

Quick Installation Guide

Triple Power Lithium-ion Battery

100 Ah

II

Installation Prerequisites

Ensure that the installation site meets the following conditions:

- The building is designed to withstand earthquakes
- The site is over 3280.84 ft/1000 m. away from the sea to avoid salt water and humidity
- The floor is flat and level
- There are no flammable or explosive materials, at a minimum of 2.95 ft/0.9 m
- The ambience is shady and cool, and is away from heat and direct sunlight
- The temperature and humidity remain at a constant level
- There is minimal dust and dirt in area
- There are no corrosive gases present, including ammonia and acid vapor
- Where charging and discharging, the ambient temperature ranges from 32°F/0°C to 113°F/45°C
- For both mounting methods, the wall tilt must not exceed 5 degrees

In practice, the requirements of battery installation may be different due to environment and locations. In that case, follow up the exact requirements of the local laws and standards.



Note!

The Triple Power battery module is rated at IP65 and thus can be installed outdoors as well as indoors. However, if installed outdoors, the battery pack should avoid direct sunlight and moisture for optimal performance.



Note!

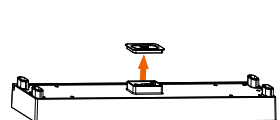
If the ambient temperature exceeds the operating range, the battery pack will stop running to protect itself. The optimal temperature range for operation is 14°F/-10°C to 122°F/50°C. Frequent exposure to harsh temperatures may deteriorate its performance and lifetime.

IV

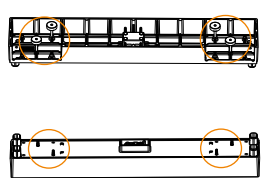
Steps (Floor Mounting)

Please reserve enough distance from the equipment to the ceiling/ground for capacity expansion. Take Scheme C as an example.

Step 1: Place the Base.
(1) Remove the dust cover.

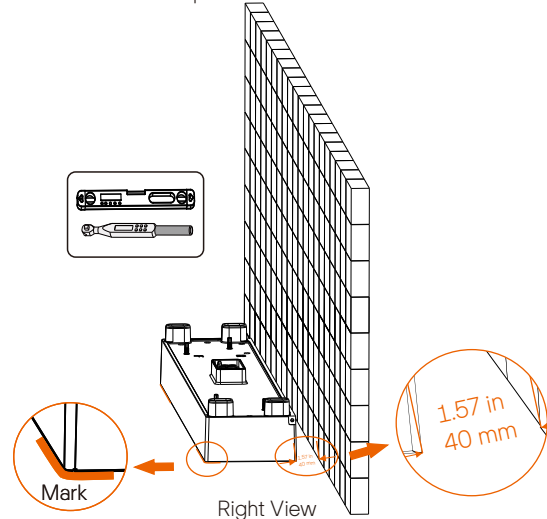


(2) Insert four M8*85 adjustment screws (Accessories Required: Part F) through the Base bottom to ensure that it is stable and level.



M8*85 X 4

Step 2: Locate the Base 1.57 in./40 mm away from the wall, and accurately mark the location of the Base on both sides with a pen.

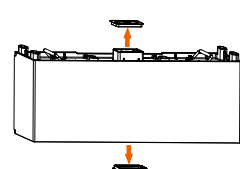


Note!

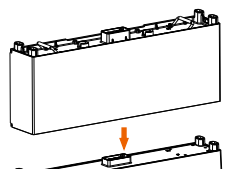
- (a) Use a spirit level to measure the sides of the Base to ensure they are even.
- (b) If not, please adjust the adjustment screws by a torque wrench being to ensure that the Base is even.

Step 3: Place the Battery Module onto the Base.

- (1) Remove the top and bottom dust covers.
- (2) Place the Battery Module on the Base.



(1)



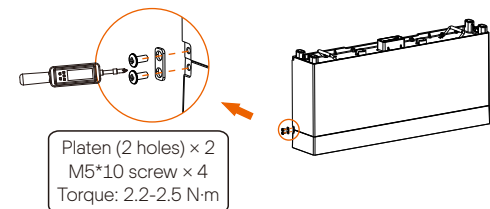
(2)



Note!

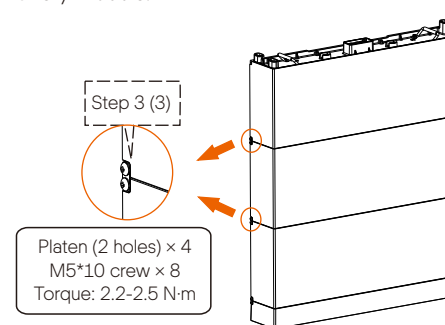
If the Base is shifted after placing the Battery Module, move it to its original location according to the mark previously drawn.

- (3) On each side, use two M5*10 phillips-head screws (TP-HS50: part E) and a platen (2 holes) (TP-HS50: part G) to secure the combination.



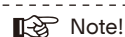
Platen (2 holes) × 2
M5*10 screw × 4
Torque: 2.2-2.5 N·m

Step 4: Place two Battery Modules in sequence, and secure both sides using M5*10 phillips-head screws (TP-HS50: part E) and platens (2 holes) (TP-HS50: part G). Refer to the Step 3 (3). Please secure the platens and M5*10 screws immediately after placing a Battery Module.



Step 3 (3)

Platen (2 holes) × 4
M5*10 screw × 8
Torque: 2.2-2.5 N·m



Note!

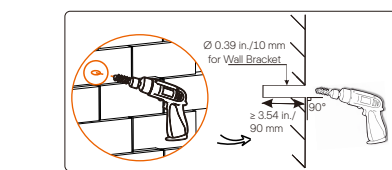
- For installation against concrete wall, strictly perform the following steps.
- For installation against solid wood wall, directly go to step 7.

