



AI-ESS-G2 SYSTEM (A1-BI PRO-200-G2)

Quick Installation Guide

Version 2.0

www.solaxpower.com



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CHANGE HISTORY

Version 02 (2025-04-15)

Added the contact information

Version 01 (2024-09-10)

Updated QR Code

Version 00 (2024-08-23)

Initial release

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1 Safety

1.1 General Safety Instructions

This manual contains important instructions for A1-HYB-G2 series inverter that should be followed during installation and maintenance for the inverter.

A1-HYB-G2 series inverter is designed and tested to meet all applicable North American and International safety standards. However, like all electrical and electronic equipment, safety precautions must be observed and followed during installation and operation of the A1-HYB-G2 series inverter to reduce the risk of personal injury and to ensure a safe installation.

Installation, commissioning, service, and maintenance of A1-HYB-G2 series inverter must only be performed by authorized personnel that are licensed and / or satisfy state and local jurisdiction regulations.

Before starting installation or commissioning, read the entire manual carefully to ensure correct and safe installation or commissioning. And keep the user manual in a safe place.

All US electrical installations must comply and be in accordance with all the state, local, utility regulations, and National Electrical Code ANSI/NFPA 70.

1.2 Important Safety Instructions



 This document does not replace and is not intended to replace any local, state, provincial, including without limitation applicable in the jurisdiction of installation.
 SolaX assumes no responsibility for the compliance or non-compliance with such laws or codes in connection with the installation of the product.

/ WARNING!

- Before installing or using the product, read all the instructions, cautions, and warnings
 in this manual. Failure to do so or to follow any of the instructions or warnings in this
 document can result in electrical shock, serious injury or death, or may damage the
 product.
- Before connecting the product to the electrical utility grid, contact the local utility company.
- All work must be carried out by a qualified electrician. Children should be supervised to ensure that they do not play with the appliance.

MARNING!

 Do not install the system in a corrosive environment where it may be exposed to ammonia, corrosive gases, acids, or salts (eg: chemical plant, fertilizer storage areas, tanneries, near volcanic ash eruption).



Do not disassemble any parts of the product which are not mentioned in the
installation guide. It contains no user-serviceable parts. See warranty for instructions
on obtaining service. Attempting to service the device by yourself may result in a risk
of electric shock or fire and will void your warranty.

! WARNING!

- The inverter input and output circuits are isolated from the enclosure. This system does not include an isolation transformer and should be installed with an ungrounded PV array in accordance with the requirements of ANSI / NFPA 70, NEC 690.41.
- Equipment grounding is the responsibility of the installer and must be performed in accordance with all applicable Local and National Codes.

/ WARNING

Before operating the inverter, ensure that the inverter is grounded properly. This
product must be connected to a grounded, metal, permanent wiring system, or
an equipment-grounding conductor must be run with the circuit conductors and
connected to the equipment grounding terminal or lead on the product.

! WARNING!

 When a ground fault is indicated, normally grounded conductors may be ungrounded and energized or normally ungrounded conductors may be grounded.

! WARNING!

• Do not operate the device when the device is running.

/ CAUTION

Only accessories shipped with the product are recommended to use. Using other
accessories may result in a fire or injury to the user.

!\ CAUTION!

Possible damage to health as a result of the effects of radiation!

• Do not stay closer than 7.87 in / 20 cm to system for a long time.



Danger of burn injuries due to hot enclosure parts!

• During operation, the enclosure may become hot.

/ CAUTION!

Risk of electric shock from energy stored in the capacitor.

Never operate on the inverter couplers, the Mains cables, battery cables, and PV
cables when power is applied. After switching off the PV, battery and Mains, always
wait for 5 minutes to fully discharge the intermediate circuit capacitors discharge
before unplugging DC, battery and Mains couplers.

/ CAUTION

 A1-HYB-G2 series only supports a certain type of lithium-ion battery (Manufacturer certified battery)!

/ WARNING!

Do not expose system to ambient temperatures above 140°F (60°C) or below -13°F (-25°C).

! WARNING!

 Do not attempt to open, disassemble, repair, tamper with or modify the product. The product and its components are not user serviceable.

