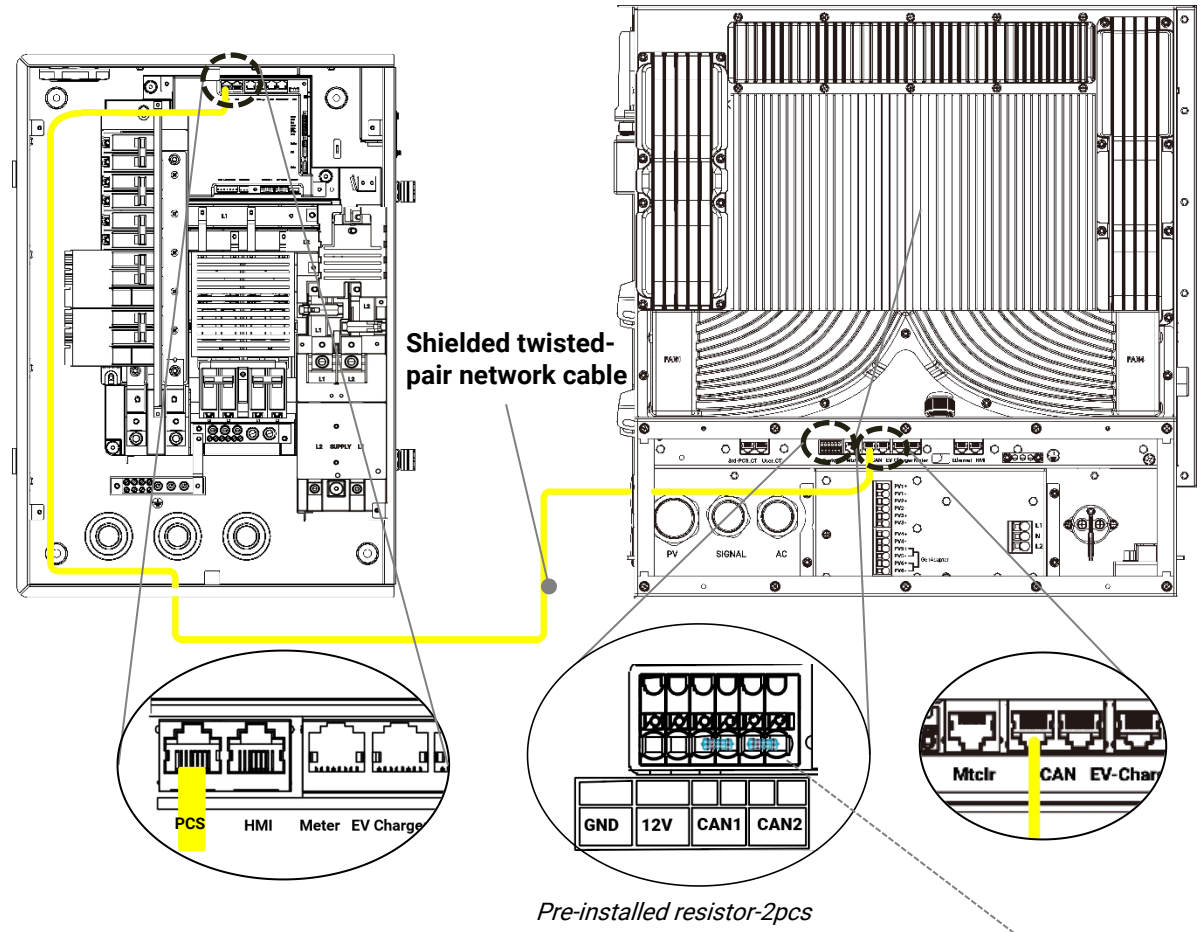
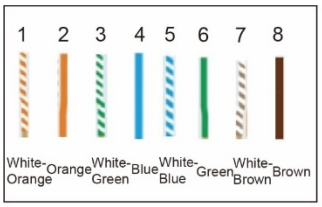


Figure 4. Smart Gateway to Hybrid Communication Wiring

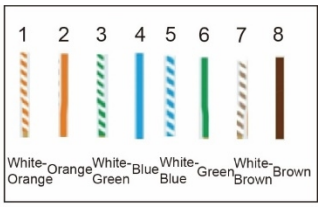
Cable Connections

The cables from SG port to PCS are connected as the figure below.

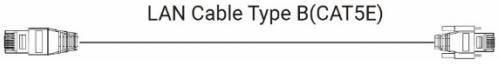
The standard network cables are provided. When the standard network cable length is NOT long engouh, or due to human damage or other reasons, users need to make their own communication cables, they must meet the following requirements:



T568B（Type B）



T568B（Type B）



LAN Cable Type B(CAT5E)

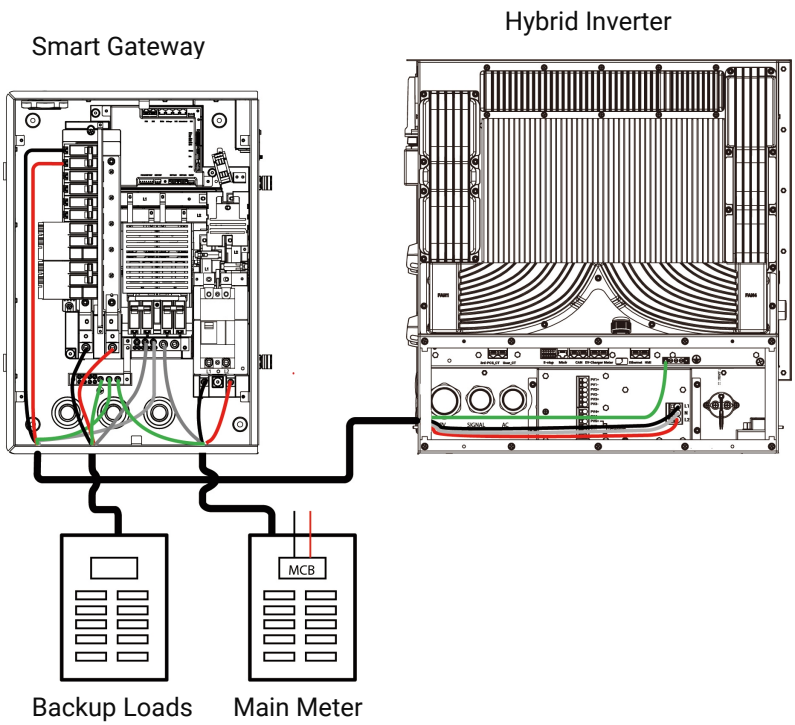
NO.	Port
1	PCS_SGND
2	PWMA PCS
3	＋PCS_15V
4	CANL2
5	CANH2
6	I/O PCS
7	CANL1
8	CANH1

C. Wiring of Grid and Load in Smart Gateway

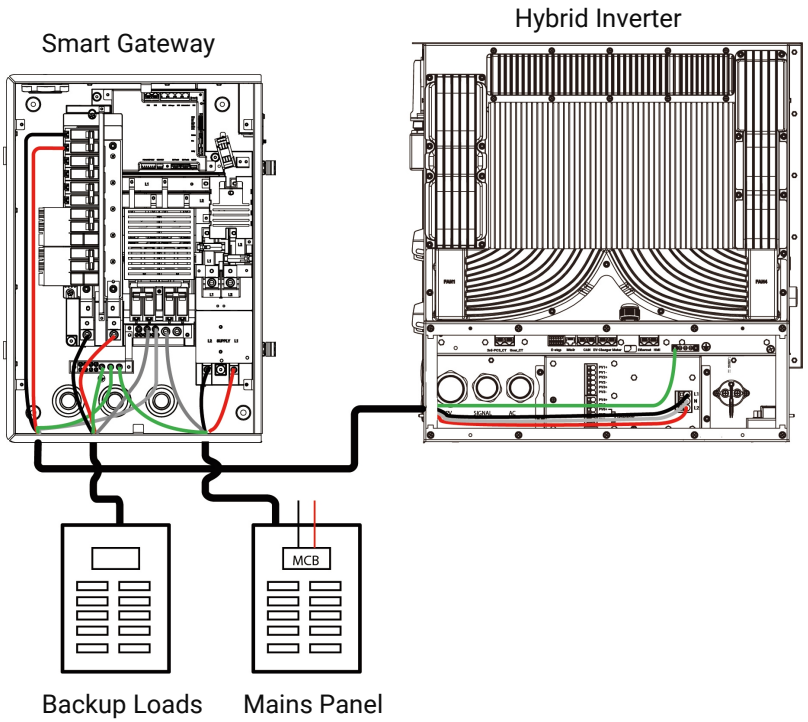
⚠CAUTION：

- Ensure all circuit breakers are turned off, and PPE is properly worn before getting started.
- Ensure that the property main breaker for the Grid connection is turned off and protected with Lockout/Tagout.
- For partial home backup, between the backup loads and the Smart gateway load terminal, there must be a power panel to combine all load connections, then this panel can connect to the Smart gateway load terminal.
- All cables between equipment need to be wired through conduits, The conduits must be affixed to the wall with clamps at the appropriate distance.

a) Main breaker preinstalled in the Smart Gateway.



b) No main breaker preinstalled in the Smart Gateway.



Step-1

- Wiring Connection of Grid(240V_{AC})

a. Prepare the conduit for the Grid power cable connection between the Grid power panel or the main breaker and Smart gateway, and install a cable gland to install the conduit to the Smart Gateway:

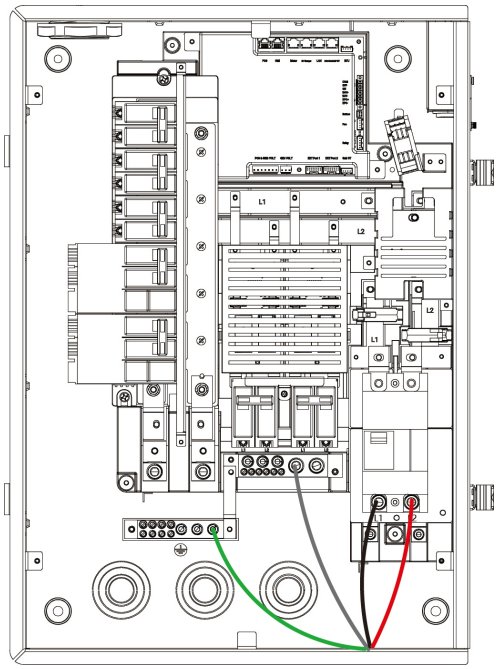
- Select an appropriate knockout for Grid on the bottom of the Smart gateway to install the cable gland. (Ref. to Figure 5.)
- Install the cable gland and tighten up the conduit to the Smart gateway.

⚠ **NOTE:**

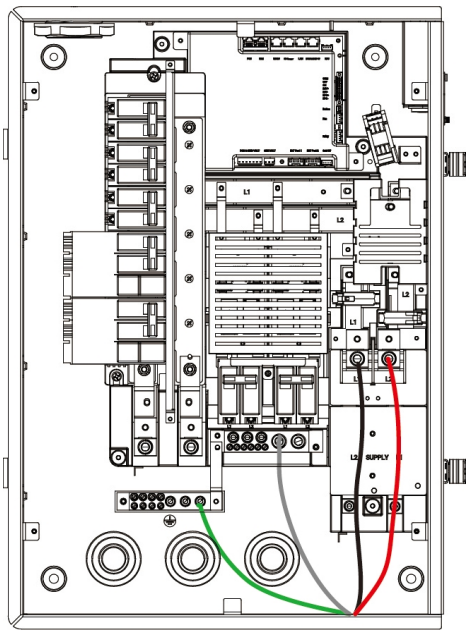
Knockout for the grid at the bottom of the Smart gateway can be used to install a cable gland with a diameter of 3/4" -2".

b. Route the Grid power cable through the conduit and connect it to the Smart gateway Grid terminal. (Ref. to Figure 5.)

a) Main breaker preinstalled in the Smart Gateway.



b) No main breaker preinstalled in the Smart Gateway.





4AWG～250kcmil
4AWG～250kcmil
4AWG～250kcmil
8AWG～2/0AWG

Figure 5. Smart Gateway Grid Wiring

- Wiring Connection of Grid(208V_{AC})

a. Prepare the conduit for the Grid power cable connection between the Grid power panel or the main breaker and Smart gateway, and install a cable gland to install the conduit to the Smart Gateway:

- Select an appropriate knockout for Grid on the bottom of the Smart gateway to install the cable gland. (Ref. to Figure 5.)
- Install the cable gland and tighten up the conduit to the Smart gateway.

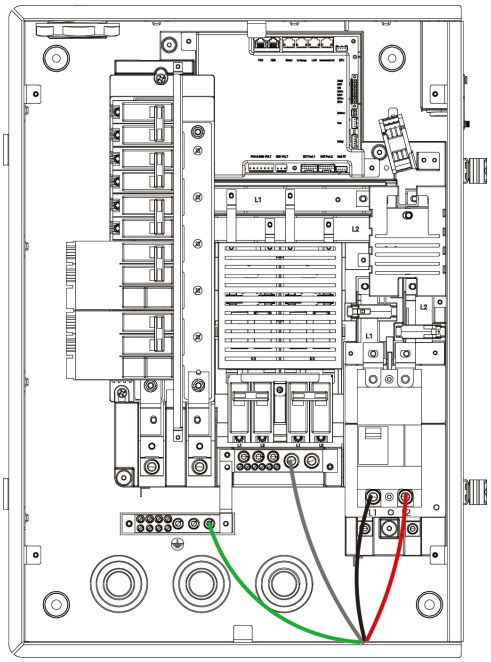
⚠ NOTE:

Knockout for the grid at the bottom of the Smart gateway can be used to install a cable gland with a diameter of 3/4" -2".

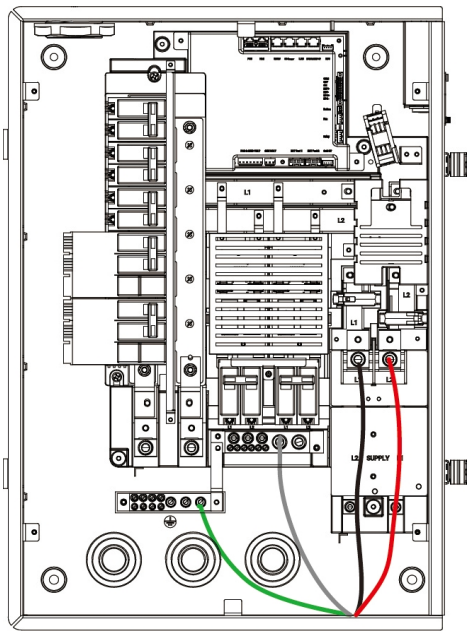
b. Route the Grid power cable through the conduit and connect it to the Smart gateway Grid terminal. (Ref. to Figure 6.)

c. Select any 2 phases from L1 (Black), L2 (Red), and L3 (Blue) and connect them to the EP CUBE system.

a) Main breaker preinstalled in the Smart Gateway.



b) No main breaker preinstalled in the Smart Gateway.



4AWG～250kcmil
4AWG～250kcmil
4AWG～250kcmil
8AWG～2/0AWG

Figure 6. Smart Gateway Grid Wiring

Step-2

Wiring Connection of Backup Load

a. Prepare the conduit for the Load power cable connection between the backed up loads power panel and the Smart Gateway, then install a cable gland to tighten the conduit to the Smart Gateway.

- Select an appropriate knockout for the load on the bottom of the Smart gateway to install the cable gland. (Ref. to Figure 6.)
- Install the cable gland and tighten the conduit to the Smart Gateway.

⚠ **NOTE:**

- Knockout for the load at the bottom of the Smart gateway can be used to install a cable gland with a diameter of 3/4" – 2".
- Please ensure the load power cable is well protected when combined with the grid power cable in one conduit.

b. Route the load power cable through the conduit and connect it to the Smart Gateway load terminal. (Ref. to Figure 6.)

c. Connect the load power cable and the backup load appliances on the backup load power panel.