Step 5 (Optional):

- (1) On each side, feed a M5*10 screw (TP-HS50: part E) through the platen (3 holes) (TP HS50: part F) and the wall bracket (TP HS50: part A), but not tighten the screw;
- (2) Attach the wall brackets to the wall, align their holes to the holes on the Battery Module, and use a spirit level to ensure that they are even;
- (3) Accurately mark the location of the wall brackets;
- (4) Draw circles according to the actual stud spacing;
- (5) Remove the wall brackets, and then drill holes (at least 3.54 in./ 90 mm) by a drill (drill bit: Ø 0.39 in./10 mm, at least 9.84 inch/250mm long).



Attach screw but not tighten it



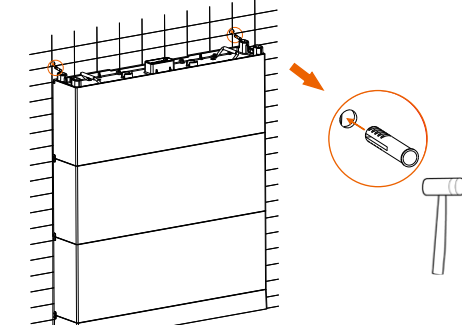
Ø 0.39 in./10 mm for Wall Bracket



Note!

Electric drill dust collector is recommended.

Step 6 (Optional): Hammer in the expansion bolts (TP-HS50: part D) into the holes.



Note!

For installation against solid wood wall, expansion bolts are not required.

I

Packing List

Note: The Quick Installation Guide briefly describes required installation steps. If you have any question, please refer to the User Manual delivered with the BMS for details.

BMS (TBMS-MCS60060):
Hereinafter referred to as "MCS60060"



BMS x 1

Document

Battery Module (TP-HS50):
Hereinafter referred to as "TP-HS50"



Battery module x 1

Wall bracket x 1

Wall bracket x 1

ST6*55 self-tapping screw x 2

Washer x 2

Expansion bolt x 4

M5*10 phillips-head screw x 10

Platen (3 holes) x 2

Platen (2 holes) x 2

Document

All Accessories Required for Two Installation Modes (T50 Battery)
Hereinafter referred to as "Accessories Required"



M8*85 expansion screw x 6

M5*8 countersunk screw x 4

M5*20 countersunk screw x 6

M8*88 self-tapping screw x 6

Washer x 6

Adjustment screw x 4

Transverse plate x 1

Base support x 2

Base for TP-HS50 Battery:

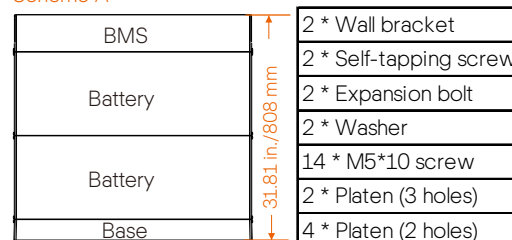


Base x 1

III

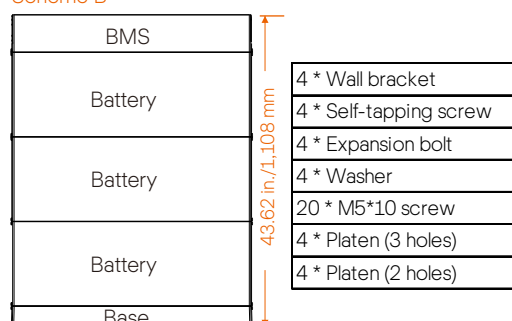
Overview (Floor Mounting)

Scheme A



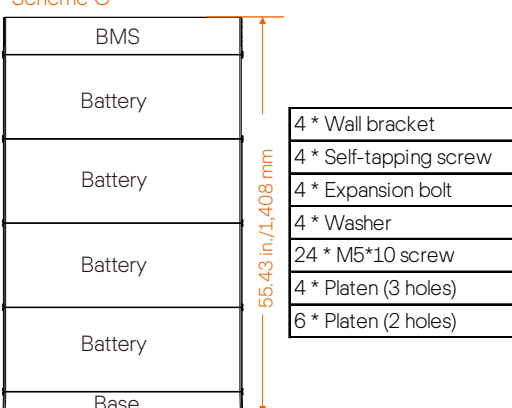
Distance from the equipment:
To left side: ≥11.81 in./300 mm
To right side: ≥11.81 in./300 mm