Battery safety instructions

A1-HYB-G2 Series inverter should be coupled with a high voltage battery. The battery must comply with UL 1973 and must be SolaX certified. As accumulator batteries may contain potential electric shock and short-circuit current dangers, to avoid accidents that might be thus resulted, the following warnings should be observed during battery replacement:

• Risks of explosion:

Do not subject the battery module to heavy impacts. Do not crush or puncture the battery module. Do not dispose of the battery module in a fire.

· Risks of fire:

Do not expose the battery module to temperatures in excess of 140°F. Do not place the battery module near a heat source, such as a fireplace. Do not expose the battery module to direct sunlight.

Do not allow the battery connectors to touch conductive objects such as wires.

· Risks of electric shock:

Do not disassemble the battery module.
Do not touch the battery module with wet hands.
Do not expose the battery module to moisture or liquids.
Keep the battery module away from children and animals.

• Risks of damage to the battery module:

Do not expose the battery module to liquids. Do not subject the battery module to high pressures. Do not place any objects on top of the battery module. A1-HYB-G2 series inverter is transformerless type without galvanic isolation. It is designed and certified to fulfill the directives of ANSI/NFPA 70, NEC 690.41, UL 1741, UL 1741 SA, IEEE 1547 and IEEE 1547.1. The inverter converts the DC power generated by PV strings into AC power and stores the energy into the battery bank or feeds the power into the power grid.

RSE

The RSD provides an automatic disconnect of residential or small commercial PV systems, fully compliant with the rapid shutdown requirements of National Electric Code (NEC), ANSI / NFPA 70 Sections 690.12.

Battery (Optional)

The A1-HYB-G2 series inverter should be coupled a high voltage battery. The battery communicate with inverter via BMS and must comply with the specification of UL 1973.

The installation of A1-ESS-G2 system including A1-HYB-G2 inverter, battery and BI PRO must be done in accordance with local codes and the National Electric Code (NEC) ANSI / NFPA 70 or the Canadian Electrical Code CSA C22.1.

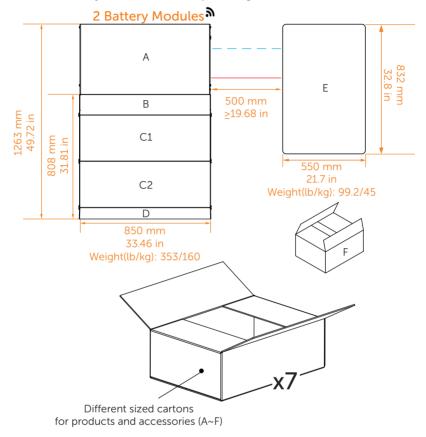
The whole system requires adequate clearance for the installation, cabling or conduit and airflow. Do not install anything above each unit that limits access to the unit or that might fall and damage the unit. Do not mount each unit upside down.

The inverter and battery in the system can be wall-mounted or floor-mounted.

The BI PRO in the system must be wall-mounted and installed on the right side of inverter. It needs to be configured for cable entry at the bottom and sides of the enclosure.

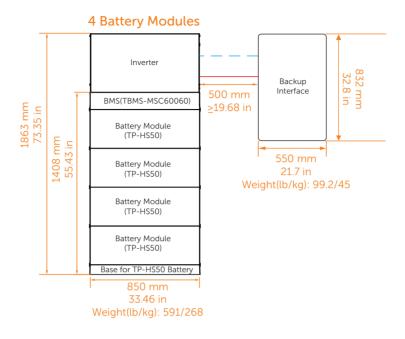
2 Overview of System

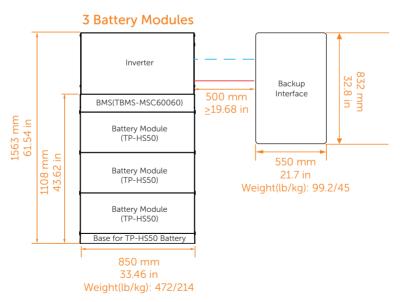
2.1 A1-ESS-G2 System and corresponding cartons



- A Inverter
- B TBMS-MSC60060
- C1 Rechargeable Li-ion Battery Module TP-HS50/5kWh
- C2 Rechargeable Li-ion Battery Module TP-HS50/5kWh
- D Base for TP-HS50 Battery
- Backup Interface (referred to as BI PRO)
- All Accessories Required for Two Installation Modes (T50 Battery)