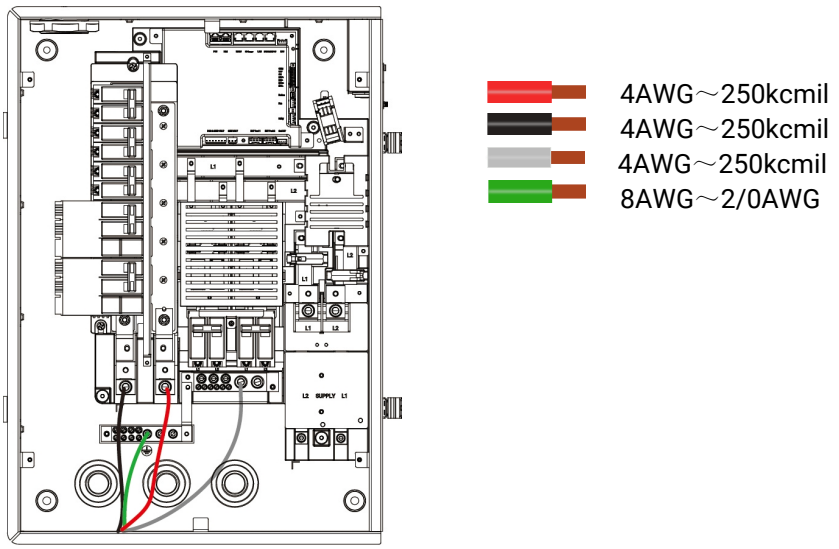
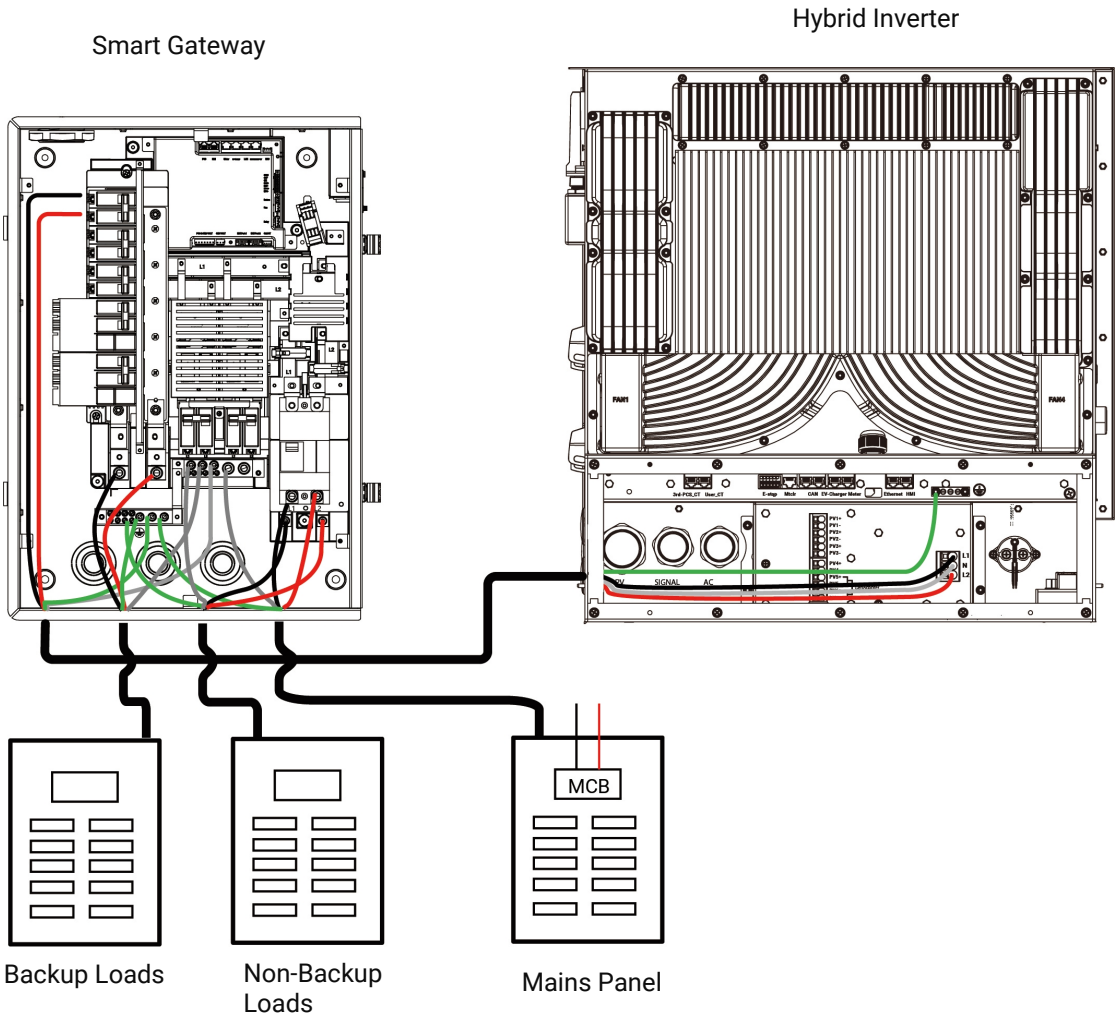


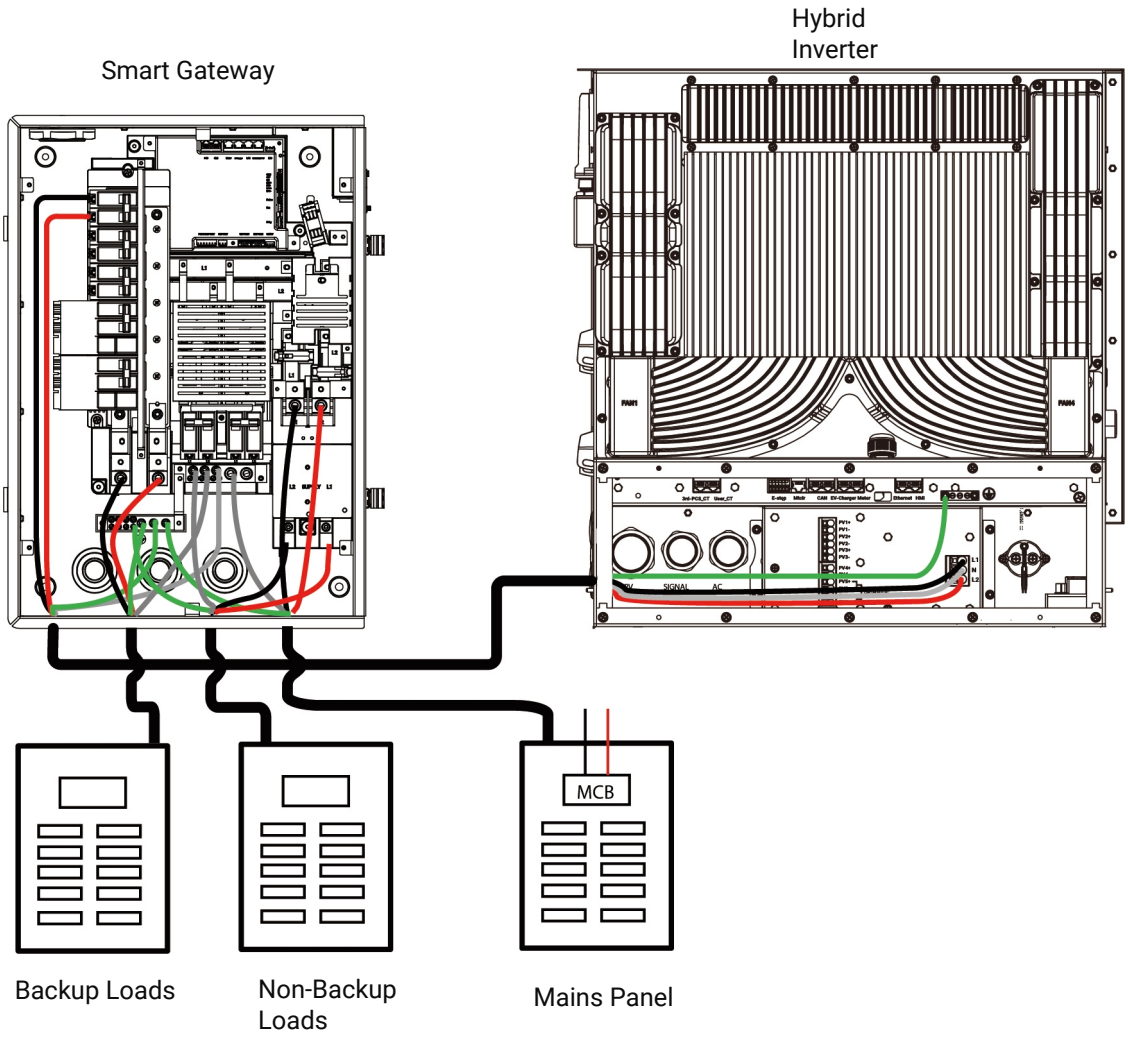
Figure 6. Smart Gateway Backup Load Wiring

⚠ **NOTE:** In this configuration the "CT-Kit" is installed to monitor the non-backup load power consumption.

a) Main breaker preinstalled in the Smart Gateway.



b) No main breaker preinstalled in the Smart Gateway.



Step-1

Wiring of Grid

a. Prepare the conduit for the Grid power cable connection between the Grid power panel or main breaker and the Smart Gateway. Install a cable gland to tighten the conduit to the Smart Gateway.

- Select an appropriate knockout for Grid on the bottom of the Smart gateway to install the cable gland. (Ref. to Figure 2.).
- Install the cable gland and tighten the conduit to the Smart gateway.

⚠ **NOTE:** Knockout for the grid at the bottom of the Smart gateway can be used to install a cable gland with a diameter of 3/4" - 2'.

b. Route the Grid power cable through the conduit and connect it to the Smart gateway Grid terminal. (Ref. Figure 5.)

Step-2

Wiring of Backup Load

a. Prepare the conduit for the backup load power cable connection between the backup load power panel and the Smart gateway. Install a cable gland to tighten the conduit to the Smart gateway.

- Select an appropriate knockout for the load on the bottom of the Smart gateway to install the cable gland. (Ref. to Figure 2.)
- Install the cable gland and tighten the conduit to the Smart gateway.
- Route the load power cable through the conduit and connect it to the Smart Gateway load terminal. (Ref. to Figure 6.)
- Connect the load power cable and backup load appliances to the backup load power panel.

⚠ NOTE：

- Knockout for the load at the bottom of the Smart gateway can be used to install a cable gland with a diameter of 3/4" - 2'.
- Ensure the load power cable is well protected when both the grid power cable and the backup load cable share the same conduit.

Step-3

Wiring of Non-Backup Load

a. Prepare the conduit for the Non-backup load power cable connection between the Non-backup load power panel and the Smart gateway. Install a cable gland to tighten the conduit to the Smart gateway.

- Select an appropriate knockout for the Non-backup load on the bottom of the Smart gateway to install the cable gland. (Ref. to Figure 2.)
- Install the cable gland and tighten the conduit to the Smart gateway.

- Route the load power cable through the conduit and connect it to the Smart Gateway load terminal. (Ref. to Figure 7.)
- Connect the load power cable and Non-backup load appliances to the Non-backup load power panel.

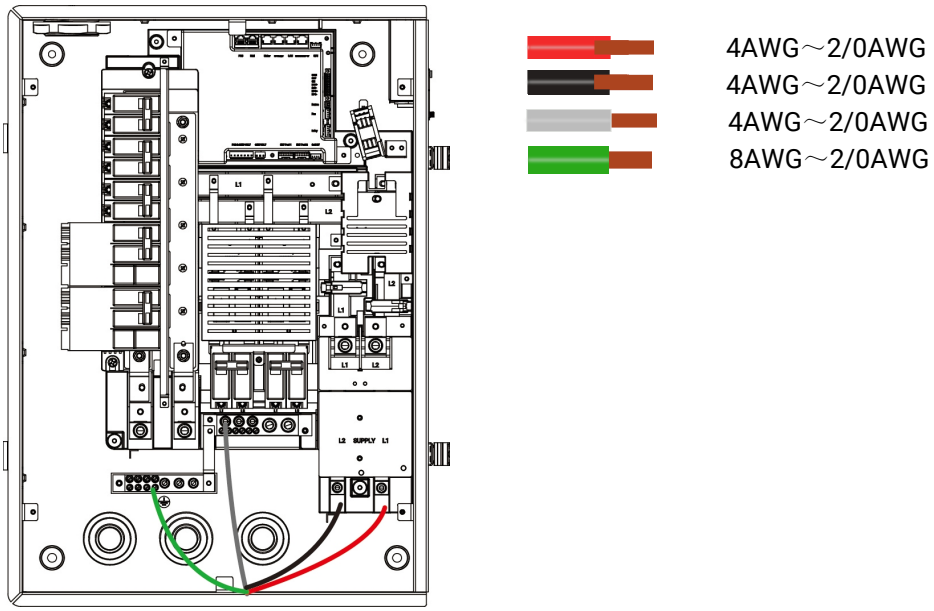
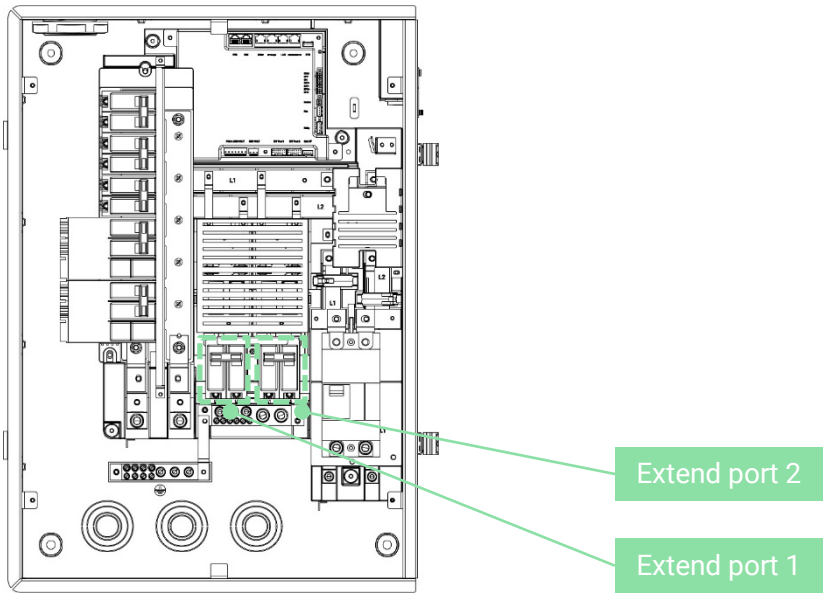


Figure 7. Smart Gateway Non-Backup Load Wiring

D. Extend Port 1& 2

The Smart Gateway is equipped with two expansion ports called Extend port 1 and Extend port 2. Extend port 1 allows the connection with any one device from available devices such as a generator, PV inverter, and EV charger. Similarly, Extend port 2 allows the connection with either an EV charger or a PV inverter. Both expansion ports utilize electronically controlled relays generally referred to as control kits that are preinstalled in the Smart Gateway.



- Wiring Appliances, EV Chargers, AC PV, and Generators at Extend Port same diagrams like other sections & Generator Coms Wiring & Refer to Website & Tech docs. The Extend Port supports a maximum current of 80A.

⚠ **CAUTION:** In accordance with the National Electrical Code (NEC), for Bus or Conductor Rating: The sum of the ampere ratings of overcurrent devices in circuits supplying power to a busbar or conductor shall not exceed 120% of the rating of the busbar or conductor". The installer must ensure that the Bus or conductors are not overloaded during the expansion of the EP Cube system.

⚠ **CAUTION:** Both expansion ports are controlled electronically through relays. As per the NEC code, AC-generating or consuming devices require an over-current protection device (OCPD) before the busbar. So any connected devices, such as an EV charger, generator, or AC-coupled PV system will need an OCPD before it is connected to the port. It is recommended that the installer should add circuit breakers before connecting these devices to the Smart Gateway.

E. Wiring of Other Components

⚠ **CAUTION:**

- Please ensure all circuit breakers are turned off and PPE is properly worn before getting started.
- Please ensure that the property main breaker of the Grid is turned off and protected with Lockout/Tagout.

a. Wiring of Emergency Stop（Optional）

Step a. Remove the press-fit jumper on the Smart Gateway PCB board between terminals EPO+ & EPO-.

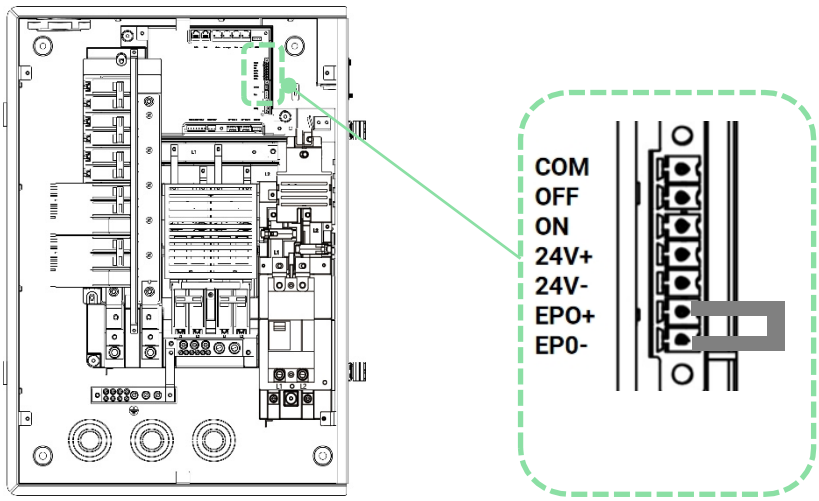


Figure 8. E-Stop terminal

Step b. Connect emergency stop wires to terminals EPO+ & EPO- .

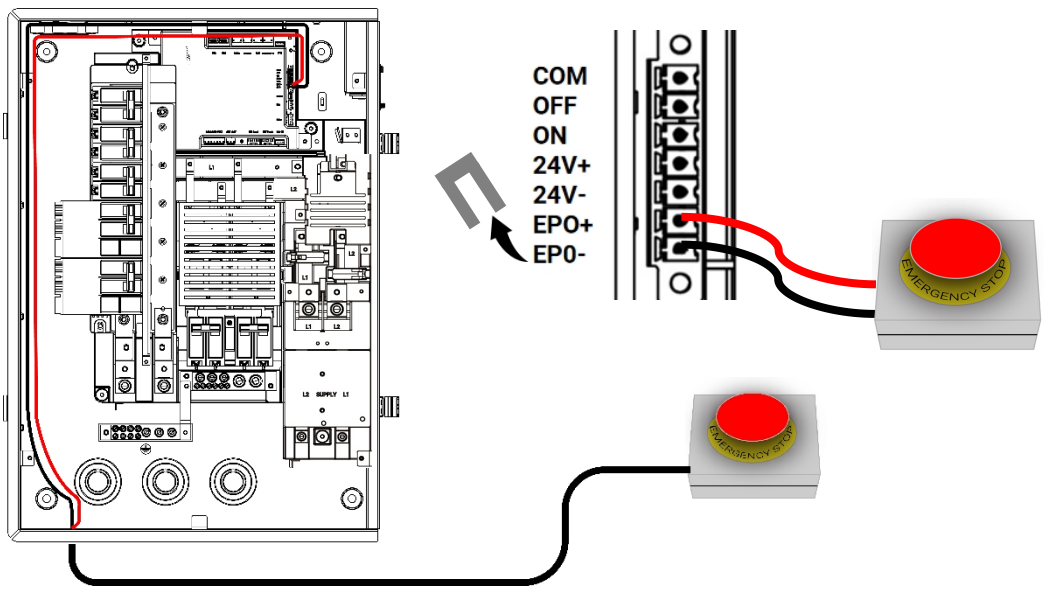


Figure 9. Wiring of E-stop

b. Wiring of " CT-Kit " (Partial home backup only, Optional)

⚠ **NOTE:** Pay attention to the CT's orientation, otherwise the system will not work correctly. The CT's direction on L1&L2 shall be from Grid to MCB (k → L) as shown in picture below.

The **200A CT**, which has a standard cable length of 10cm(3.94 inch), **is not provided** with the Smart Gateway and must be **ordered separately** (ref. to Figure 10).