Scheme B

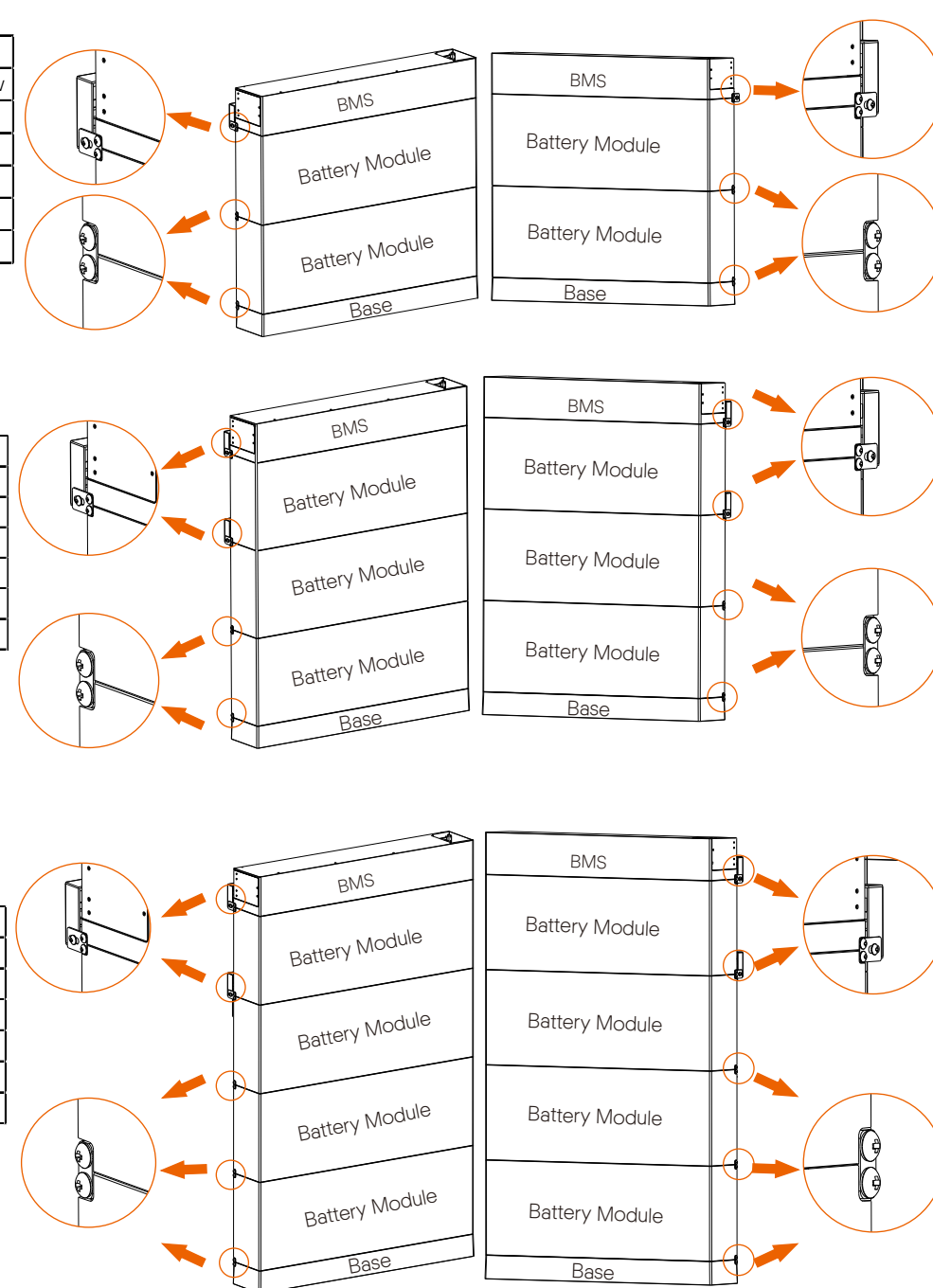


Distance from the equipment:
To left side: ≥11.81 in./300 mm
To right side: ≥11.81 in./300 mm

Scheme C



Distance from the equipment:
To left side: ≥11.81 in./300 mm
To right side: ≥11.81 in./300 mm

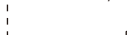


Note!

- For installation against concrete wall, strictly perform the following steps.
- For installation against solid wood wall, directly go to step 10-(6), and expansion bolts are not required.

Step 10:

- (1) On each side, feed a M5*10 screw (TP-HS50: part E) through the platen (3 holes) (TP HS50: part F) and the wall bracket (TP HS50: part A), but not tighten the screw;
- (2) Attach the wall bracket to the wall, align its holes to the holes on the Battery Module, and use a spirit level to ensure it's even;
- (3) Accurately mark the location of the wall brackets with a pen;
- (4) Draw circles according to the actual stud spacing;
- (5) Remove the wall brackets, and drill holes (at least 3.54 in/90 mm) by a drill (drill bit: Ø 0.39 in./10 mm, at least 9.84 inch/250mm long);
- (6) Secure the wall brackets using ST6*55 self-tapping screws (TP-HS50: part B) and washers (TP-HS50: part C), and then use a torch wrench (extender length: at least 9.84 inch/250 mm) to secure them. Refer to the Step 6, 7 and 8.



Note!

Electric drill dust collector is recommended.

Step 6, 7 and 8

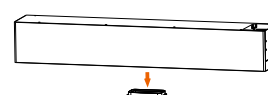


Let the platen down

Self-tapping screw × 2
Washer × 2
Wall bracket × 2
Torque: 6-8 N·m

Step 11: Place BMS onto the Battery Module.

- (1) Remove the dust cover from BMS bottom.



Step 9

(2) Place the BMS, fix the platens (3 holes), and then tighten all the M5*10 screws on both sides. Refer to Step 9.

Platen (3 holes) × 2
M5*10 screw × 6
Torque: 2.2-2.5 N·m

Step 9

Platen (3 holes) × 2
M5*10 screw × 6
Torque: 2.2-2.5 N·m

Step 9

Platen (3 holes) × 2
M5*10 screw × 6
Torque: 2.2-2.5 N·m

Step 9

Platen (3 holes) × 2
M5*10 screw × 6
Torque: 2.2-2.5 N·m

Step 9

Platen (3 holes) × 2
M5*10 screw × 6
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Step 9