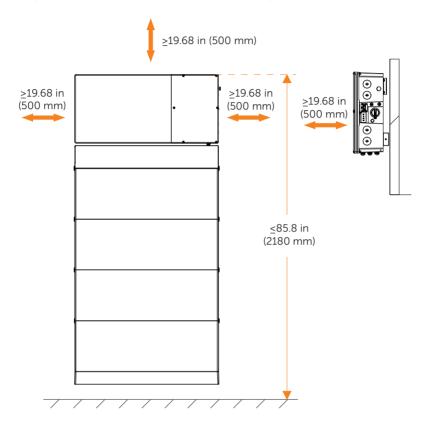
2.2 Weight and mounting height instructions





3 Installation Space Requirement

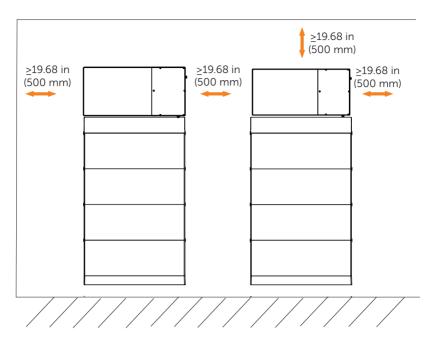
To ensure good heat dissipation and convenient disassembly of the inverter and battery, the minimum clearance around the inverter and battery shall not be less than the following values, as shown below. The height above the ground marked below is recommended assuming that four BATs are installed with floor-mounting.



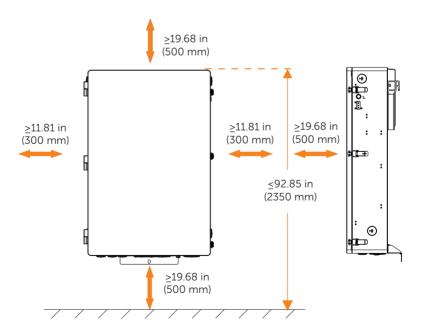
For multi-inverter installation, please reserve the space of 19.68 inch (500 mm) at least between each left and right inverter and at least 19.68 inch (500 mm) distance from the ceiling . If multiple inverter are mounted in areas with high ambient temperatures, increase the clearances between the inverter and batteries and ensure an adequate fresh-air supply if possible.

NOTICE

 In case of wall-mounting, the distance from base to ground is decided according to the local regulations.



To ensure good heat dissipation and convenient disassembly of the BI PRO, the minimum clearance around the BI PRO shall not be less than the following values, as shown below.

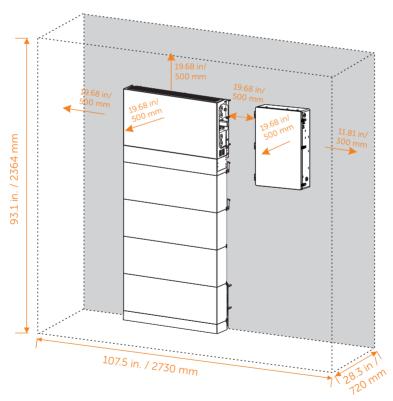


The following are the specification requirements for wall flatness and perpendicularity.



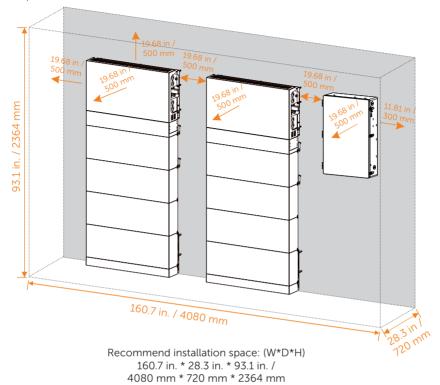
Recommended Installation Space

Example for single inverter installation:



Recommend installation space: (W*D*H) 107.5 in. * 28.3 in. * 93.1 in. / 2730 mm * 720 mm * 2364 mm

Example for multi-inverter installation:



4 Packing lists

4.1 Packing list of Inverter



Item	Name	Quantity	Description
/	Inverter	1 pc	Product
/	Metal cover	1 pc	Protect the inverter
/	Bracket	1 pc	Support the inverter
Α	8-pin female terminal block with terminating resistor	1 pc	Additional 8-pin female terminal block with terminating resistor
В	Grounding terminal	5 pcs	For grounding
С	M5XL10 screw	10 pcs	Fix the cover, cable protective guard and cover fixing plate
D	10 AWG ferrules	6 pcs	For PV cable
Е	Fixing plate of cover	2 pcs	Connect the cover and the bracket
F	Cable protective guard	1 pc	Protect the cable between inverter and BMS
G	PE cable	1 pc	Grounding conductor between inverter and BMS
Н	Self-tapping screw	12 pcs	Fix the bracket
I	Washer	12 pcs	Fix the bracket
J	Expansion set	12 pcs	Fix the bracket
/	Communication Dongle	1 pc	For communication
К	Document	/	Guide the installation
L	M4XL10 screw	2 pcs	Fix the fixing plate between inverter bracket and BMS
М	8 AWG ferrules	3 pcs	For AC cable

4.2 Packing list of Battery

BMS (TBMS-MCS60060)

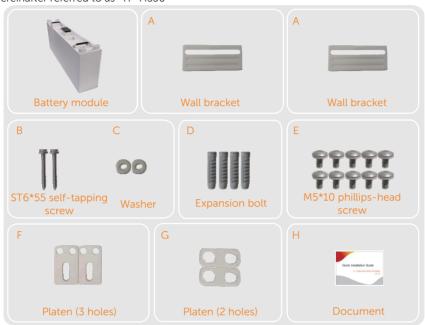
Hereinafter referred to as "MCS60060"



Item	Name	Quantity	Description	
/	/ BMS 1 pc Product		Product	
Α	A Document /		User Manual, Guide the installation and maintenance	

Battery Module (TP-HS50)

Hereinafter referred to as "TP-HS50"



Item	Name	Quantity	Description
/	Battery module	1 pc	Product
А	Wall bracket	2 pcs	Support battery module to be mounted on the wall
В	ST6*55 self-tapping screw	2 pcs	Fix the bracket
С	Washer	2 pcs	Fix the bracket
D	Expansion bolt	4 pcs	Fix the bracket
Е	M5*10 phillips-head screw	10 pcs	Fix the fixing plate
F	Platen (3 holes)	2 pcs	Connect two battery modules with bracket
G	Platen (2 holes)	2 pcs	Connect two battery modules
Н	Document	/	Guide the installation

NOTICE

• The above-mentioned accessories are only for one battery module.

All Accessories Required for Two Installation Modes (T50 Battery)

Hereinafter referred to as "Accessories Required"



Item	Name	Quantity	Description
А	M8*85 expansion screw	6 pcs	Fix the base support in case of concrete wall
В	M5*8 countersunk screw	4 pcs	Fix the transverse plate with base support
С	M5*20 countersunk screw	6 pcs	Fix the two sides of base
D	M8*88 self-tapping screw	6 pcs	Fix the base support in case of wooden wall
Е	Washer	6 pcs	Fix the base support in case of wooden wall
F	Adjustment screw	4 pcs	Adjust the base to be leveled
/	Transverse plate	1 рс	Support the base
/	Base support	2 pcs	Support the base
			·

Base for TP-HS50 Battery



Item	Name	Quantity	Description
/	Base	1 pc	Product

4.3 Packing list of Backup Interface



Item	Name	Quantity	Description
/	Backup Inteface (BI PRO)	1 pc	Product
/	Bracket	1 pc	Support the BI PRO to be mounted on the wall
Α	Rolled strip	8 pcs	Fix the cable
В	Circuit breaker label	1 рс	For attaching to circuit breakers
С	Document	/	Quick installation guide of A1-ESS-G2 System
D	Hexagonal stud	1 pc	Fix the breaker
Е	M4*L12 screw	3 pcs	Fix the breaker
F	Self-tapping screw	9 pcs	Eight for fixing the bracket and one for fixing the BI PRO
G	Washer	9 pcs	Eight for fixing the bracket and one for fixing the BI PRO
Н	Expansion set	9 pcs	Fixing the bracket
/	Communication cable	1 pc	Communicate with inverter
/	Perforating paper	/	For hole location

4.4 Tools Requirement

Installation tools include but are not limited to the following recommended ones. If necessary, use other auxiliary tools on site. Please note that the tools used must comply with local regulations.