The installer needs to prepare the shielded twisted pair network cable (with RJ45 terminal).

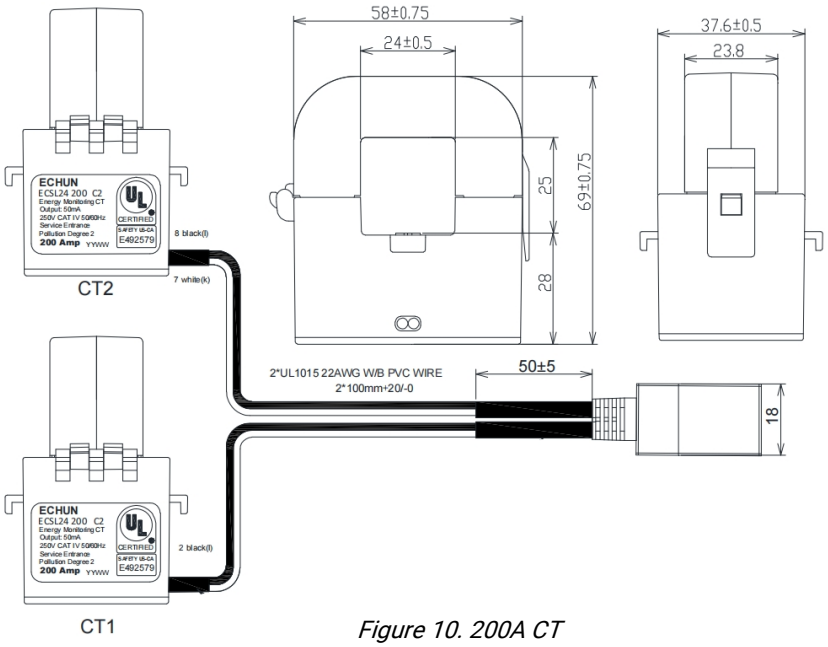


Figure 10. 200A CT

a) The Non-backup load wired in the main panel.

Route the "CT-Kit" signal wires through the Grid power cable conduit and connect it to the Smart gateway CT terminal. (Ref. to the figure given below)

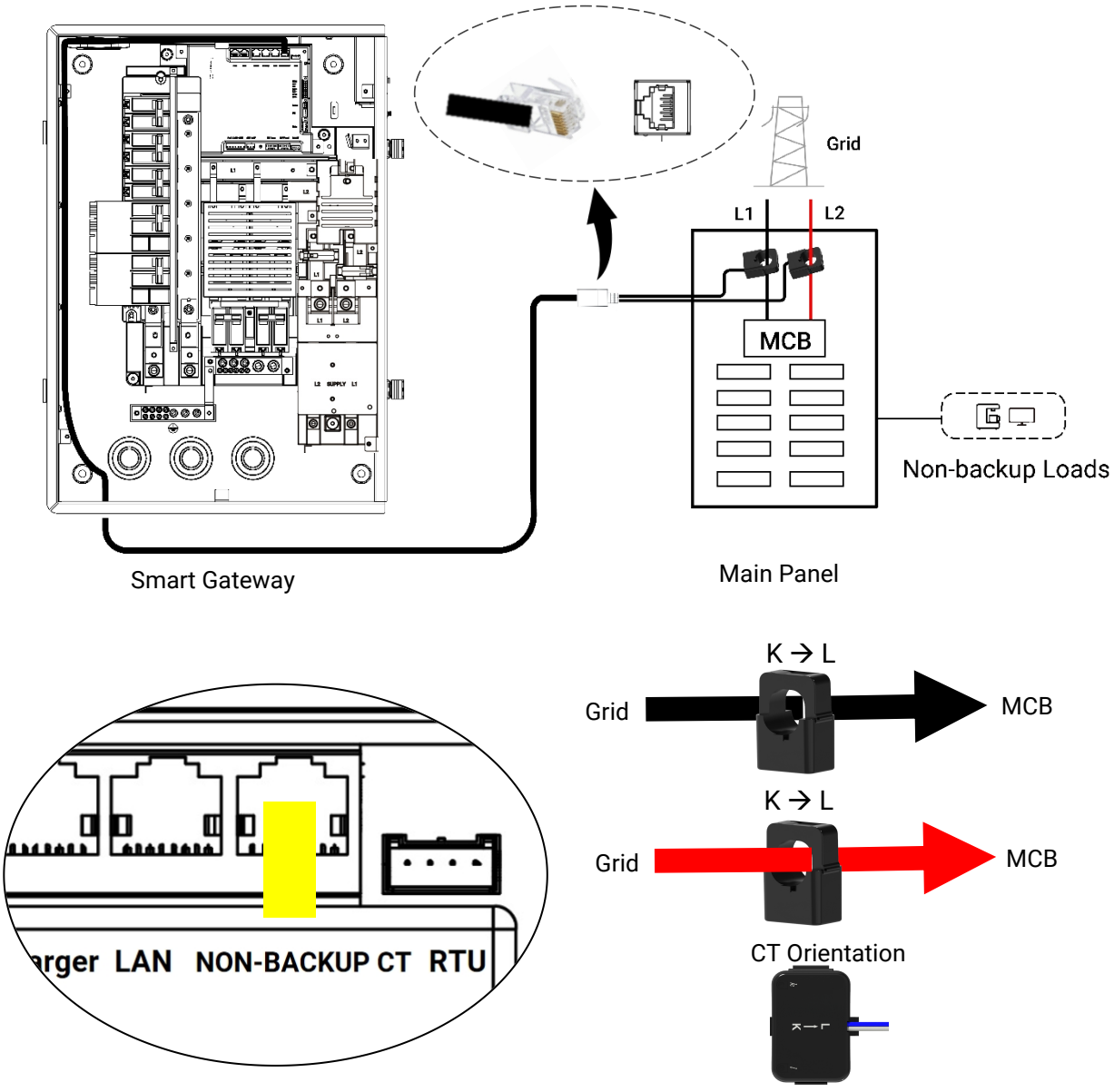


Figure 11. 200A CT wiring when the Non-backup load wired in MCB

⚠ **CAUTION:** The orientation of the CT should be correct, otherwise it may cause system failure or even damage to the EP CUBE or application.

b) The Non-backup load wired in the Smart Gateway

Route the “CT-Kit” signal wires through the load cable conduit and connect it to the Smart gateway CT terminal. (Ref. to the figure given below)

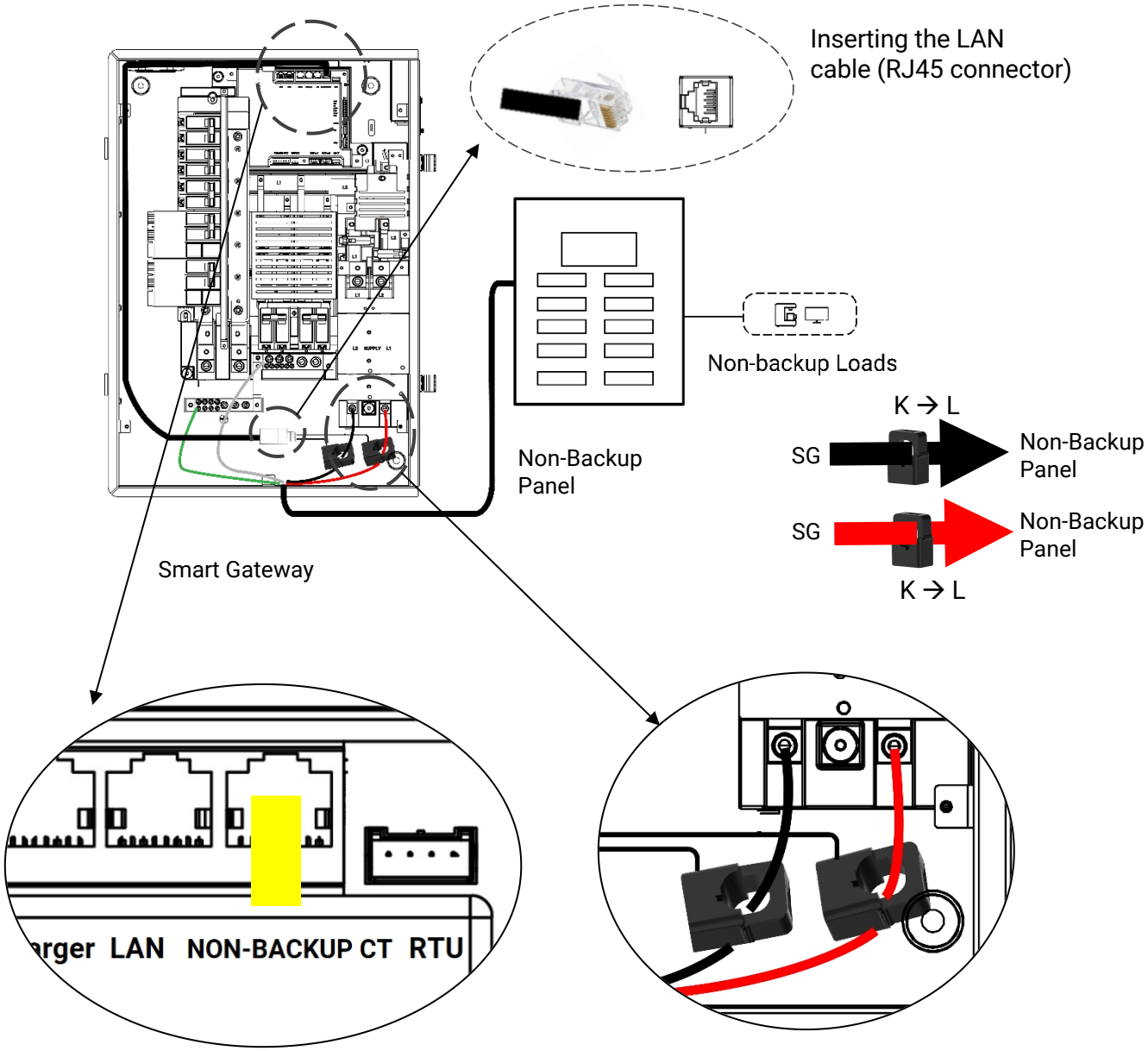


Figure 12. 200A CT wiring when the Non-backup load wired in SG

⚠ **CAUTION:** The orientation of the CT should be correct, otherwise it may cause system failure or even damage to the EP CUBE or application.

c. Wiring of " CT-Kit " for 3rd Inverter (Optional)

⚠ **NOTE:** The 'CT-Kit ' don't need to be installed if the 3rd inverter wired on the extend port of Smart Gateway. The CT needs to be installed if the 3rd inverter wired on the MCB.

Pay attention to the CT's orientation, otherwise the system will not work correctly. The CT's direction on L1 or L2 shall be from 3RD Inverter to MCB (k → L) as shown in picture below.

The **100A CT is not** provided with the Smart Gateway. Please contact with the sales team to order the an 100A CT.

It has a standard cable length of 20cm (7.87 inch). (ref. to Figure 13)

The installer needs to prepare the shielded twisted pair network cable (with RJ45 terminal).

⚠ **CAUTION:** The orientation of the CT should be correct, otherwise it may cause system failure or even damage to the EP CUBE or application.

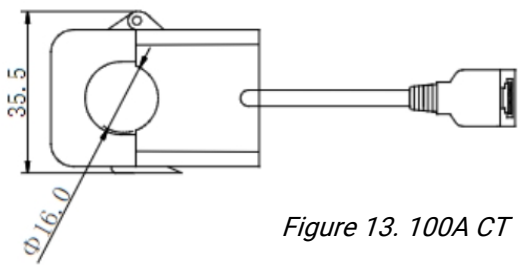


Figure 13. 100A CT

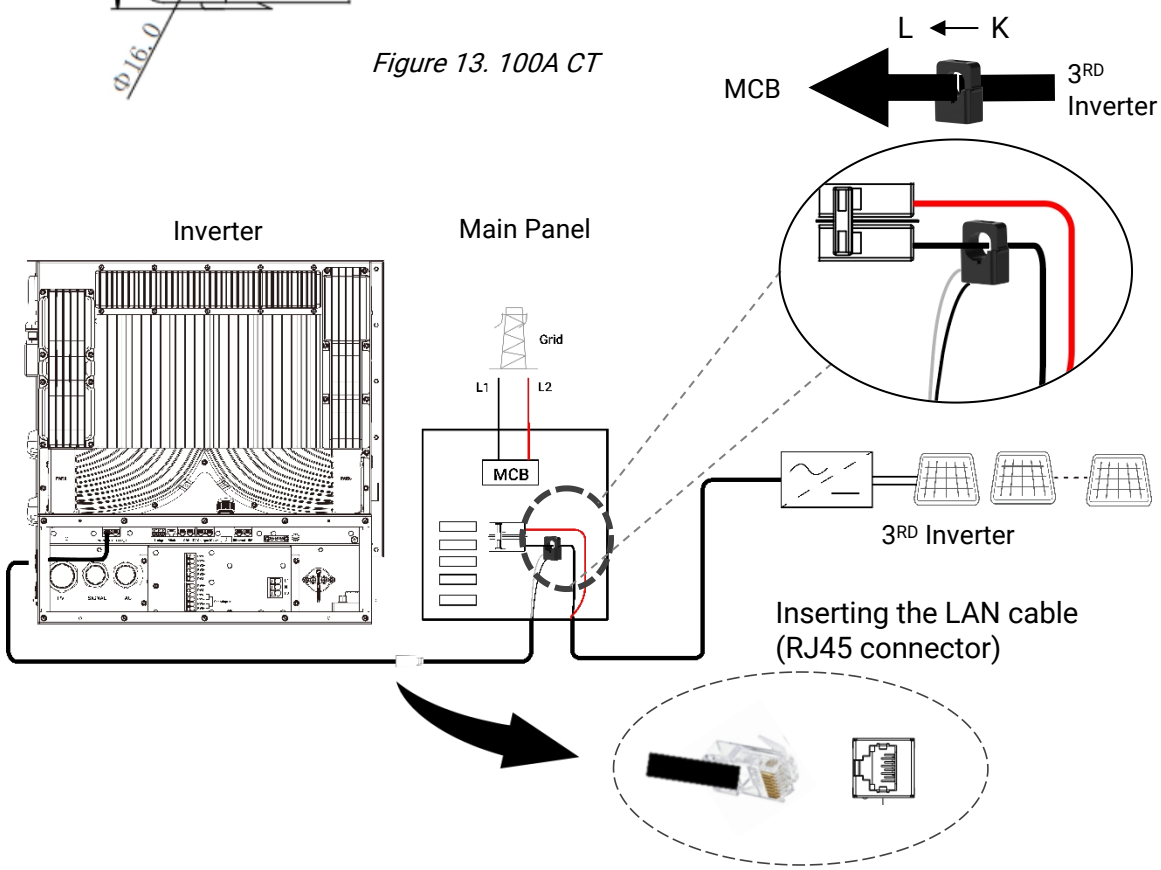
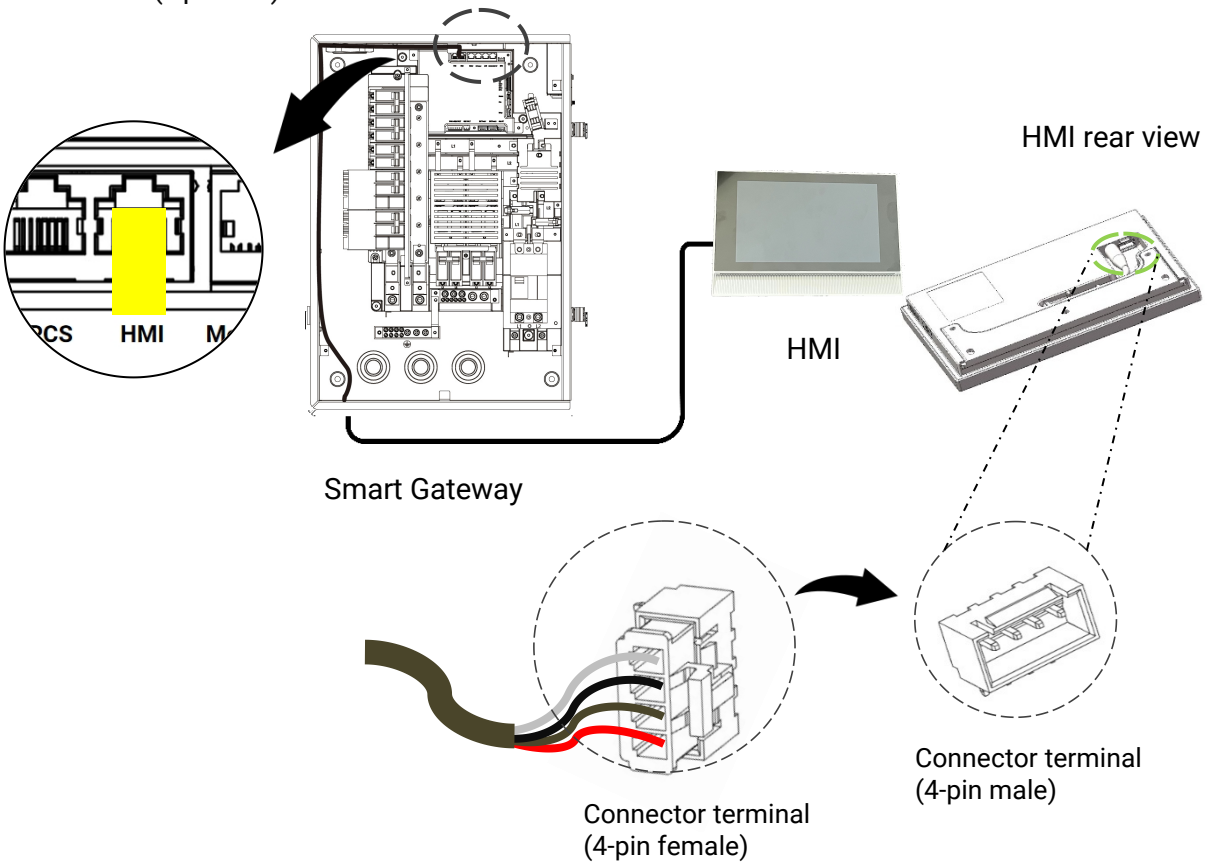


Figure 14. Wiring of " CT-Kit " for 3rd Inverter

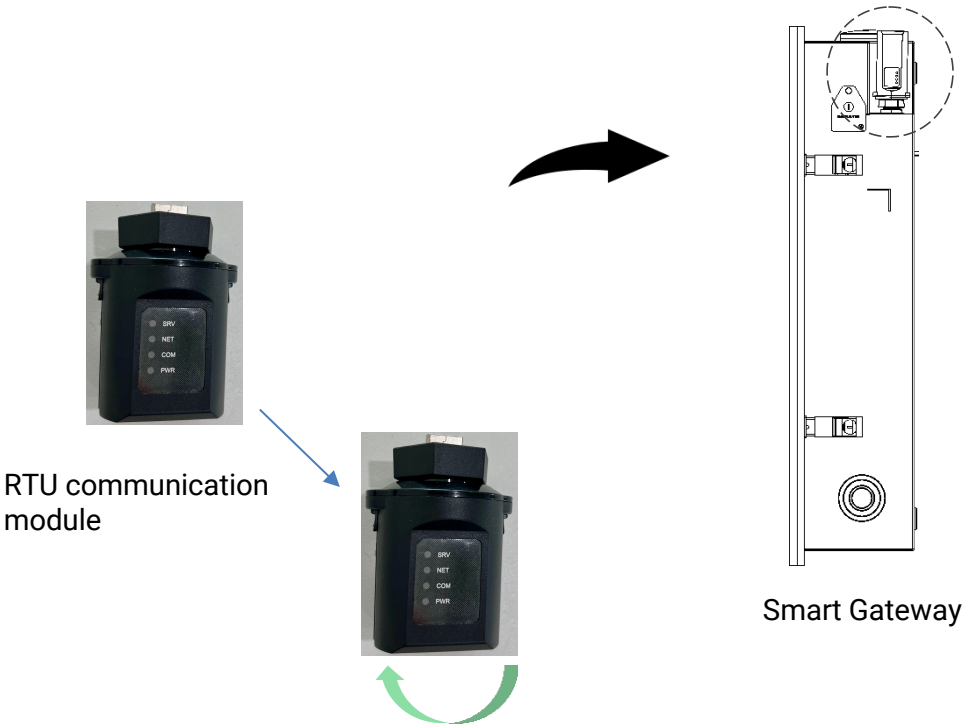
d. HMI (Optional)



e. RTU module (Optional)

EP CUBE system with SG: Install the RTU on the SG.