Platen (3 holes) × 2
M5*10 screw × 6
Torque: 2.2-2.5 N·m

Step 9

Platen (3 holes) × 2
M5*10 screw × 6
Torque: 2.2-2.5 N·m

Step 9

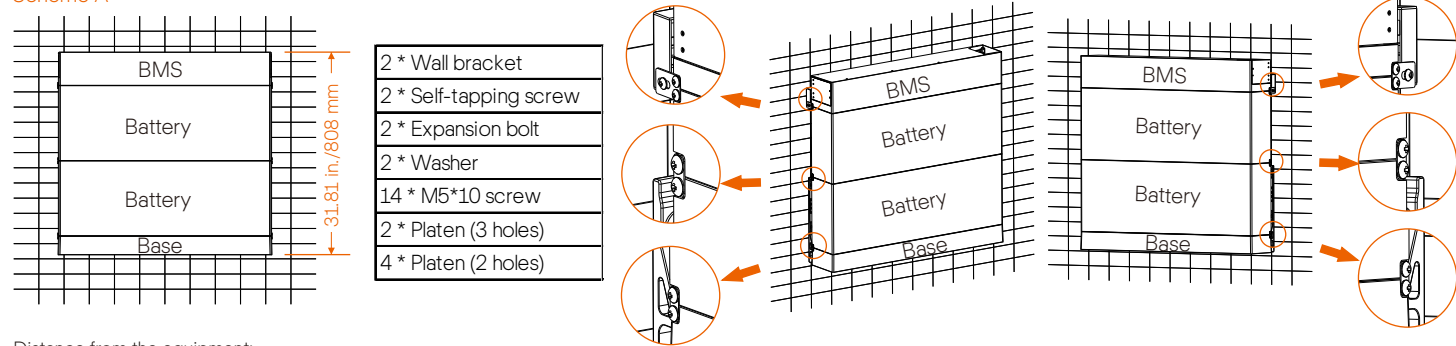
Platen (3 holes) × 2
M5*10 screw × 6
Torque: 2.2-2.5 N·m



Note!

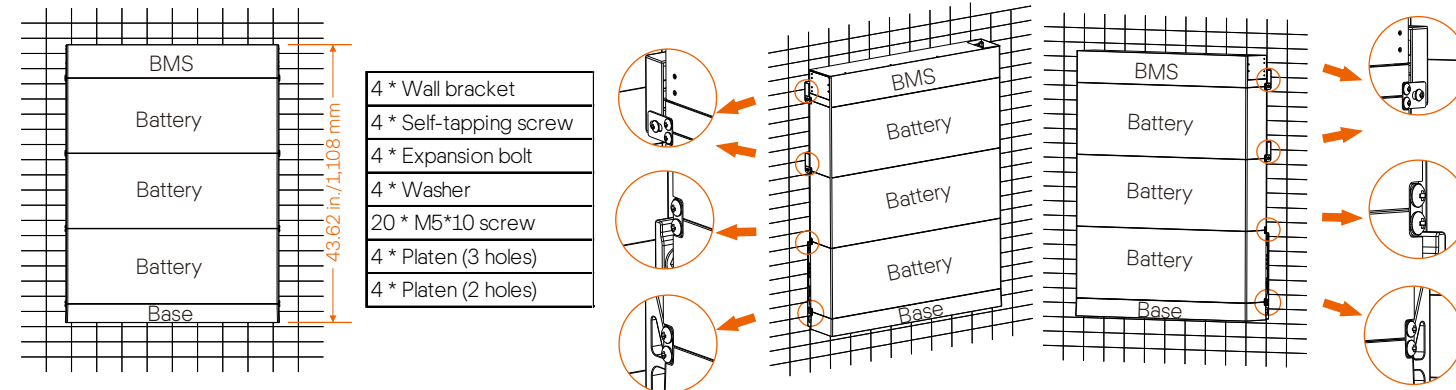
For wall mounting, make sure the BMS breaker is no more than 6.56 ft/2 m above the ground so that you can easily shut down the system in emergencies.

Scheme A



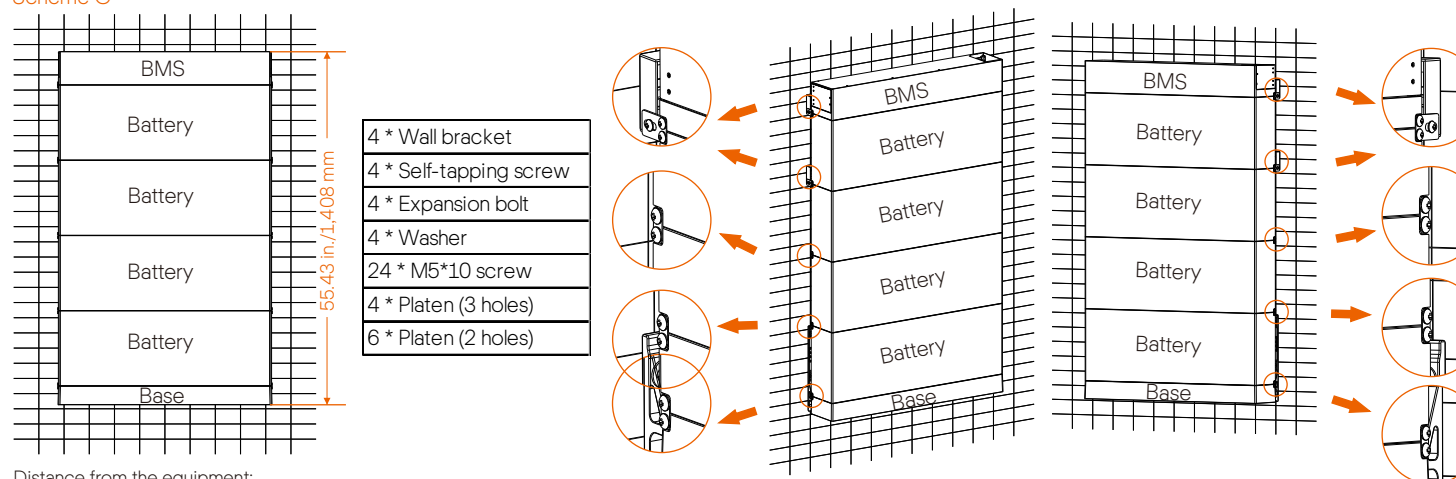
Distance from the equipment:
To left side: ≥ 11.81 in./300 mm
To right side: ≥ 11.81 in./300 mm
To the ground: ≥ 23.62 in./600 mm (The distance is reserved for increase of battery, and a battery's height is 11.81 in./300 mm.)

Scheme B



Distance from the equipment:
To left side: ≥ 11.81 in./300 mm
To right side: ≥ 11.81 in./300 mm
To the ground: > 11.81 in./300 mm (The distance is reserved for increase of battery, and a battery's height is 11.81 in./300 mm.)