Safety boots

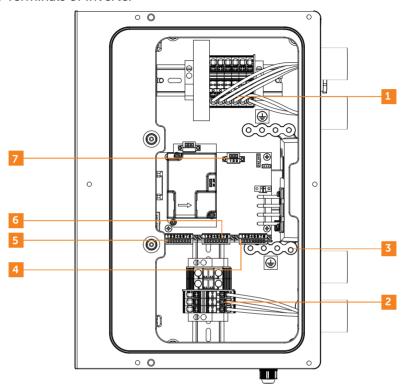
Safety goggles

Anti-dust mask

Safety gloves

5 Overview of Terminals

5.1 Terminals of Inverter



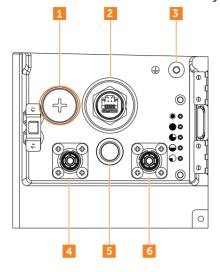
Inverter power terminal (Purchased by customer)

No.	o. Terminals Type		Cross-sectional Area Range	Strip Length
1	PV terminals	90°C(194°F), 600 V, copper	10-8 AWG	0.47 in / 12 mm
2	AC terminals	90°C(194°F), 600 V, copper	12-8 AWG (3.8 kW), 10-8 AWG (5/6/7.6 kW)	0.47 in / 12 mm
3	Ground terminals	90°C(194°F), 600 V, copper	8 AWG	0.47 in / 12 mm

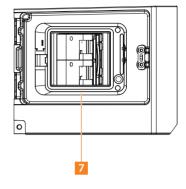
Inverter communication terminal (Purchased by customer)

No.	Terminals	Port Pin	Туре	Range	Strip Length	Torque (in-lbs)
		Pin 1: RS485_METER_A	CAT5 or			
		Pin 2: RS485_METER_B	better			
		Pin 3: GND				
4	AUX	Pin 4: +12V_RELAY_OUT		24-18	0.24 in /	1.8
	terminal	Pin 5: DRM0		AWG	6 mm	1.0
		Pin 6: +12V_COM	/			
		Pin 7: STOP_NO+				
		Pin 8: STOP_NO-				
		Pin 1: SYSR_L			0.24 in / 6 mm	1.8
		Pin 2: SYSR_H		24-18 AWG		
		Pin 3: CAN_L	CAT5 or better			
5	COMM in	Pin 4: CAN_H				
5	terminal	Pin 5: RS485_BI_A				
		Pin 6: RS485_BI_B				
		Pin 7: +12V				
		Pin 8: GND	/			
		Pin 1: SYSR_L				1.8
		Pin 2: SYSR_H				
		Pin 3: CAN_L	CAT5 or	24-18		
6	COMM out	Pin 4: CAN_H	better	AWG	0.24 in /	
0	terminal	Pin 5: RS485_BI_A			6 mm	
		Pin 6: RS485_BI_B				
		Pin 7: +12V	/	18-16		
		Pin 8: GND		AWG		
		Pin 1: GND				1.8
7	MLPE terminal	Pin 2: RS485_MLPE_A	CAT5 or better	24-18 AWG	0.24 in / 6 mm	
		Pin 3: RS485_MLPE_B				