EP CUBE system without SG: Install the RTU on the inverter.



5.EXPANSION OF EP CUBE

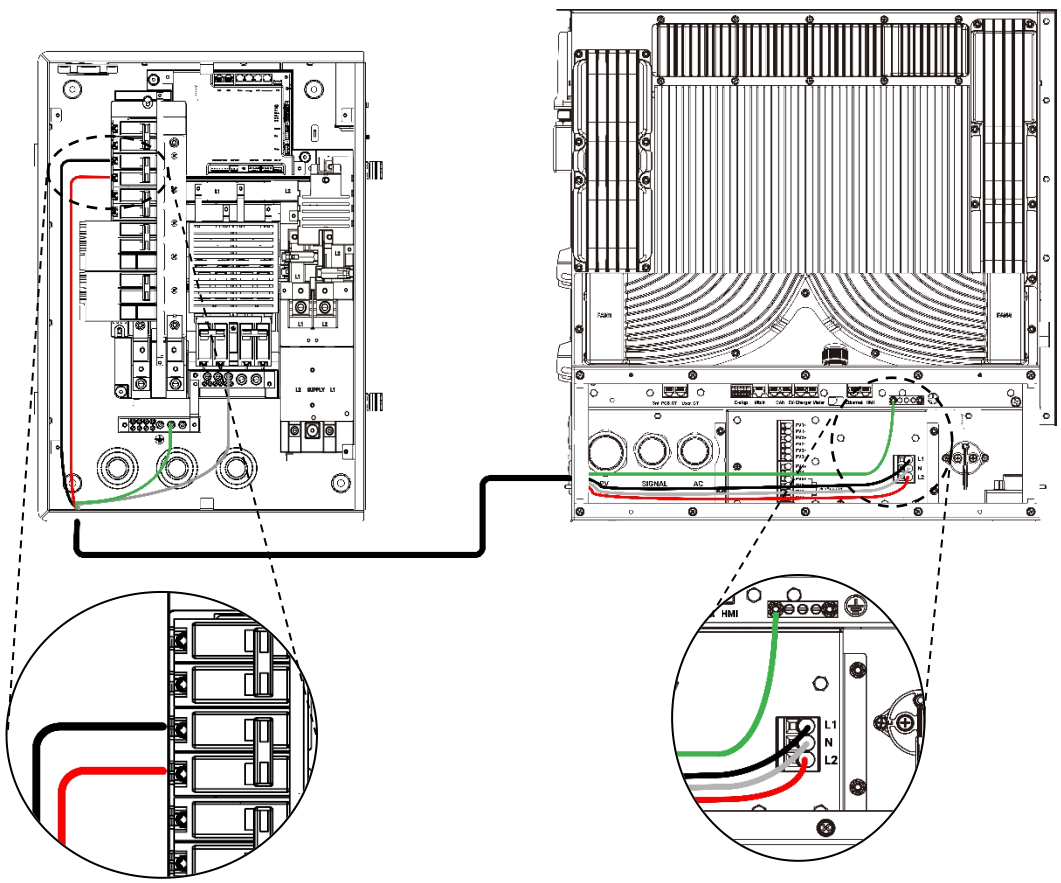
EP Cube Smart Gateway can integrate a maximum no. of 3x hybrid units. In addition to that Extend port-1 supports connection with any of the three devices from the Generator, PV inverter, and EV charger. The Extend port 2 only supports the connection of either an EV charger or a PV inverter.

A. Wiring of Additional Hybrid (In parallel)

In an event when more than one hybrid is required to meet the power demand, additional hybrid units can be connected with the Smart Gateway through optional capacity extend kits (Circuit Breakers) that can be installed on the Din Rail. Below figure shows 2x additional capacity extend kits installed.

⚠ **CAUTION:** Hybrid circuit breaker doesn't pre-installed in the Standard Smart Gateway. Capacity Extend Kits (circuit breakers) for additional hybrid units must be ordered separately, and installed.

8AWG～1/0AWG
8AWG～1/0AWG
8AWG～1/0AWG
8AWG～2/0AWG



Hybrid 2 Circuit Breaker

Hybrid 2 AC Output

Second Hybrid to Smart Gateway Wiring (For AC Power)

a. Prepare the conduit for the hybrid power cables to the Smart gateway knockout.

b. Route the Hybrid cables through the conduit to connect it to the reserve capacity extend kit (hybrid circuit breaker) according to the system requirements:（Ref. to the Picture above）

c. Follow the local standards to select different colours for 8AWG～1/0AWG cable for L1, N, L2, and ground between hybrid and the Smart Gateway. On Hybrid side, press down the terminal using flat-head screws, insert the cables and release the pressure in terminal.

d. On the Smart Gateway side, strip the wire ends using a wire stripper, use a flat-head screwdriver to unscrew the breaker terminals, then insert the cables and fasten the screws. Refer to picture above for wiring the AC output L1, N, and L2 between the Hybrid and Smart gateway breaker

Below figures show the general layout for 2x parallel Hybrid units and 3x parallel Hybrid units connected with a single Smart Gateway.

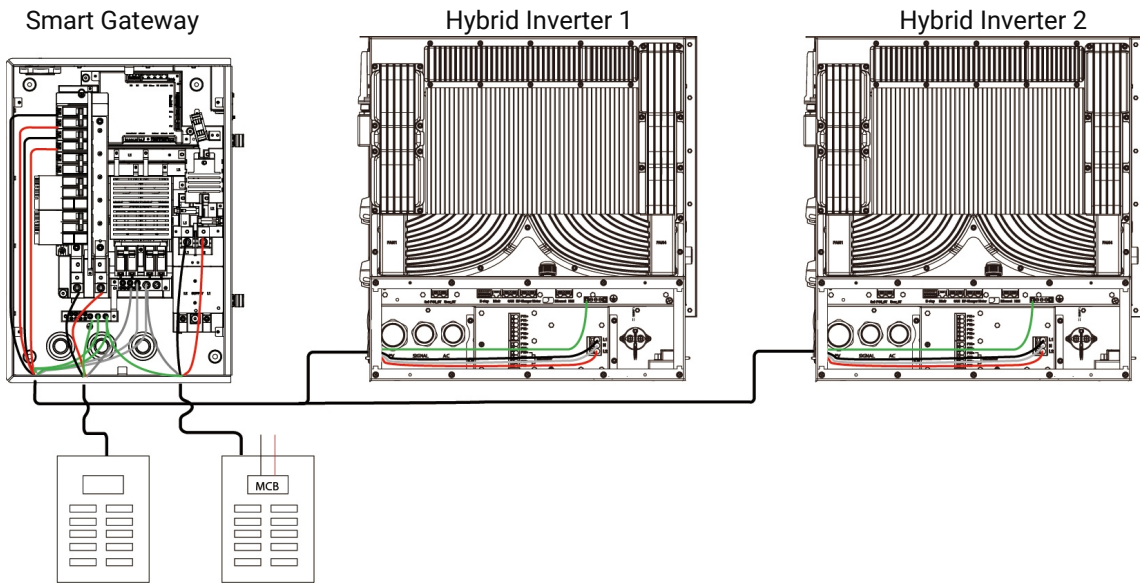
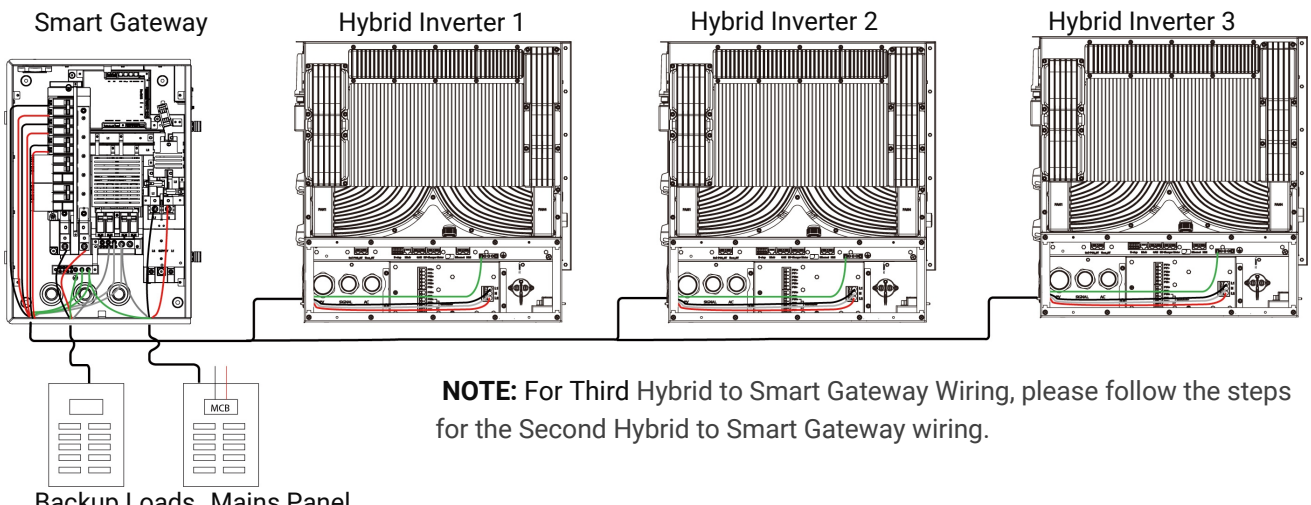


Figure 5-1 Second Hybrid to Smart Gateway Wiring



NOTE: For Third Hybrid to Smart Gateway Wiring, please follow the steps for the Second Hybrid to Smart Gateway wiring.

Figure 5-2 Third Hybrid to Smart Gateway Wiring

B. Communication Wiring for Additional Hybrid

a. Connect one end of the cable to the terminals of Hybrid 2 and the other end to the respective terminals of Hybrid 1. In the next step, connect Hybrid 1 to the Smart gateway communication terminals.

b. Push the RJ45 terminals.

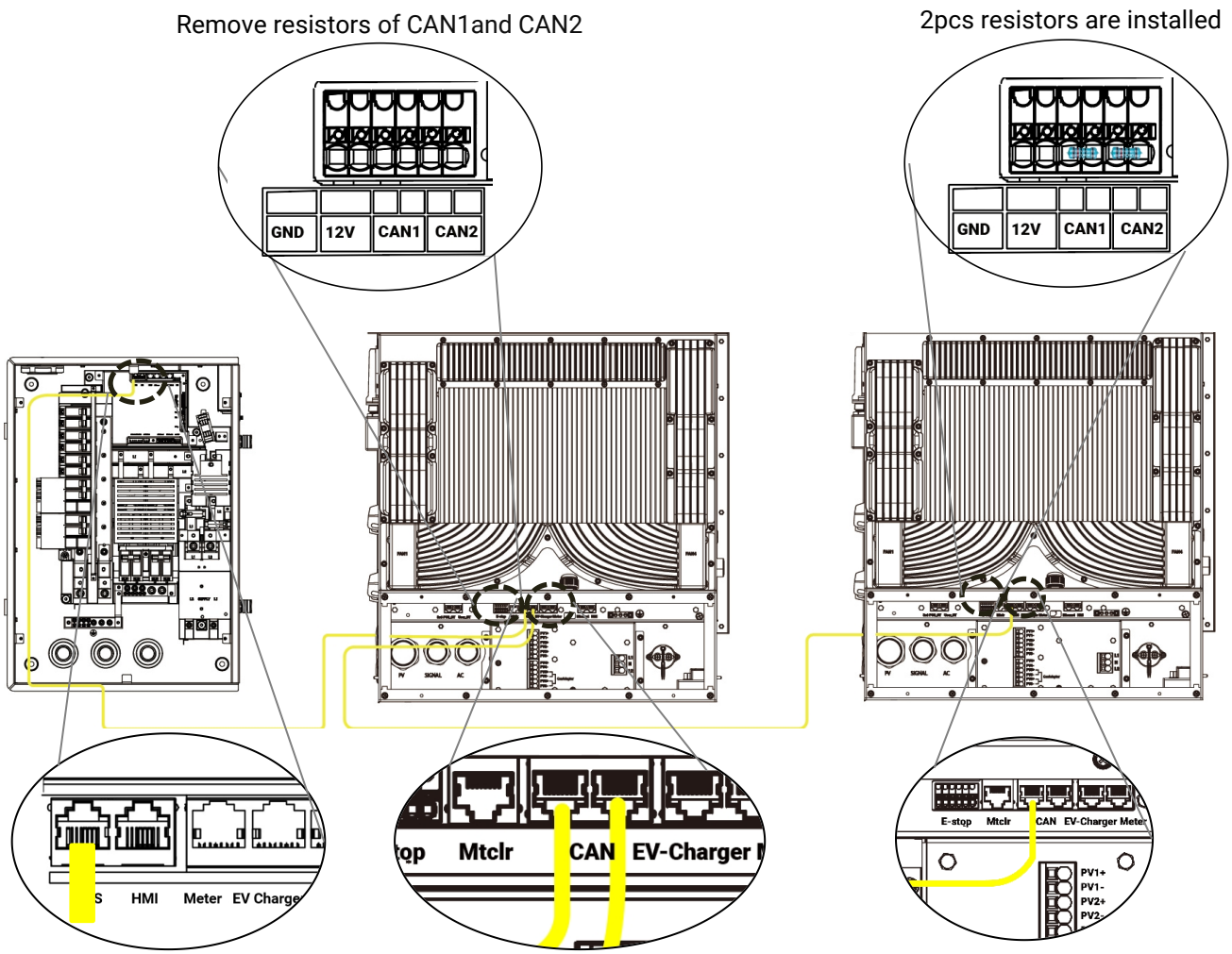
⚠ **NOTE:** Only the final Hybrid unit that is connected last in the chain starting from the Smart Gateway needs the installation of resistor. Other connected hybrid units do not require any modifications.

c. Inspect the pre-installed resistors in the inverter_CAN1,CAN2 terminal.

Hybrid1: Remove the resistors of CAN1and CAN2.

Hybrid2: Both resistors should be installed.

⚠**NOTE:** For multi-hybrids system, the last hybrid should install both resistors, and the other hybrids need to remove the resistors of CAN1and CAN2.