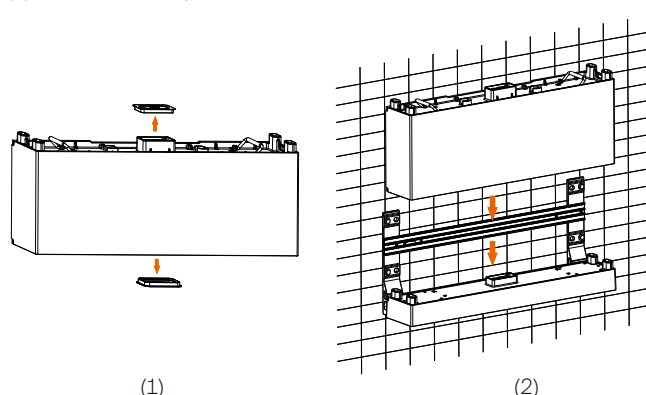
Scheme C



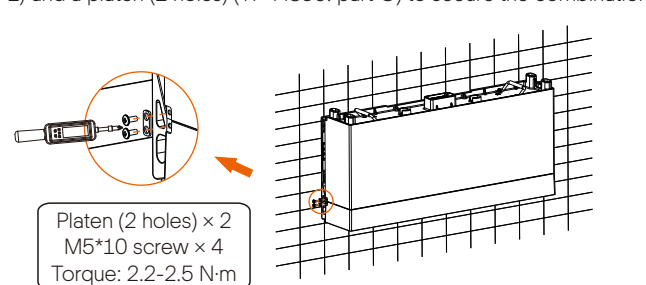
Distance from the equipment:
To left side: ≥ 11.81 in./300 mm
To right side: ≥ 11.81 in./300 mm
To the ground: It shall be decided according to the local regulations.

Step 5: Place the Battery Module onto the Base.

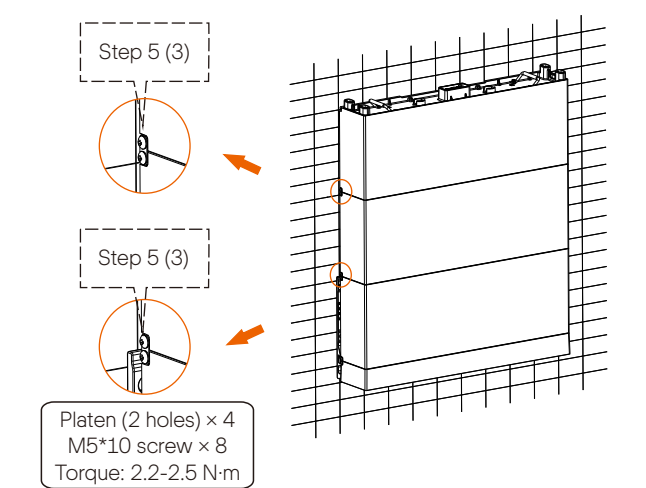
- (1) Remove the top and bottom dust covers from the Battery Module.
- (2) Place the Battery Module onto the Base.



- (3) On each side, use two M5*10 phillips-head screws (TP-HS50; part E) and a platen (2 holes) (TP-HS50; part G) to secure the combination.



Step 6: Place two Battery Modules in sequence, and secure both sides with M5*10 phillips-head screws (TP-HS50; part E) and platens (2 holes) (TP-HS50; part G). Refer to the Step 5 (3). Please secure the platens and M5*10 screws immediately after placing a Battery Module.

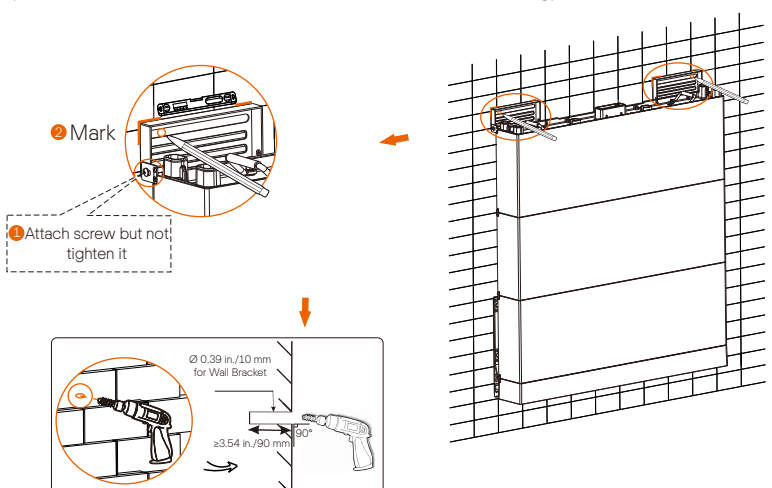


Note!

- For installation against concrete wall, strictly perform the following steps.
- For installation against solid wood wall, please go directly to step 9.

Step 7:

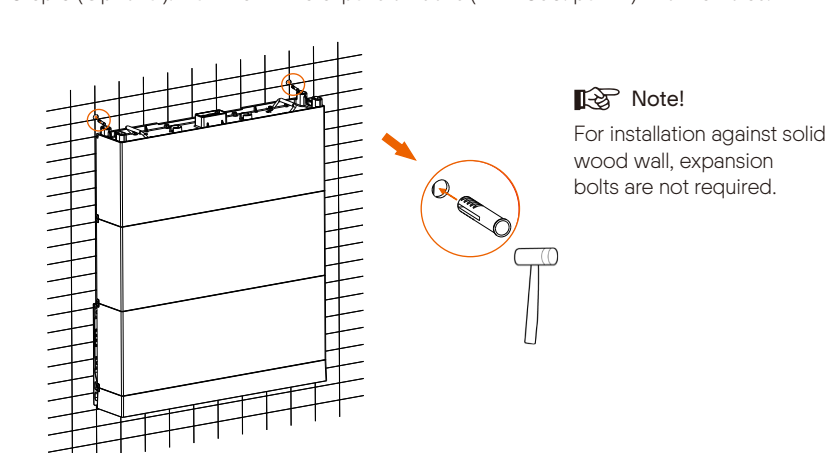
- (1) On each side, feed a M5*10 screw (TP-HS50; part E) through the platen (3 holes) (TP-HS50; part F) and the wall bracket (TP-HS50; part A), but not tighten the screw;
- (2) Attach the wall brackets to the wall, align their holes to the holes on the Battery Module, and use a spirit level to ensure that they are even;
- (3) Accurately mark the location of the wall brackets;
- (4) Draw circles according to the actual stud spacing;
- (5) Remove the wall brackets, and then drill holes (at least 3.54 in./90 mm) by a drill (drill bit: $\varnothing 0.39$ in./10 mm, at least 9.84 inch/250 mm long).