5.2 Terminals and Breaker of Battery



Right side view

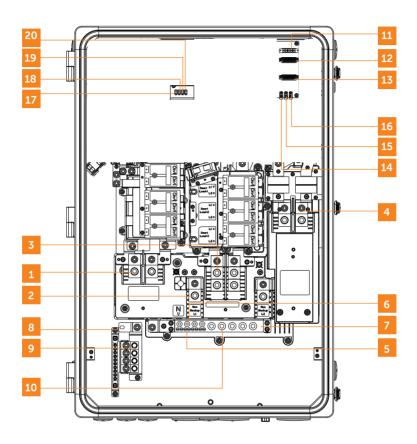


Left side view

- 2 COMM Terminal 5
- 3 GND
- BAT+
- Power button
- BAT-

7 Circuit breaker

5.3 Terminals and breaker of BI PRO



BI PRO power terminal required wire sizes and torques

No.	Terminals	Cross-sectional Area Range	Strip Length	Torque (in-lbs)	Tool
1	ESS 2 lugs	4-4/0 AWG	1.0 in / 25 mm	275	5/16 HEX Key
2	Non-Backup Load lugs	4-4/0 AWG	1.0 in / 25 mm	275	5/16 HEX Key
3	Backup Load lugs	4-4/0 AWG	1.0 in / 25 mm	275	5/16 HEX Key
4	Grid terminals	4-4/0 AWG	1.0 in / 25 mm	275	5/16 HEX Key
5	Neutral terminals small hole	14-4 AWG	0.40 in / 10 mm	26	1.0*5.0 mm Slotted
6	Neutral terminals medium hole	14-4 AWG 2-2/0 AWG	1.0 in / 25 mm	26 110	3/16 HEX Key
7	Neutral terminals large hole	4-4/0 AWG	1.0 in / 25 mm	275	5/16 HEX Key
8	Ground terminals small hole	14-4 AWG	0.40 in / 10 mm	26	1.0*5.0 mm Slotted
9	Ground terminals large hole	6-2/0 AWG	0.70 in / 17 mm	110	3/16 HEX Key
10	M6 Nuts on Bus Bar (Secure Breakers or Lugs on Smart Load Module)	1	1	45	10 mm HEX Socket

BI PRO communication terminal (Purchased by customer)

No.	Terminals	Port Pin	Туре	Range	Strip Length	Torque (in-lbs)
		Pin 1: RESERVE				
		Pin 2: RESERVE	_			
		Pin 3: CAN_L	CAT5 or	24-18		
11	INV Communication	Pin 4: CAN_H	better	AWG	0.24 in /	
11	terminal	Pin 5: RS485_BI_A	_		6 mm	
		Pin 6: RS485_BI_B				
		Pin 7: +12 V		18-16		
		Pin 8: GND	- /	AWG		
		Pin 1: DRY_GEN	,	24-16		0.2 N·m
		Pin 2: GEND_GEN	- /	AWG		
		Pin 3: RS485_RESERVE_A	CAT5 or		_	
12	AUX1 terminal	Pin 4: RS485_RESERVE_B	better		0.24 in /	1.8 lbf.in /
12	AUXI terminat	Pin 5: RESERVE		24-18	6 mm	0.2 N·m
		Pin 6: RESERVE	_	AWG		
		Pin 7: STOP_NO+	- /			
		Pin 8: STOP_NO-	_			

BI PRO communication terminal (Purchased by customer)

No.	Terminals	Port Pin	Туре	Range	Strip Length	Torque (in-lbs)
13	AUX2 terminal	Pin 1: NO_1		24-16 AWG	0.24 in / 6 mm	1.8 lbf.in / 0.2 N·m
		Pin 2: COM_1				
		Pin 3: NC_1				
		Pin 4: NO_2				
		Pin 5: CON_2/3				
		Pin 6: NC_2				
		Pin 7: NO_3				
		Pin 8: NC_3				
14	CT1 terminal	Pin 1: CT1+	Shielded, twisted pair	/	/	/
		Pin 2: CT1-				
15	CT2 terminal	Pin 1: CT2+	Shielded, twisted pair	/	/	1
		Pin 2: CT2-				
16	CT3 terminal	Pin 1: CT3+	Shielded, twisted pair	/	/	/
		Pin 2: CT3-				
17	CT L1A terminal	Pin 1: CT L1A+	Shielded, twisted pair	/	/	1
		Pin 2: CT L1A-				
18	CT L1B terminal	Pin 1: CT L1B+	Shielded, twisted pair	/	/	1
		Pin 2: CT L1B-				
19	CT L2A terminal	Pin 1: CT L2A+	Shielded, twisted pair	/	/	/
		Pin 2: CT L2A-				
20	CT L2B terminal	Pin 1: CT L2B+	Shielded, twisted pair	/	/	1
		Pin 2: CT L2B-				

BI PRO breaker and switch (Purchased by customer)

Main Breaker	Branch Breaker	Then the maximum short circuit rating in RMS symmetrical amperes, 240V is:	
When the panelboard service disconnect is a Type:	And the branch breakers installed are Type:		
EATON CSR	EATON BR BRAF BRH BD BQ.	22,000 A	

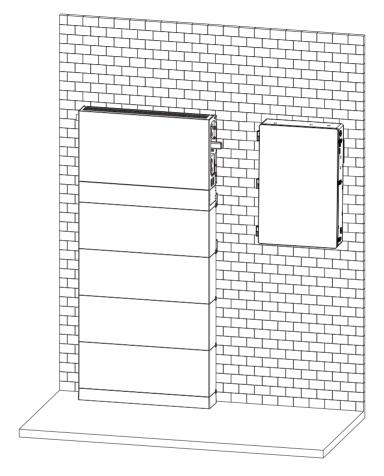
Main Breaker Line side barriers: EatonTlCSR300.

Hold down kit: Eaton BRHDK125.