Smart Gateway CAN Wiring

Hybrid 1 CAN Wiring

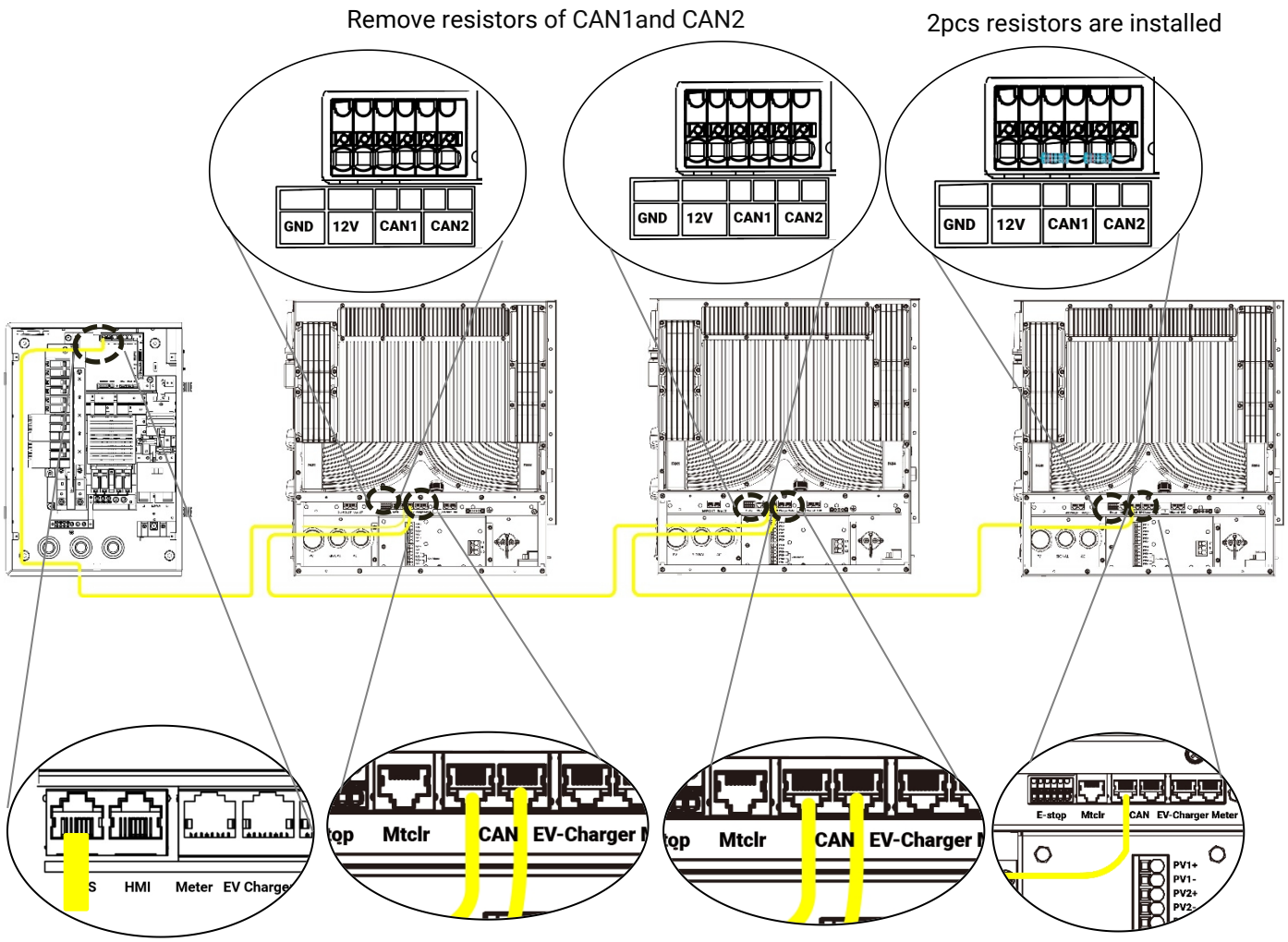
Hybrid 2 CAN Wiring

Hybrid1: Remove the resistors of CAN1and CAN2.

Hybrid2: Remove the resistors of CAN1and CAN2.

Hybrid3: Both resistors should be installed.

For multi-hybrids system, the last hybrid should install both resistors, and the other hybrids need to remove the resistors of CAN1and CAN2.



Smart Gateway CAN Wiring

Hybrid 1 CAN Wiring

Hybrid 2 CAN Wiring

Hybrid 3 CAN Wiring

6.EP CUBE COMMISSIONING

EP CUBE System Commissioning

This section introduces the EP Cube system's initial commissioning and operating process.

A. Log in the Portal to fill in the pre-install info.

B. Download and Install the APP

C. EP Cube Startup

D. Log in the APP by installer account

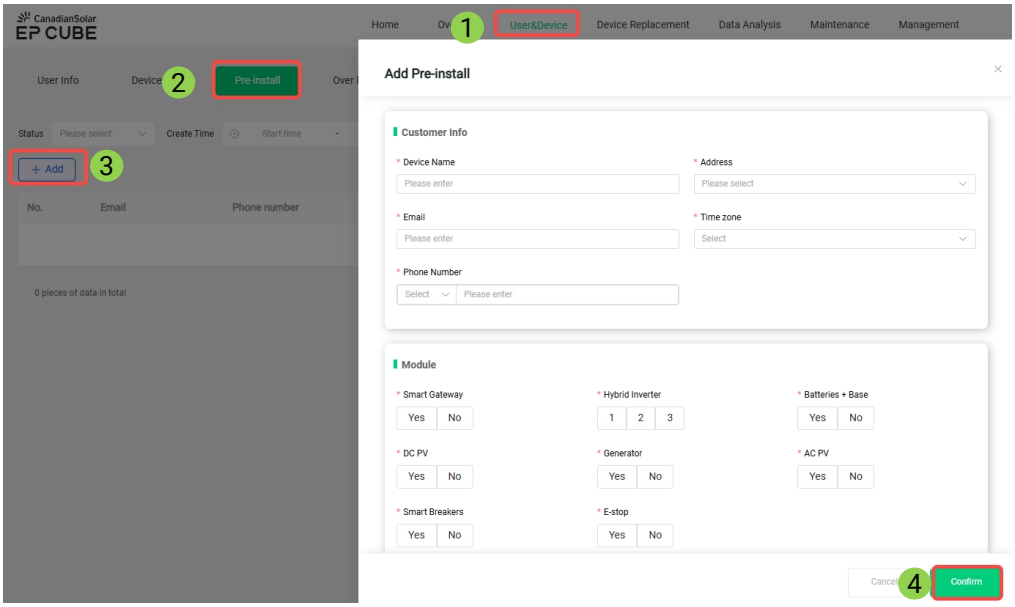
E. Commissioning via EP CUBE app

F. Switch on the Smart Gateway and Hybrid

G. End

A. Log in the Portal to fill in the pre-install info.

The EP CUBE Portal login address: https://monitoring-us.epcube.com/#/device-management
Please login the Portal and follow the steps below to fill in the pre-install information.



B. Download and Install the APP

Please guide the customer Download and install the EP Cube app on the Google Play Store or Apple Store.

C. EP Cube Startup

⚠ **CAUTION:**

- Please ensure PPE is properly worn before getting started.
- For the initial startup, the Smart Gateway must have AC electrical power supply, otherwise there will be no start-up signal generated by the Smart Gateway to the Hybrid system.
- During commissioning or when changing commissioning settings in the EP Cube App, ensure that the Smart Gateway & Hybrid have a proper AC electrical power supply, However, the power buttons on the bottom of Smart Gateway & side of the Hybrid should NOT be turned on (i.e., buttons should be in their natural flush state).

Preparing before EP CUBE startup.

Please confirm that the Emergency Stop Button is not pressed. As below figure 1 shows.

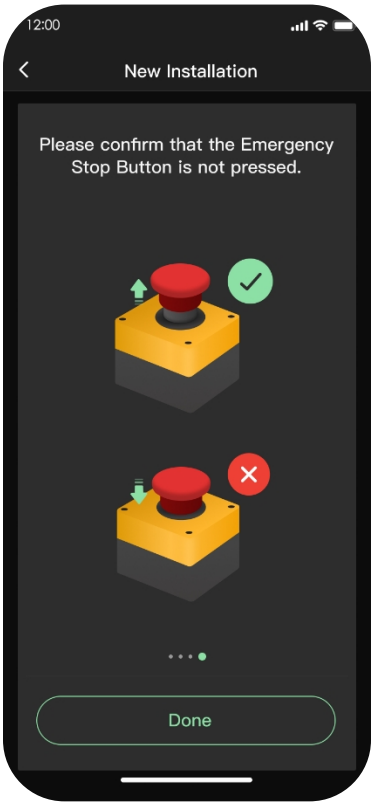
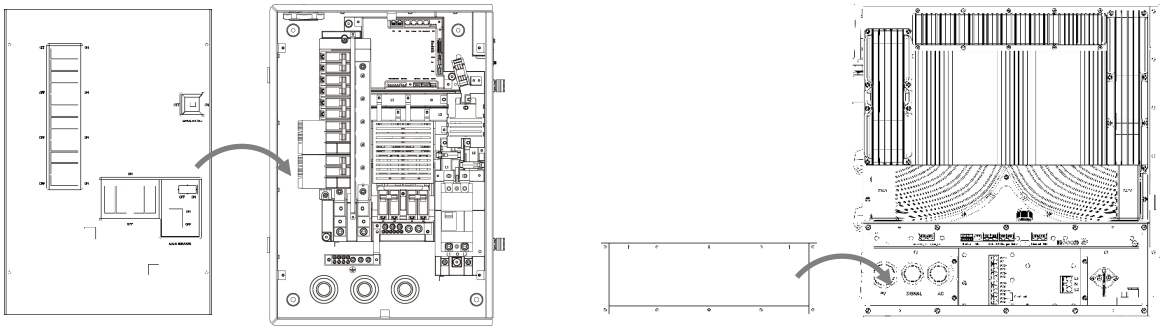
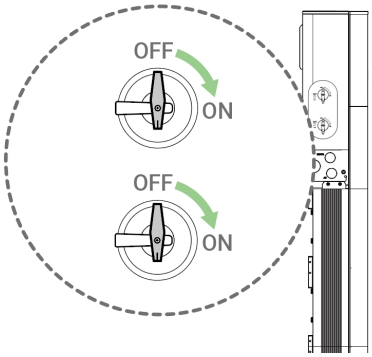


Figure 1. Emergency Stop Button

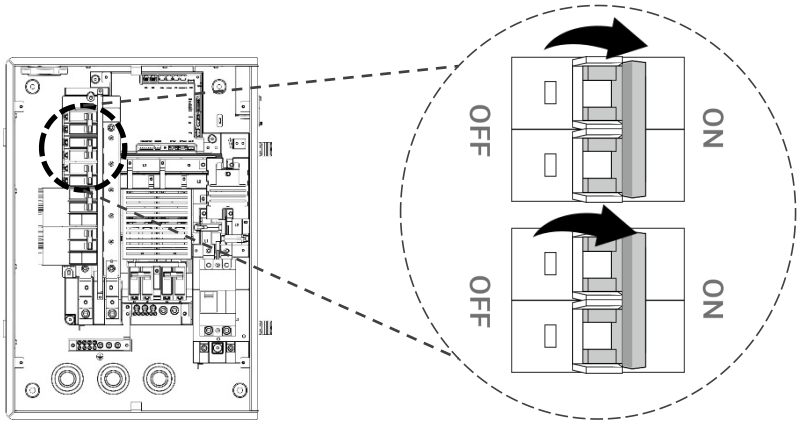
1. Install all equipment covers and ensure no live electrical components will be exposed during operation.



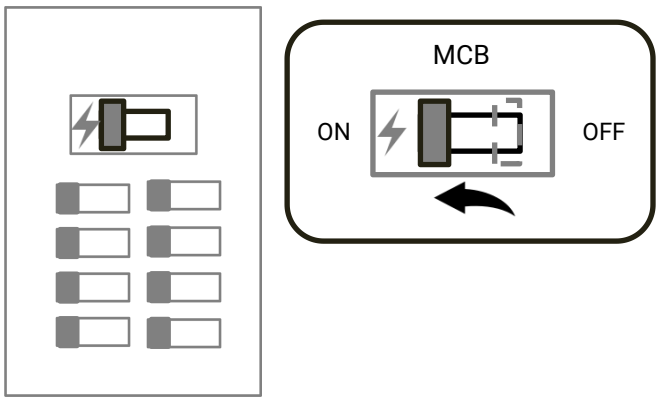
2. Turn on the PV switches in the Hybrid Inverter. Please note that the both PV switches are turned on.



3. Turn on Hybrid Circuit Breakers in the Smart Gateway.



d. Turn on Smart Gateway Grid input power MCB in the electric panel.



e. Install dead front boards and ensure no live electrical components will be exposed during operation. Do not put the covers at this stage.

NOTE: Do not turn on the EP Cube Hybrid and Smart Gateway by pressing down the power on/off buttons on both Hybrid and Smart Gateway at this stage (prior or during commissioning process).

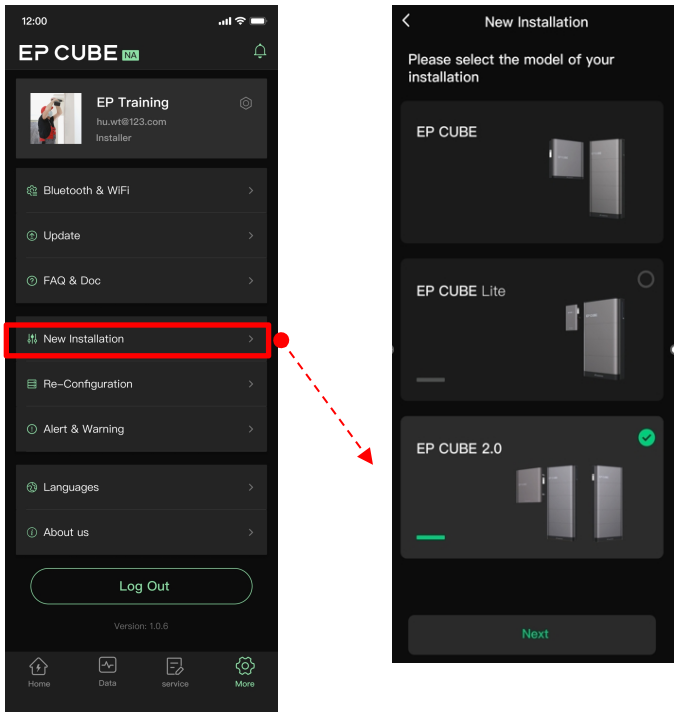
D. Log in the APP by installer account

Login with the installer account in the login page.

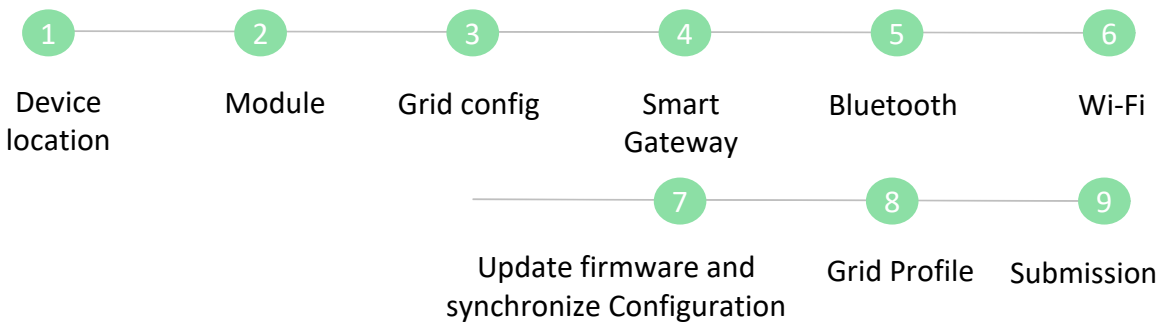
E. Commissioning via EP CUBE app

System commissioning and setup have been made easy by the EP CUBE app. It enables the user with system commissioning, monitoring and basic troubleshooting by providing errors and fault lists with the installer account.

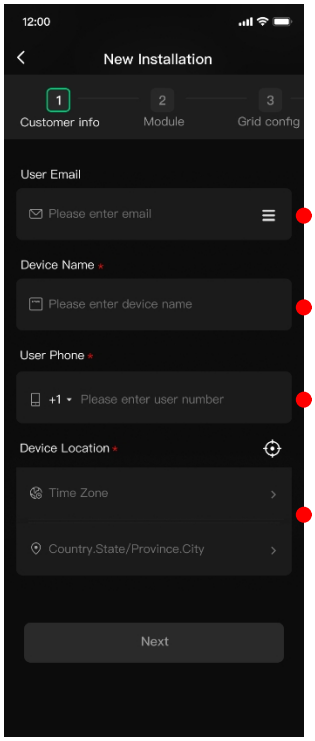
After Login with your installer account, Click New Installation -----> Choose the device model(EP CUBE**2.0**) -----> Double check the wiring then start the commissioning.



Follow the process to configure all the connected devices within your EP Cube system. The steps include Device location, Module, Grid config, Smart Gateway, Bluetooth, Wi-Fi, Update firmware and synchronize Configuration, Grid Profile, and Submission. Below fig shows the order of configuration steps.

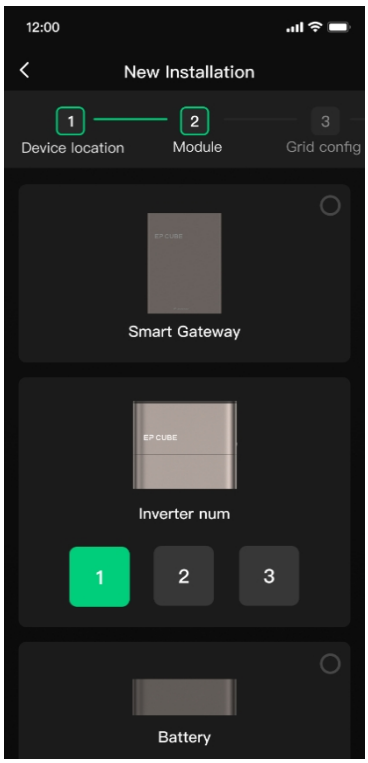


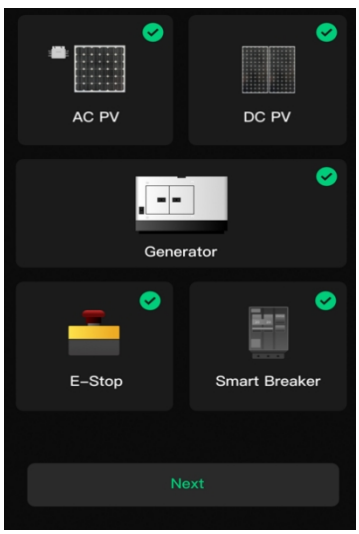
1.Device location: Please set the user's email address, device name, user's mobile phone number, time zone and country, etc.