Note!

Electric drill dust collector is recommended.

Step 8 (Optional): Hammer in the expansion bolts (TP-HS50; part D) into the holes.



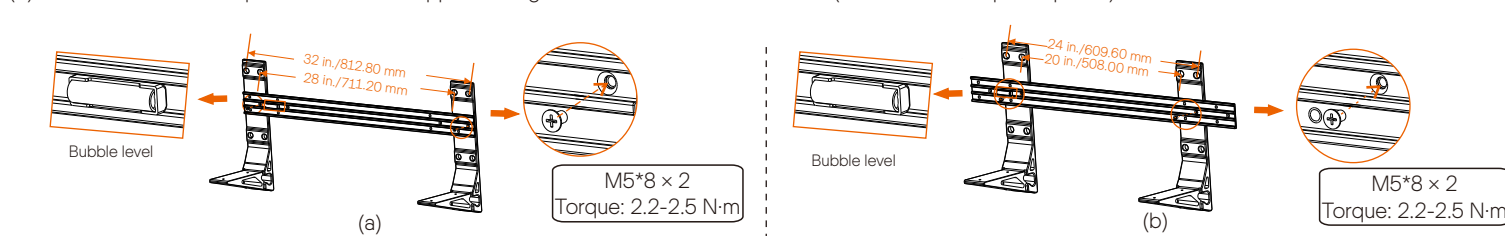
Note!

For installation against solid wood wall, expansion bolts are not required.

Please reserve enough distance from the equipment to the ceiling/ground for capacity expansion. Take Scheme C as an example.

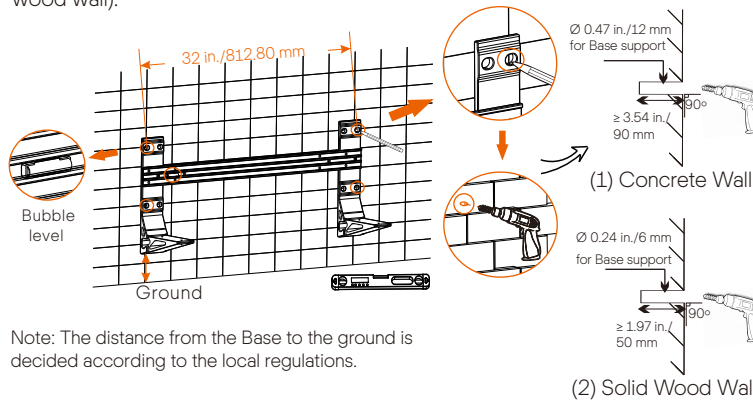
Step 1: There are two ways to install the transverse plate onto base support due to 4 kinds of stud spacing, with details as follows: (a) 28 in./711.20 mm or 32 in./812.80 mm; (b) 20 in./508.00 mm or 24 in./609.60 mm.

- (1) Attach the transverse plate to the base supports. Ensure that the bubble level on the transverse plate is facing towards you and on the left base support side.
- (2) Secure the transverse plate to the base supports using two M5*8 countersunk screws (Accessories Required: part B).



Step 2:

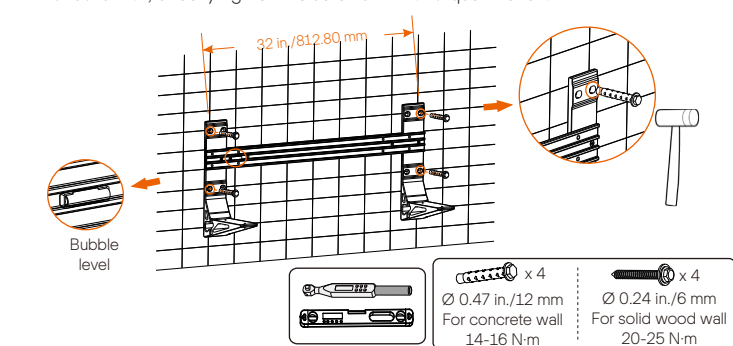
- (1) Place the assembled transverse plate and base support to the wall, and look the cylindrical plastic bubble level on the transverse plate. If the bubble isn't in the center, slightly bow it to the horizontal.
- (2) Determine the position of holes.
- (3) Mark four holes with a pen.
- (4) Remove the assembled support, and then drill holes (at least 3.54 in./90 mm) by Drill ($\varnothing 0.47$ in./12 mm for concrete wall, or $\varnothing 0.24$ in./6 mm for solid wood wall).



Note: The distance from the Base to the ground is decided according to the local regulations.

Step 3:

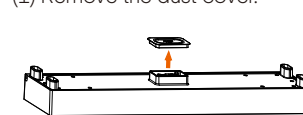
- (1) Place the assembled transverse plate and base support to the wall (or solid wood stud);
- (2) Attach screws to the holes, but ensure not to tighten them;
 - For installation against concrete wall, attach four M8*85 expansion screws (Accessories Required: part A) to the holes.
 - For installation against solid wood wall, attach four M8*88 self-tapping screws (Accessories Required: part D) to the holes.
- (3) Check whether the bubble level is horizontal;
- (4) Tighten the screws.
 - For concrete wall, hammer in the expansion screws with a rubber mallet, and then tighten them with a torque wrench.
 - For solid wall, directly tighten the screws with a torque wrench.