User Email		Choose/Enter email
Device Name		Enter device name
User Phone		Enter user phone number
Device Location	Time Zone	Choose Time Zone from the list
	Country.State/Province.City	Choose Location from the list

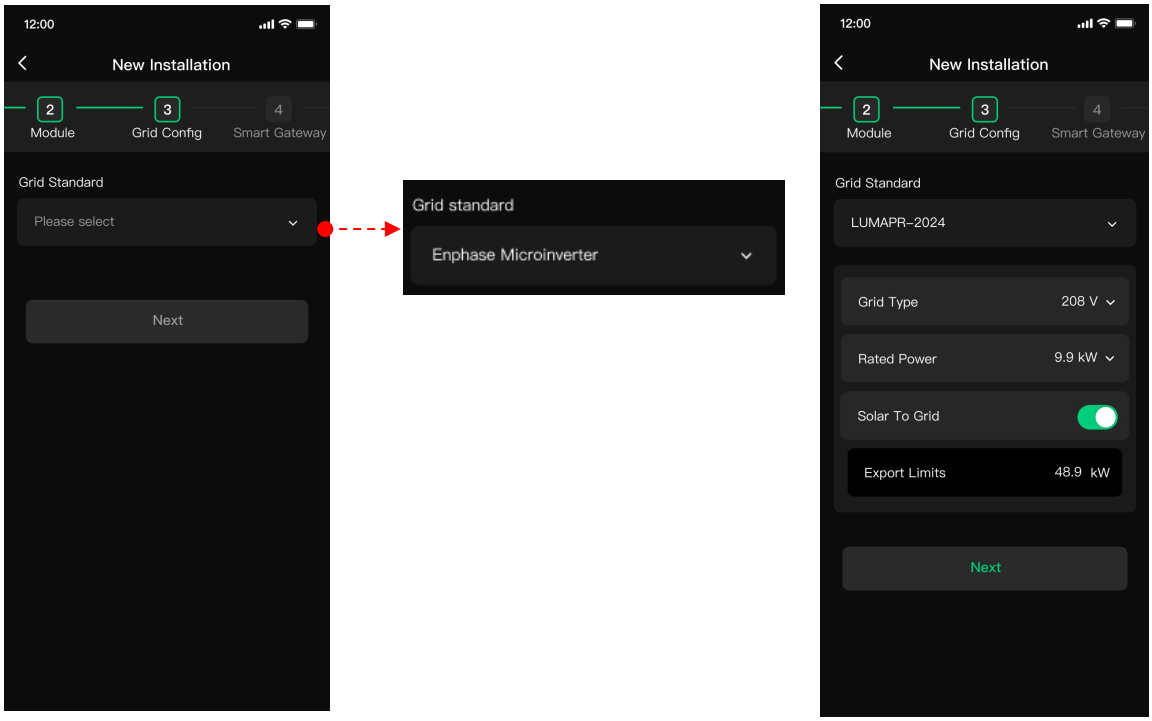
2.Select Components: Please select the module you want to install.



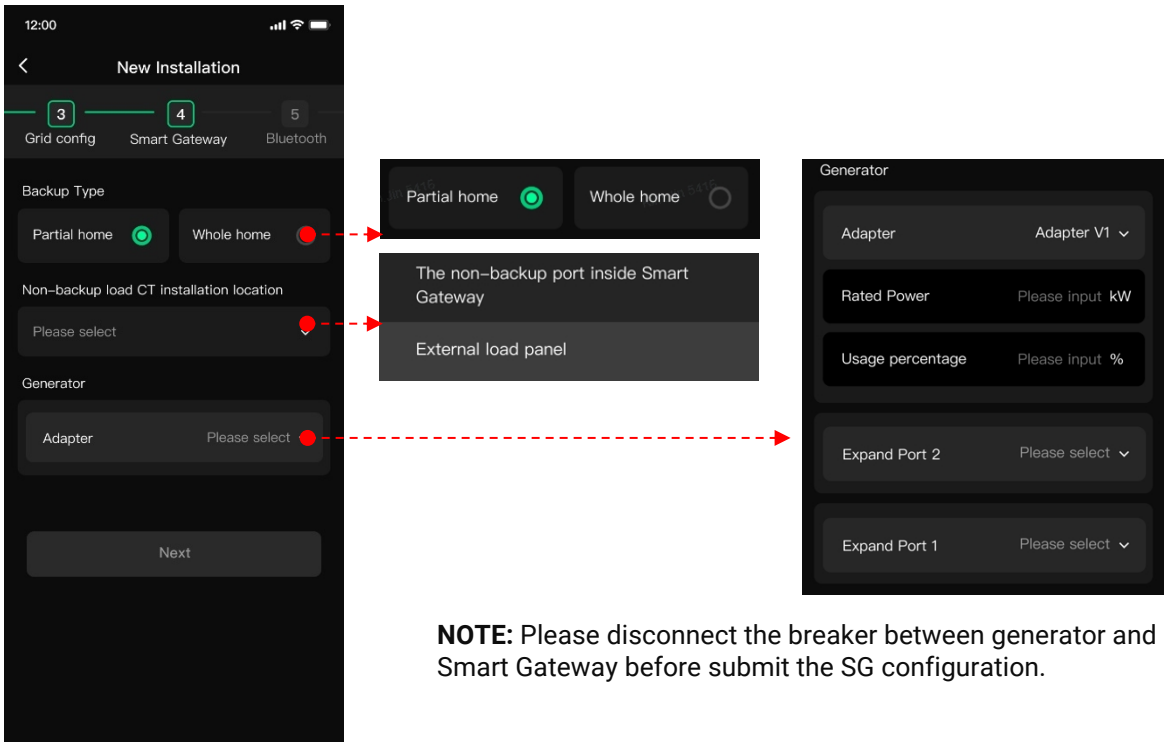


3. Grid config: Please select applicable grid standard. Dropdown list already have various applicable standards listed.

Export power limit feature Backup type ---> Grid standard--> Solar To Grid.

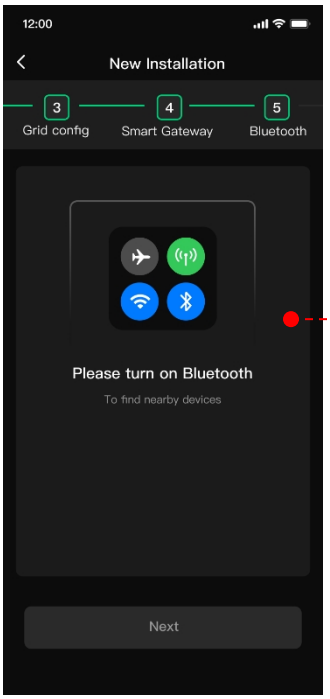


4. Smart Gateway: Please set the Backup Type, Non-backup load CT installation location, and Generator.

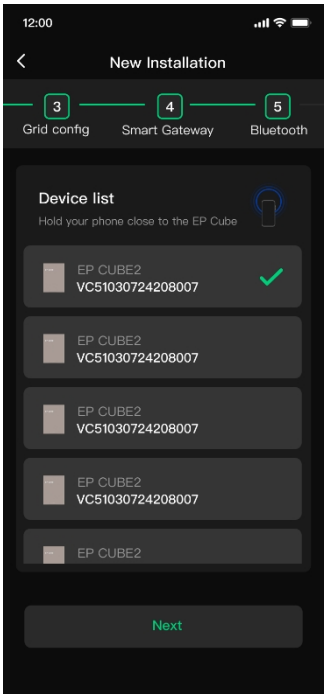


NOTE: Please disconnect the breaker between generator and Smart Gateway before submit the SG configuration.

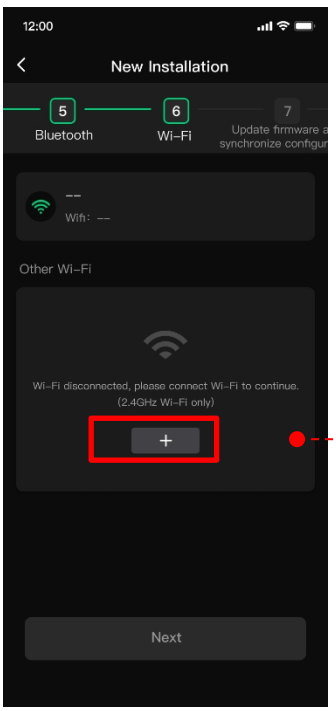
5. Bluetooth: Click on your desired device to set it as the current device.

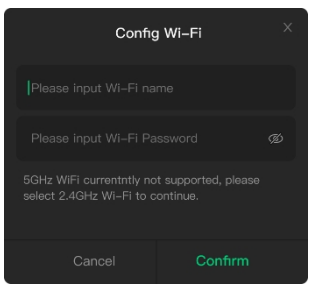


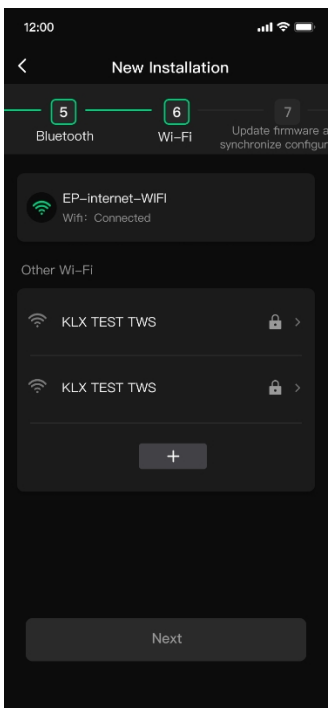
1- Turn on your phone's Bluetooth
2- Choose your added device



6. Wi-Fi: it allows you to choose your home WIFI network to connect your device with it. Input the password and click confirm.
NOTE: EP Cube can only connect with 2.4Ghz WIFI Networks.



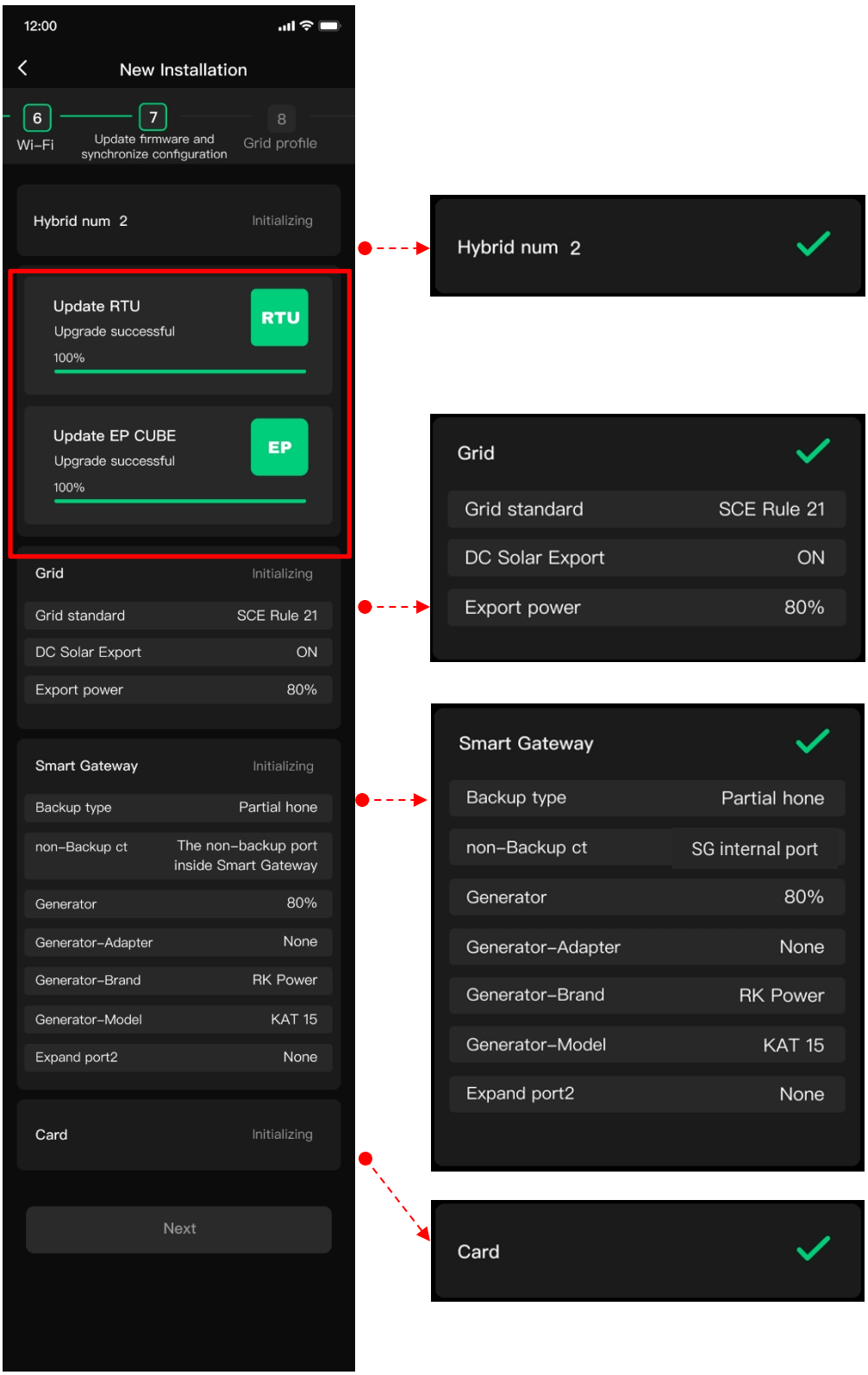




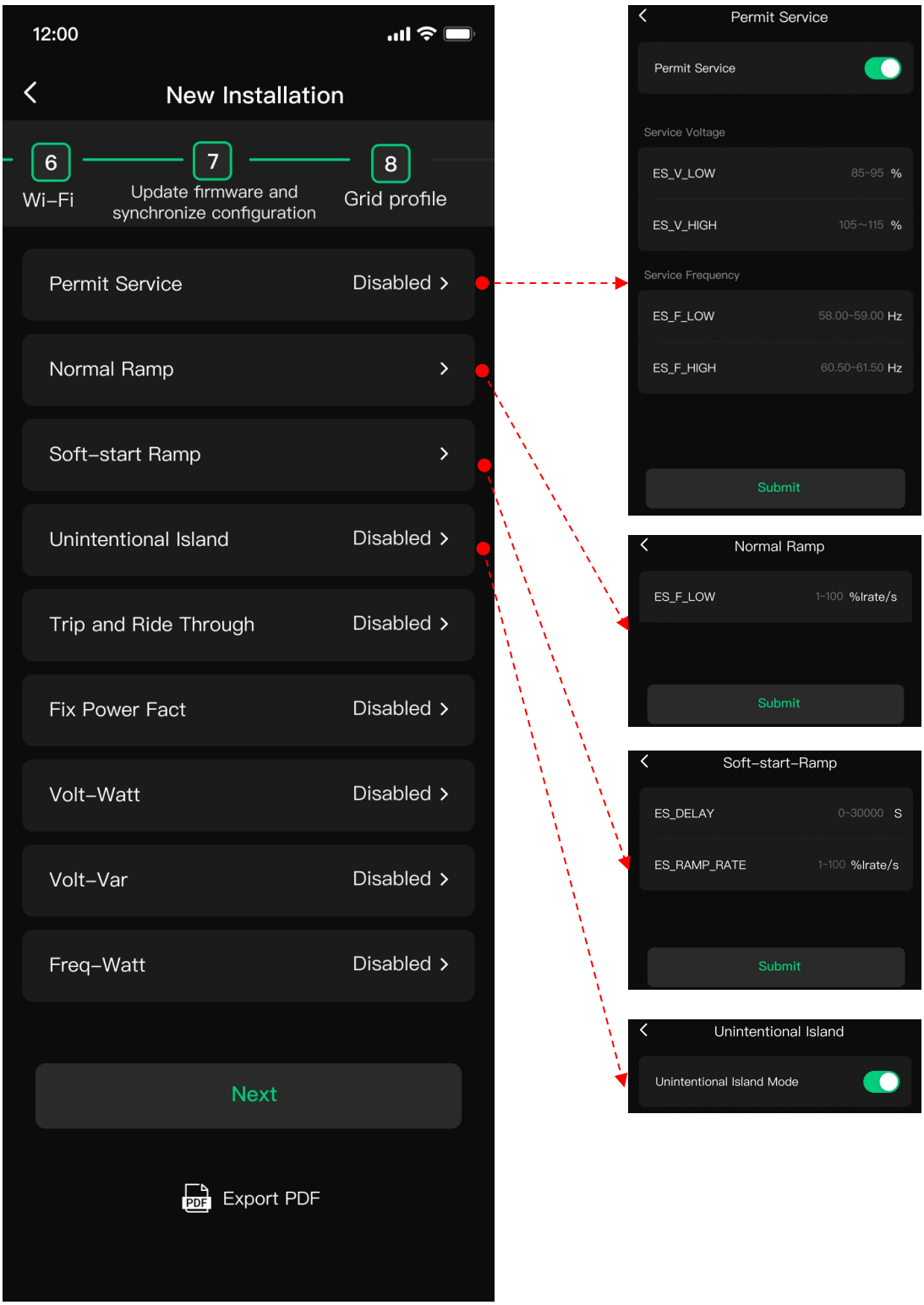
<iOS>
you will need to enter it manually