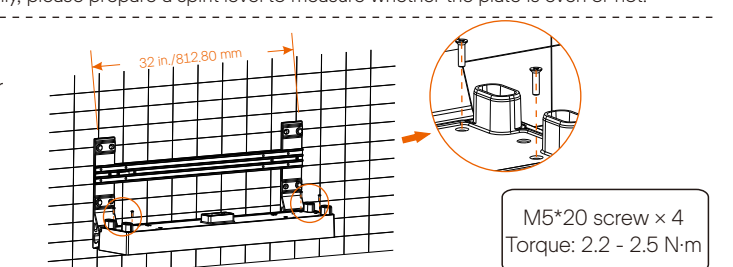
Note: The bubble level on the transverse plate can be used as an auxiliary tool, additionally, please prepare a spirit level to measure whether the plate is even or not.

Step 4: Place the Base.

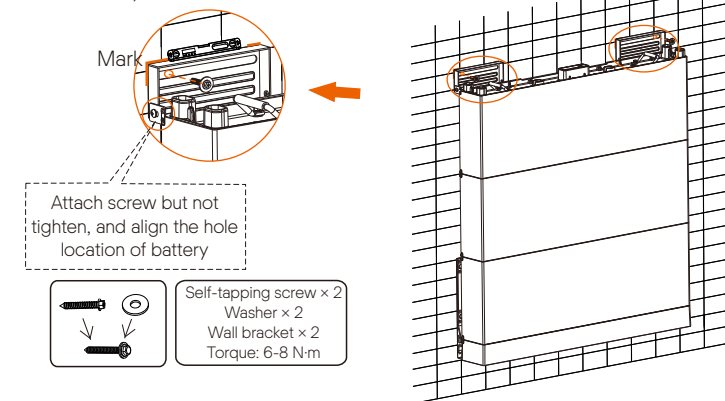
- (1) Remove the dust cover.



- (2) Place the Base onto the assembled base support, and then secure both sides with four M5*20 countersunk screws (Accessories Required: part C).



Step 9: Align the wall brackets to the wall based on the hole marks, insert two ST6*55 self-tapping screws (TP-HS50; part B) and two washers (TP-HS50; part C) into the holes, and then use a torch wrench (extender length: at least 9.84 inch/250 mm) to secure them.



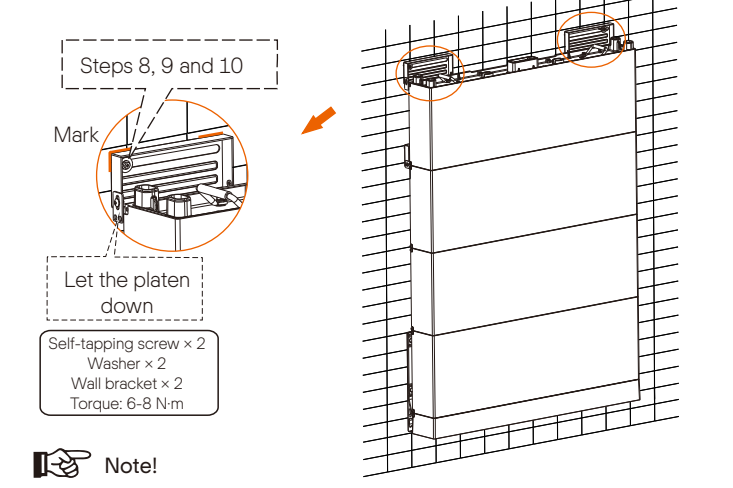
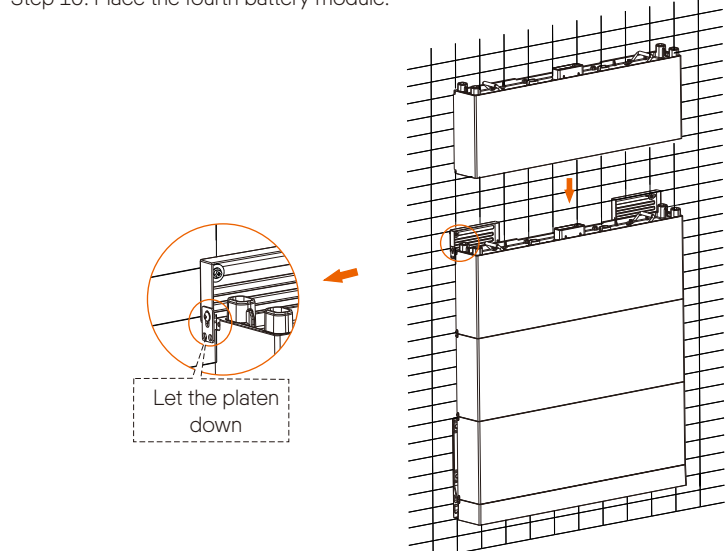
Note!

- For installation against concrete wall, strictly perform the following steps.
- For installation against solid wood wall, directly go to step 12-(7), and expansion bolts are not required.

Step 12:

- (1) On each side, feed a M5*10 screw (TP-HS50; part E) through the Platen (3 holes) (TP-HS50; part F) and the wall bracket (TP-HS50; part A), but not tighten the screw;
- (2) Attach the wall bracket to the wall, align its holes to the holes on the Battery Module, and use a spirit level to ensure it's even;
- (3) Accurately mark the location of the wall bracket with a pen;
- (4) Draw a circle according to the actual stud spacing;
- (5) Remove the wall bracket, and drill the hole (at least 3.54 in./90 mm) by a Drill (drill bit: $\varnothing 0.39$ in./10 mm, at least 9.84 inch/250 mm long);
- (6) Secure the wall bracket using ST6*55 self-tapping screws (TP-HS50; part B) and washers (TP-HS50; part C), and then use a torch wrench (extender length: at least 9.84 inch/250 mm) to secure them. Refer to the Step 8, 9 and 10.