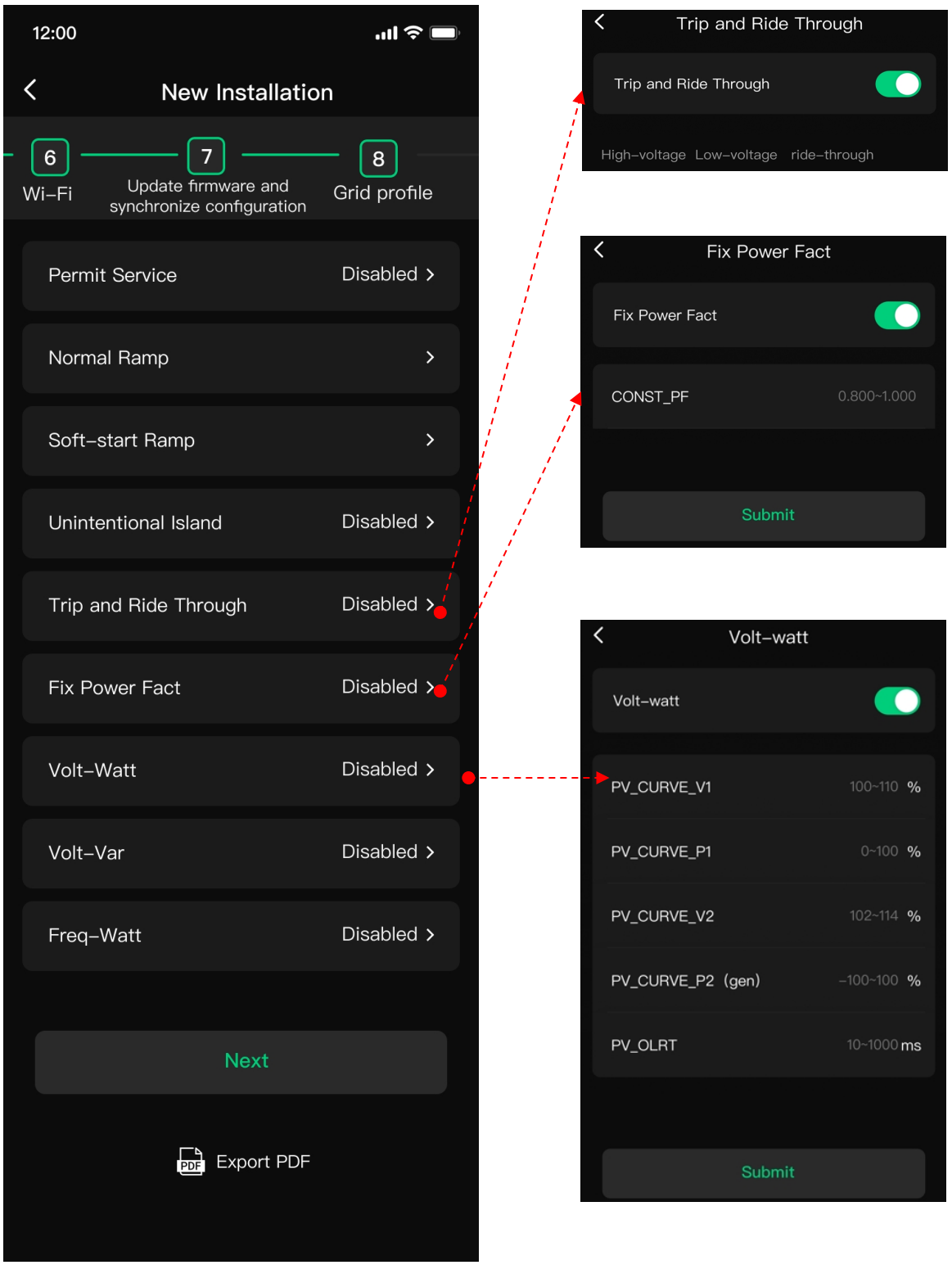
<Android>
a Wi-Fi list will be displayed

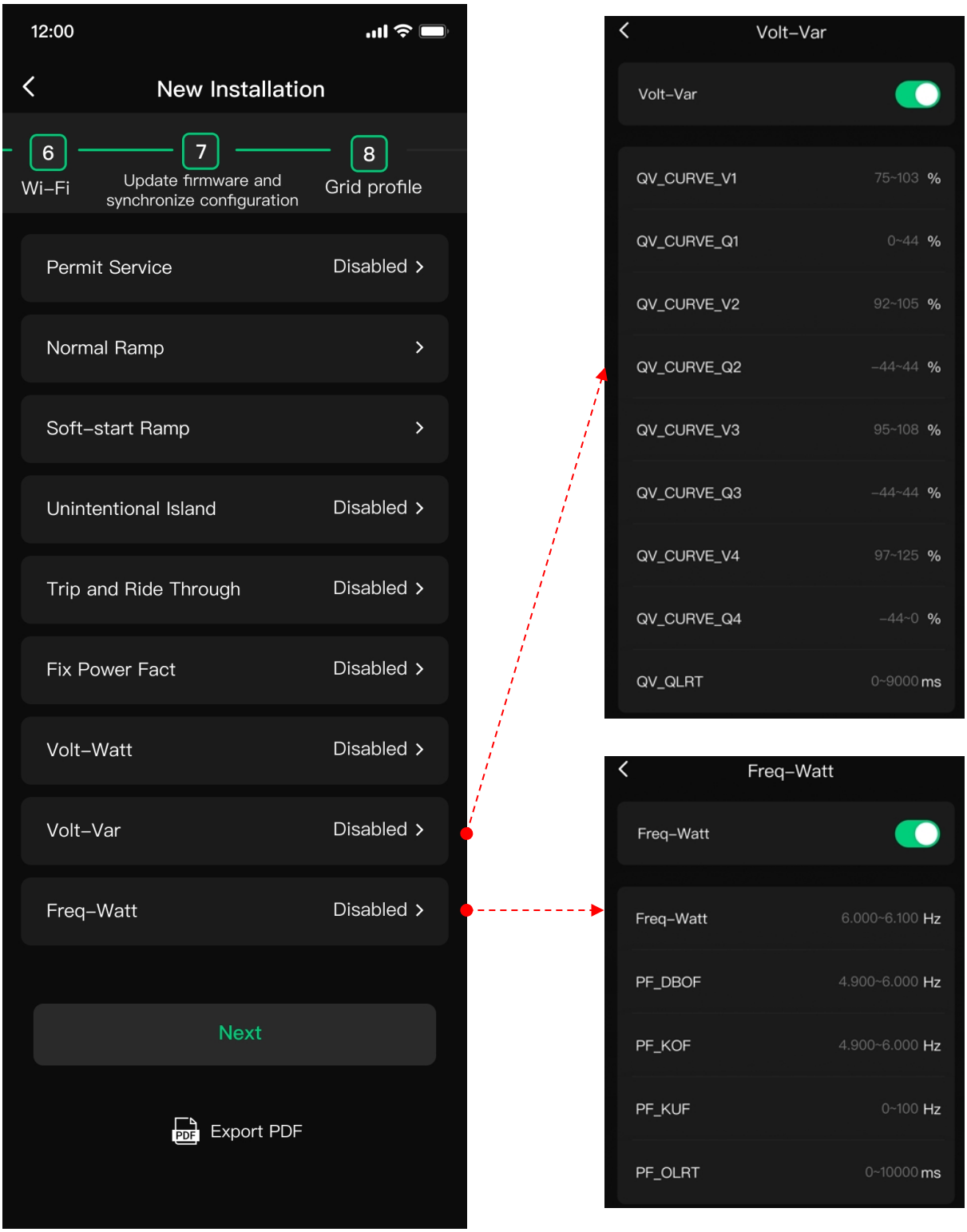
7. Update firmware and synchronize Configuration: Please update the firmware and complete the configuration of Grid, Smart Gateway, Card.



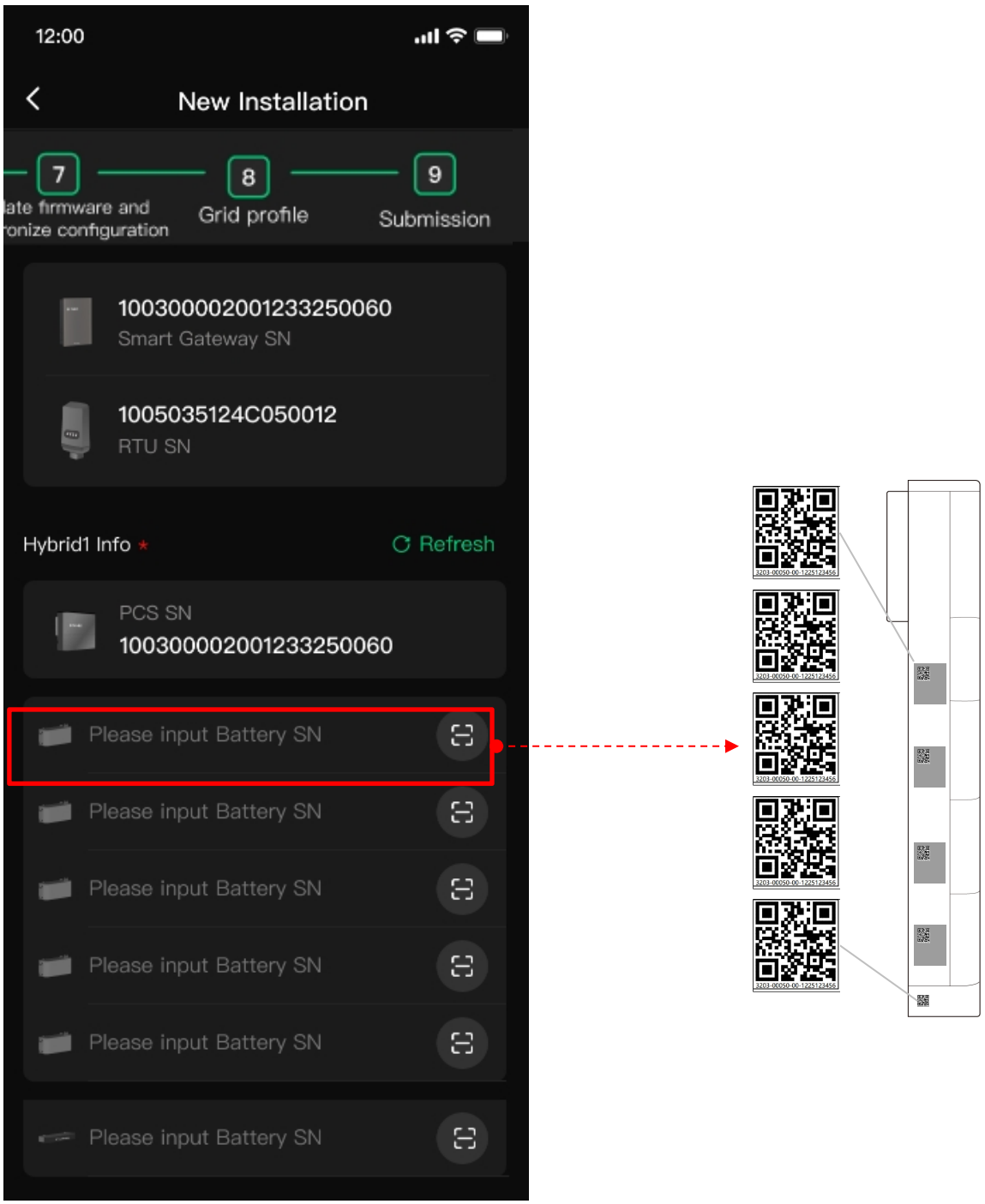
8.Grid Profile: Please configure the following detailed grid parameters in sequence.

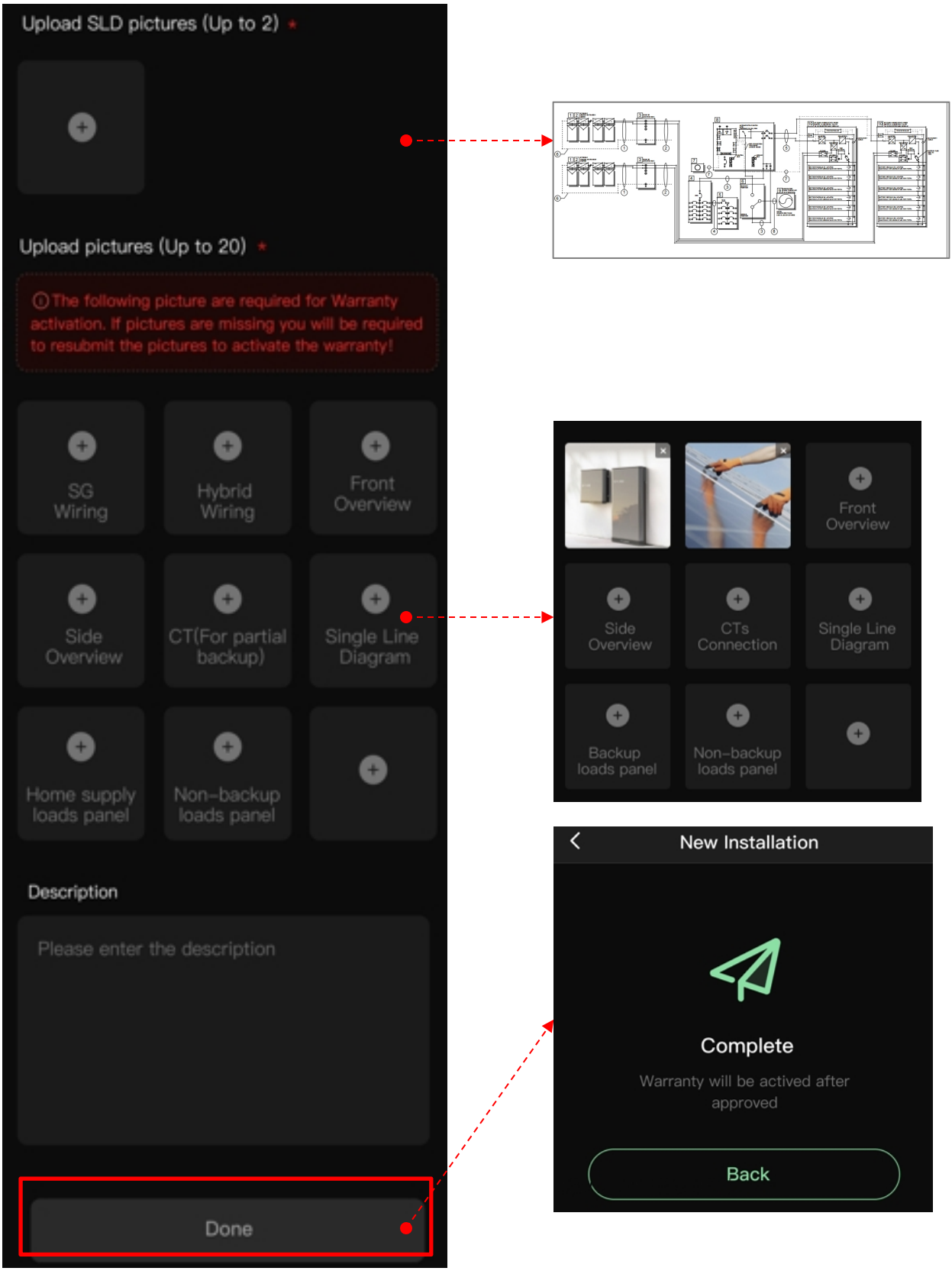



12:00
New Installation
6
Wi-Fi
7
Update firmware and synchronize configuration
8
Grid profile
Permit Service
Disabled
Normal Ramp
Soft-start Ramp
Unintentional Island
Disabled
Trip and Ride Through
Disabled
Fix Power Fact
Disabled
Volt-Watt
Disabled
Volt-Var
Disabled
Freq-Watt
Disabled
Next
Export PDF
Trip and Ride Through
Trip and Ride Through
High-voltage Low-voltage ride-through
Fix Power Fact
Fix Power Fact
CONST_PF
0.800~1.000
Submit
Volt-watt
Volt-watt
PV_CURVE_V1
100~110 %
PV_CURVE_P1
0~100 %
PV_CURVE_V2
102~114 %
PV_CURVE_P2 (gen)
-100~100 %
PV_OLRT
10~1000 ms
Submit

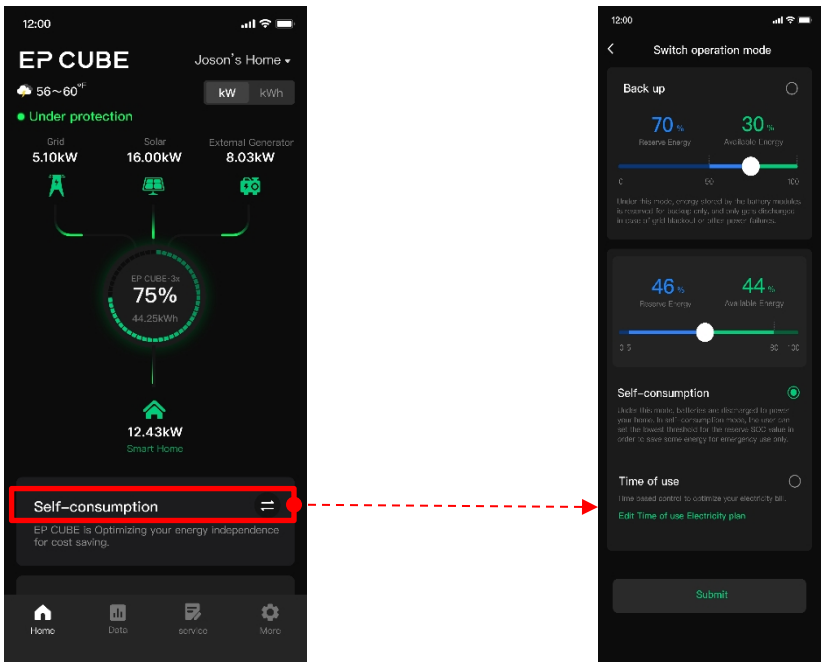

12:00
New Installation
6
Wi-Fi
7
Update firmware and synchronize configuration
8
Grid profile
Permit Service
Disabled
Normal Ramp
Soft-start Ramp
Unintentional Island
Disabled
Trip and Ride Through
Disabled
Fix Power Fact
Disabled
Volt-Watt
Disabled
Volt-Var
Disabled
Freq-Watt
Disabled
Next
Export PDF
Volt-Var
Volt-Var
QV_CURVE_V1 75~103 %
QV_CURVE_Q1 0~44 %
QV_CURVE_V2 92~105 %
QV_CURVE_Q2 -44~44 %
QV_CURVE_V3 95~108 %
QV_CURVE_Q3 -44~44 %
QV_CURVE_V4 97~125 %
QV_CURVE_Q4 -44~0 %
QV_QLRT 0~9000 ms
Freq-Watt
Freq-Watt
Freq-Watt 6.000~6.100 Hz
PF_DBOF 4.900~6.000 Hz
PF_KOF 4.900~6.000 Hz
PF_KUF 0~100 Hz
PF_OLRT 0~10000 ms

9. Submission: Please submit device SN and installation photos.




Upload SLD pictures (Up to 2) *
Upload pictures (Up to 20) *
The following picture are required for Warranty activation. If pictures are missing you will be required to resubmit the pictures to activate the warranty!
SG Wiring
Hybrid Wiring
Front Overview
Side Overview
CT(For partial backup)
Single Line Diagram
Home supply loads panel
Non-backup loads panel
Description
Please enter the description
Done
Front Overview
Side Overview
CTs Connection
Single Line Diagram
Backup loads panel
Non-backup loads panel
New Installation
Complete
Warranty will be actived after approved
Back

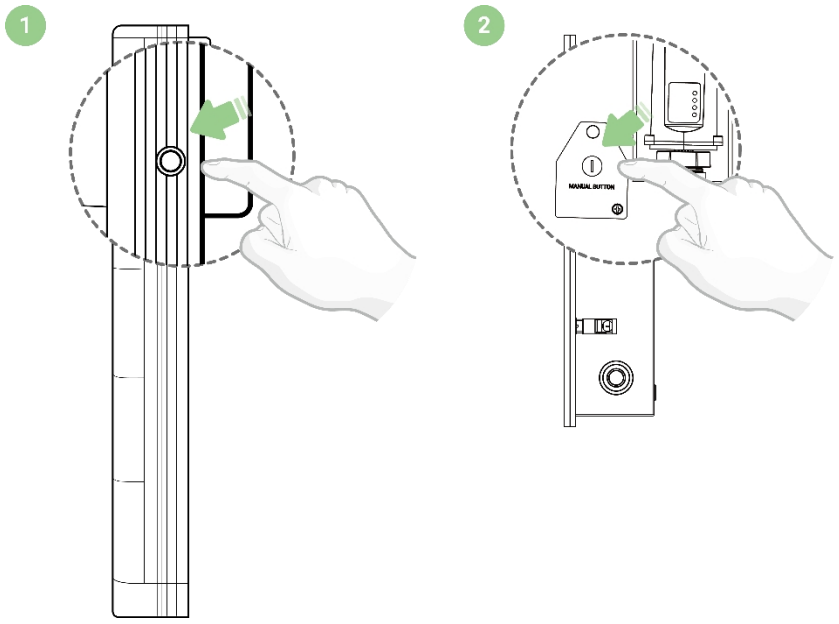
After completing the finish step, return to home page. Select an appropriate operation mode and Reserve SOC value according to energy usage preferences.



F. Switch on the Hybrid and Smart Gateway

a. Turn on the Hybrid by pressing down the power button on the right side.

b. Turn on the Smart Gateway by pressing down the button on the right.



G. End

Observe and verify that EP CUBE is working as per desired settings. Refer to the following table to know different LED Indications that EP Cube Hybrid LED may have during operation.

Status	LED Indication	Description
Stand-By Mode	Bright & Solid	Running
Off	Off	Powered Off

7.IMPORTANT SAFETY INSTRUCTIONS

For personal protection and property safety, please read this section carefully and strictly implement its contents before installing and using the product. EP company is not liable for any loss caused due to violation of the instructions in this manual.

7.1 Safety Notice

In the event of any threat to health or safety, always begin with the following two steps before taking any other precautionary measures:

1. Immediately contact the fire department or other relevant emergency response team.
2. Notify all people who might be affected and ensure that they are able to evacuate this area.
3. Push the Emergency Stop button that connected with the Smart Gateway.

DANGER: Indicates the situation which, if not avoided, will lead to death or serious injury.

CAUTION: Indicates the situation which, attention is necessary to avoid potential injury or property damage.

DANGER:

- EP Cube products are equipped with a battery that is heavy! Two man lift is recommended. Do not stack the unpacked products to avoid irreversible damage.
- Electrocution hazard exists, do not touch any EP Cube internal components when it is running or when adjacent electrical equipment is energized. Turn off EP Cube equipment and all adjacent electrical equipment before attempting any installation, replacement, or maintenance process. Even with all equipment turned off high voltage hazards may remain from battery or PV equipment.
- Do not attempt to open, disassemble, tamper with, or modify the EP Cube without prior written approval from the EP company.
- This equipment complies with rules of FCC Part15, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- Do not squeeze, impact or puncture the battery.
- Do not operate the EP Cube out of the specified conditions and requirements. In addition, do not stand, lean on or sit on the product.
- Do not place the EP Cube or its components in water or other liquids, or expose EP Cube to flammable gases, other corrosive substances, and heating sources. Otherwise please refer to applicable local codes and UL 9540.

CAUTION:

- The transportation, installation, and commissioning of the EP Cube must be carried out under the specified conditions. Do not expose EP Cube to extreme conditions during these periods.
- EP Cube can only be installed, repaired, replaced, and maintained by the EP authorized personnel for safety and warranty purposes. PPE must be worn during any operations.
- Do not place foreign objects on top of the product or insert inside the product.
- Ensure there is enough space around EP Cube for ventilation.

- Be careful to protect the EP Cube from impact when installing it in a garage or near vehicles. If possible, install the EP Cube on a side wall or above the height of vehicle bumpers.
- The packaged battery modules are forbidden to be stacked more than the specified quantity. Do not reverse the polarity of the battery during connections.
- “Do not expose EP Cube equipment to extreme heat as the ignition point of its material could be exceeded risking a possible fire hazard. Follow all building codes for energy storage systems.”, risking causing a fire. Please refer to applicable local residential building requirements, and fire and energy storage system installation codes.
- Do not try reverse engineering, decompile, disassemble, adapt, implant, or perform other derived operations on the EP Cube firmware.
- Do not study the internal implementation of the product firmware source code and steal intellectual property rights.

⚠ **NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, maybe cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.”

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

7.2 Personal Protective Equipment

Proper safety equipment in good condition should be used as needed for a safe installation.
For example: gloves, eye protection, ear protection and safety shoes may be required

8.Maintenance

1. System Overload

Each EP CUBE can provide up to 3-11.5 kW of continuous power with peak outputs of 11.5kW (240VAC, full sun). You can back up any number of appliances, so long as their combined power usage does not exceed the total power rating of your EP CUBE system.

Starting some loads with a high inrush current during a power outage, like air conditioners and motors, may overload EP CUBE and cause it to stop providing power to your home. If this occurs, turn off these loads, and EP CUBE will attempt to restart automatically. Otherwise, consider manually restarting EP CUBE.

During manual restart/cycling perform following steps:

1. Turn off the Hybrid, then turn off the SG by pressing the buttons to off state.

2. Turn off the Hybrid Circuit Breaker in the SG. (If multiple Hybrids are connected then turn off all)

3. Turn off the Main Grid Circuit Breaker.

4. Turn On the Main Grid Circuit Breaker.

5. Turn on the Hybrid Circuit Breaker in the SG. (If multiple Hybrids are connected then turn on all)

6. Turn on the hybrid, and then turn on the SG (by pressing the power on button on both SG and Hybrid)

And system should be able to restart. In that case you can check on the HYBRID unit LEDs on the right side of Hybrid Inverter to see if LEDs are flashing or lit solid. If the system is in restart process, then LEDs will be flashing. EP CUBE have several warnings associated with this particular case. You may expect one of the following on EP CUBE App:

a. Overload
b. Severe Overload
c. Off Grid Overload! Please reduce the loads in 5 mins.

A soft start device should be used in combination with a large electrical appliance such as air conditioner to avoid frequent shut down due to high inrush current drawn by device at start up. While operating Off grid, EP CUBE can support normal backup loads that does not require high LRA. Your device may exceed supported LRA value in start up stage, leaving EP CUBE overloaded. Instead of drawing a massive amount of electric current instantly, the soft starter device increases the current supply gradually until the AC compressor starts working completely.

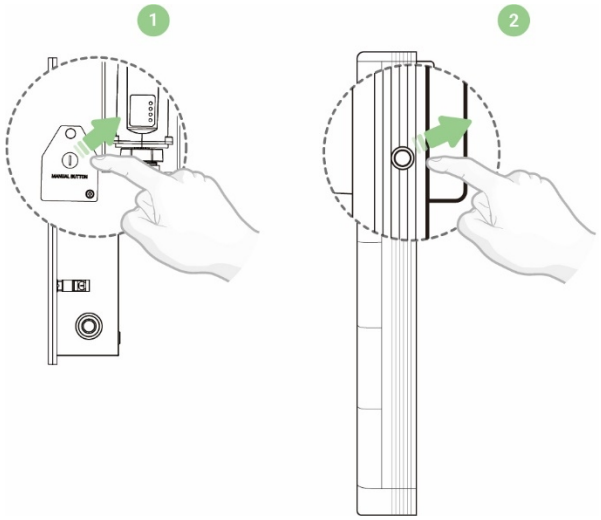
2. EP CUBE APP

In an event of fault occurrence, EP CUBE app can help narrow down the possible reasons behind a fault. your EP CUBE App Installer account gives you access to Warning and Fault sections. Login and set your desired device as current device to see logged warnings and faults. If you find out a certain fault logged in the list of faults, please refer to EP CUBE Guidelines on Troubleshooting Codes for more information on relevant errors, maintenance and corrective actions to be performed to restart the system.

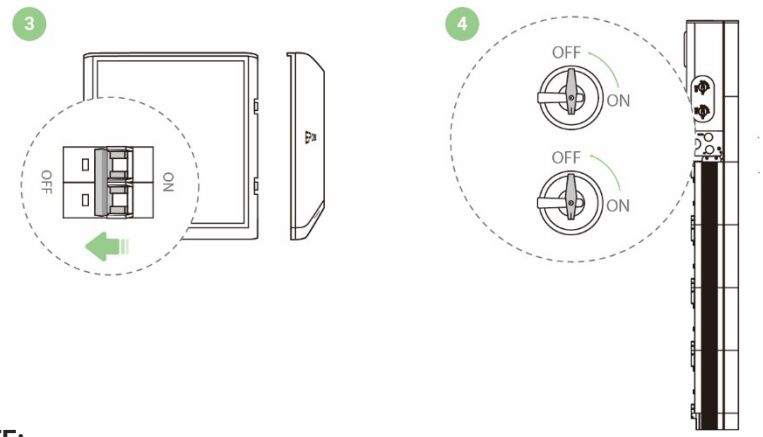
3. D-energize EP Cube System

During manual perform following steps:

1. Turn off the Smart Gateway by pressing down the button on the right.
2. Turn off the Hybrid by pressing down the power button on the right side.



3. Turn off Hybrid circuit breaker in the Smart Gateway.
4. Turn off PV Switches.
5. Turn off Grid Circuit Breaker.



NOTE:

- When closing the PV Switches without turning off the EP Cube button, the PV cables will still be live. If you need to de-energize the PV cables, please turn off the EP Cube button.
- Rapid Shutdown is triggered only when both switches are in the 'OFF' position. If one switch is ON and the other OFF, the PV strings connected to the deactivated switch will cease contributing to power generation.

9.Frequently Asked Questions

1- Where can I find the EP CUBE Specifications?

You can find it in the help section of the EP CUBE app or please visit our website and download it from the support section. https://eternalplanetenergy.com

2- Where can I find the EP CUBE User Manual?

You can find it in the help section of the EP CUBE app or please visit our website and download it from the support section. https://eternalplanetenergy.com

3- Where can I find the EP CUBE Installation Manual & Quick Installation Guide?

Both documents are provided with the EP CUBE package. In addition, you can find it in the help section of the EP CUBE app, or please visit our website and download it from the support section.

4- Once EP CUBE is installed what happens during a power outage?

During a power outage, EP CUBE seamlessly switch from Grid to backup power and keep your electrical appliances running even when grid goes down.

5- During a power outage, can my solar recharge EP CUBE?

Your EP CUBE can recharge from your solar arrays and keep running your home from solar even when the grid is down. A traditional solar system without an EP CUBE does not function during a grid outage.

6- How large a PV system can I connect with one EP CUBE?

A single EP CUBE Hybrid supports 4x PV Array connections. The maximum allowable PV voltage is 600 VDC. EP CUBE have 4x MPPT trackers, each MPPT can support 16A current.

7- Which operation modes are supported by EP CUBE?

The EP CUBE currently supports 3 different operation modes to meet your energy preferences: Self-consumption, TOU, and Backup. In addition, the weather watch function allows EP CUBE to monitor the local weather conditions and automatically stores energy for hazard backup.

8- What's the use of reserve SOC value?

Reserve SOC Percentage allows EP CUBE to reserve the energy stored in the batteries that can be discharged only when a power outage occurs. you may manually increase your reserve soc percentage in the EP CUBE app to retain more energy in the event of a grid outage.

9- There are several best practices to extend your backup time before and during a potential outage, consider doing energy-intensive activities, including charging your car, running your air conditioner, or doing dishes and laundry before any such outage event. In addition, Weather Watch will automatically prepare your EP CUBE system for the possibility of a grid outage during some extreme weather events. You may also manually increase your reserve soc percentage in the EP CUBE app to retain more energy in the event of a grid outage. The best way to extend your use of EP CUBE during a grid outage is to reduce the use of non-essential and energy-intensive appliances like air conditioners, washing machines, car charging, and electric heaters.

10- What will happen if L1 has say draws 3600W and L2 draws 300W of power for the short or long-run durations?

The EP CUBE can support 100% imbalance for the split phase loads. So, it is okay to run with imbalanced loads in the short or long run.

11- What can I monitor through the EP CUBE app?

EP CUBE app allows users to monitor real-time power flow between connected devices. Users can see the power generation from different sources and consumption by connected devices. For example, values of power consumed from the grid and fed back to the grid are shown near the grid icon. Power consumption by different devices is shown near the respective icons.

12- Can I update my EP CUBE firmware through the EP CUBE app? How to know which firmware version is installed?

EP CUBE App automatically updates firmware remotely using the “over the Air” feature. If the remote update feature is disabled in the app, then the user can manually check and update the firmware. Go to the more page and click the update button to see the installed firmware version and check any available updates.

13- What happens if EP CUBE is not connected to the Internet?

If EP CUBE is not connected to the internet, it will continue to operate in the last operating mode set and provide backup power during an outage, but it will not provide remote monitoring via the EP CUBE app. Extended periods without an active internet connection will prevent firmware updates and may impact the product warranty.

14- What type of Internet connectivity options are supported by EP CUBE?

Connecting your EP CUBE to the internet allows you to monitor your system with the EP CUBE app and receive over-the-air firmware updates. We recommend configuring your EP CUBE to as many supported internet connection types as possible, such as a 2.4GHz Wi-Fi network and 4G cellular network.

15- What to do if you are facing Wi-Fi connection issues?

If you experience Wi-Fi connection issues, check that your network signal has at least two bars when standing next to your Gateway. If your Wi-Fi signal is weak, consider using Wi-Fi extenders

16- How the generator is integrated with EP CUBE?

A generator can be connected using Extend Port 1 of the EP CUBE Smart Gateway. It uses a relay control circuit, and a generator with a maximum rated current of 100A/24kW can be integrated into the system.

10.APPENDIX

10.1 Torque Values

A. Torque values for fasteners

Torque Values Table • N/m (lbs/inch)

Bolt Dia.(mm)	PCB Panel bolts	Countersunk bolts	Other bolts
M3	0.5 (4.5)	- N/A -	- N/A -
M4	1.1 (10)	2.2 (20)	
M5	- N/A -	4 (35)	6 (55)
M6		7 (60)	9.5 (85)
M8		- N/A -	25 (220)

B. Torque values for wires

Torque Values Table • N/m (lbs/inch)

Wire size AWG/ kcmil	Slotted head no. 10 and larger		Hexagonal head	
	Slot width – 0.047” or less and slot length 1/4” or less	Slot width – over 0.047” or slot length-over 1/4”	Split-bolt connectors	Other connectors
18-10	2.3 (20)	4.0 (35)	9.0 (80)	8.5 (75)
8	2.8 (25)	4.5 (40)	9.0 (80)	8.5 (75)
6-4	4.0 (35)	5.1 (45)	18.6 (165)	12.4 (110)
3	4.0 (35)	5.6 (50)	31.1 (275)	16.9 (150)
2	4.5 (40)	5.6 (50)	31.1 (275)	16.9 (150)
1	-	5.6 (50)	31.1 (275)	16.9 (150)
1/0 – 2/0	-	5.6 (50)	43.5 (385)	20.3 (180)

10.2 Recommended Wire Gauges

AWG Wire Gauge

Wires	Descriptions	Specifications (AWG/kcmil)
Grid (L1, L2)	Single-core Power cable (Black, Red)	4AWG～250kcmil
Backup (L1, L2)	Single-core Power cable (Black, Red)	4AWG～250kcmil
Non-backup (L1, L2)	Single-core Power cable (Black, Red)	4AWG～2/0AWG
Extend Port1(L1, L2)	Single-core Power cable (Black, Red)	5AWG～1/0AWG
Extend Port2(L1, L2)	Single-core Power cable (Black, Red)	5AWG～1/0AWG
Smart Circuit Breaker (L1, L2)	Single-core Power cable (Black, Red)	8AWG～1/0AWG
Additional Inverters (L1, L2)	Single-core Power cable (Black, Red)	8AWG～1/0AWG
Neutral	Single-core Power cable (White)	8AWG～250kcmil
PE	Single-core Power cable (Green)	8AWG～2/0AWG
CAN	CAT5E shielded twisted pair cable &Type B	24AWG
EPO	2-Core shielded twisted pair cable I/O (EPO)	18AWG～16AWG (0.8～1.5 mm²)
Generator	2-Core shielded twisted pair cable I/O (GEN)	18AWG～16AWG (0.8～1.5 mm²)
Ethernet	CAT5E shielded twisted pair cable &Type B(ETH)	24AWG

10.3 Troubleshooting

If the EP CUBE System works abnormally, please check and operate the system as below.

A. Check List

The table below is mainly help us find the possible cause of the issue.

NO.	Item	Requirements
A	Communication Wiring and resistor check	Wiring should be correct. Resistor should be installed
B	Commissioning check	Commissioning should be correct.
C	Exterior check	There should be no big gap between batteries modules and PCS.
D	E-STOP check	E-STOP should in unpressed status.
E	Grid voltage check	should be about 240*105%=252Vac
F	CT orientation check (partial home backup only)	CT orientation should be correct
G	Backup load	The backup load should not exceed the system requirement.

B. Power Cycle the System

a. Turn off the system.
Turn off SG button> Turn off Hybrid button> Turn off Hybrid breaker> Turn off AC breaker in main panel> Turn off DC PV switch> waiting 30s.

b. Turn on the system.
Turn off AC breaker in main panel >Turn on hybrid breaker> Turn on hybrid button> Turn on SG button> waiting for 30 sec. > Turn on DC PV switch.

⚠ **NOTE:** Please contact the after-sales team if the EP CUBE system still works abnormally.