Step 10: Place the fourth battery module.



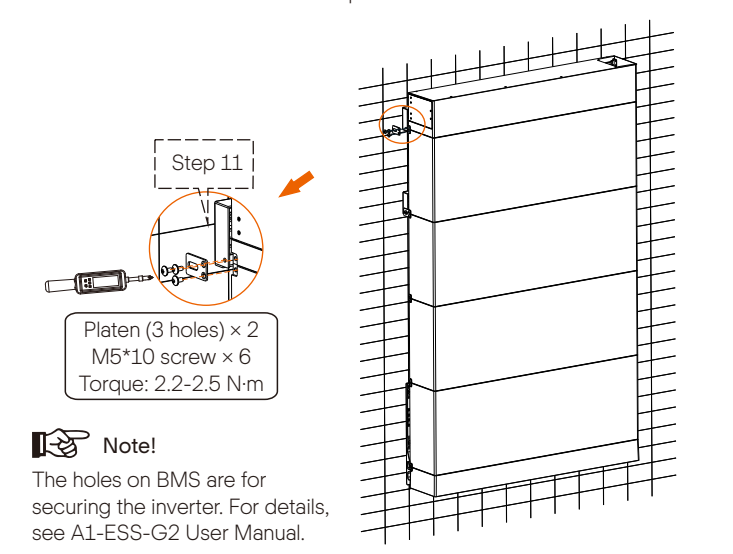
Note!

Electric drill dust collector is recommended.

Step 13: Place BMS onto the Battery Module.

- (1) Remove the dust cover from BMS bottom.

- (2) Place the BMS, fix the platen (3 holes), and then tighten the M5*10 screws on both sides. Refer to Step 11.



Note!

The holes on BMS are for securing the inverter. For details, see A1-ESS-G2 User Manual.

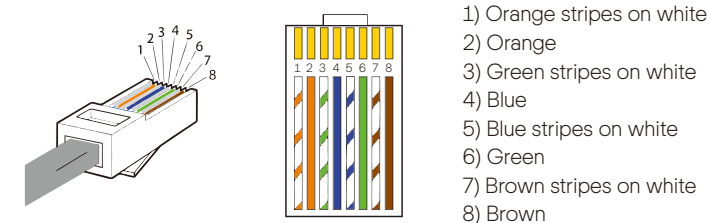
Making a BMS communication cable

To ensure normal operation of BMS and inverter, a BMS communication cable is required to be made before wiring.

The specific definition of the communication cable is shown as follows:

Sequence	1	2	3	4	5	6	7	8
BMS	/	GND	/	BMS_H	BMS_L	/	A1	B1

The wire order of the communication cable is as follows:

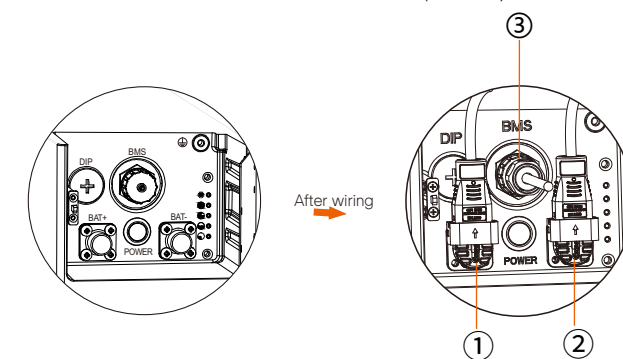


Note!

The BMS communication cable shall have a shield layer.

Before wiring.

1. Unscrew the cap at BMS clockwise;
2. Unscrew the screws at BAT+ and BAT- respectively.



- ① Insert the orange power cable into the orange socket
- ② Insert the black power cable into the black socket
- ③ Screw the communication cable into the communication socket

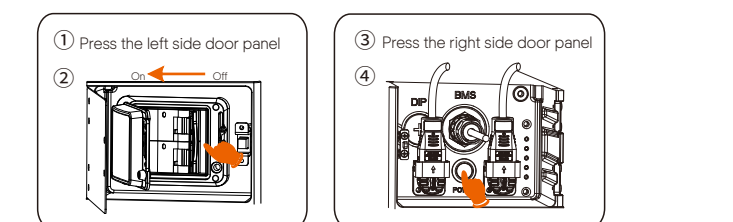


Note!

Don't violently remove cables when they are locked.

Steps for commissioning are shown as follows:

- ① Press the left side door panel
- ② Open the air switch's guard and toggle switch, to ensure that the inverter does charge to the battery
- ③ Press the right side door panel
- ④ Press the button for 1 to 2 sec, and then the system starts



Black Start: Press the POWER button and hold it for 20 sec; release the button after the four SOC indicators flash blue alternately. But, we do not recommend the use of Black Start as it may cause the port to be charged, resulting in an electric shock.

If the batteries have not been used for more than 9 months, these batteries must be charged to at least SOC 50 % each time.

For the first installation, the interval among manufacture dates of battery modules shall not exceed 3 months.

If a battery is replaced or added for capacity expansion, each battery's SOC should be consistent. The max. SOC difference should be between $\pm 5\%$.

If users want to increase their battery system capacity, please ensure that the SOC of the existing system capacity is about 40%. The manufacture date of the new battery shall not exceed 6 months; in case of exceeding 6 months, please charge the new battery to around 40%.

The equipment can support capacity expansion.

There are two circumstances in case the user wants to increase a battery module:

1. For floor mounting, remove the inverter before increase of battery module;
2. For wall mounting, if the distance from the equipment to the ground is enough, do not remove the inverter; otherwise, the inverter shall be removed.