Component	Description		
Emergency stop switch	Normally closed (NC) contact The UL certification is required for the emergency stop switch.		

6 Mechanical Installation

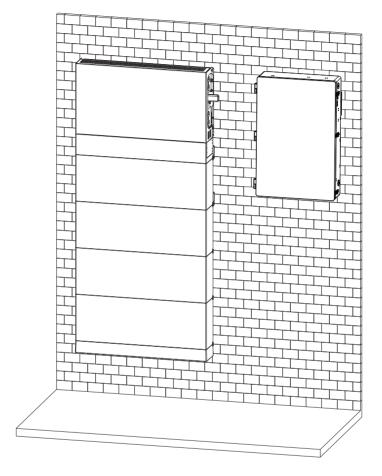
There are two mechanical installation modes: Floor-mounting and Wall-mounting. You can first-view the final look of the installation in the renderings below:



Floor-mounting

NOTICE

• For detailed steps of floor-mounting, please refer to "6.1 Mechanical Installation (Floor-mounting)" (Page 28-46).



Wall-mounting

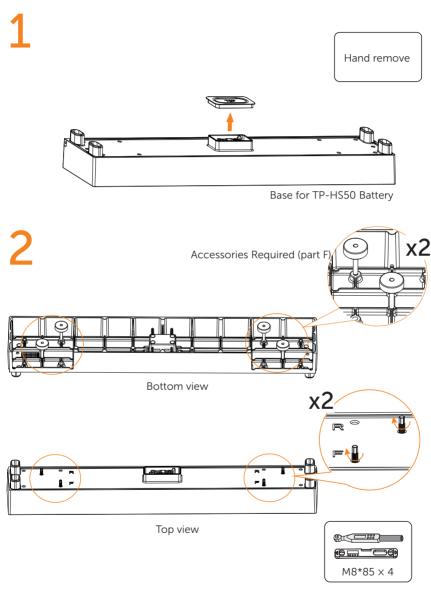
NOTICE

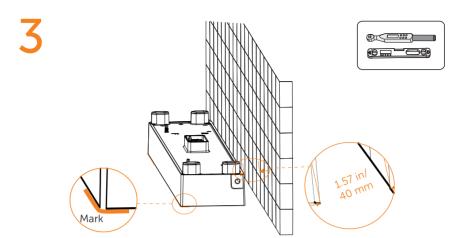
• For detailed steps of wall-mounting, please refer to "6.2 Mechanical Installation (Wall-mounting)" (Page 47-67).

6.1 Mechanical Installation (Floor-mounting)

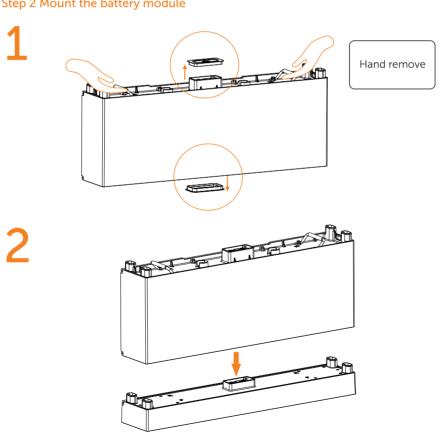
6.1.1 Mount the Battery

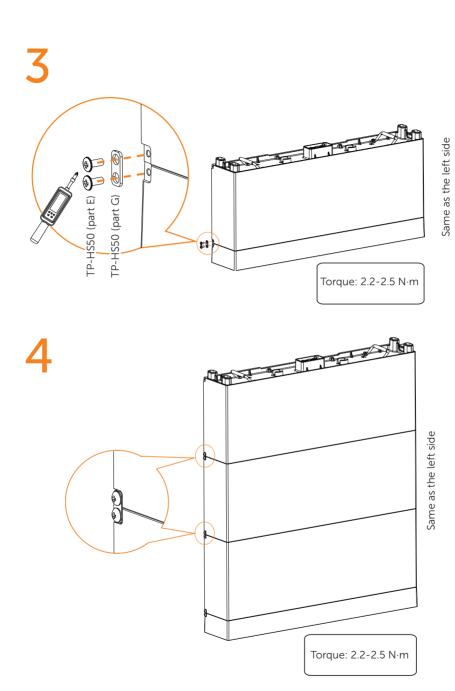
Step 1 Mount the base



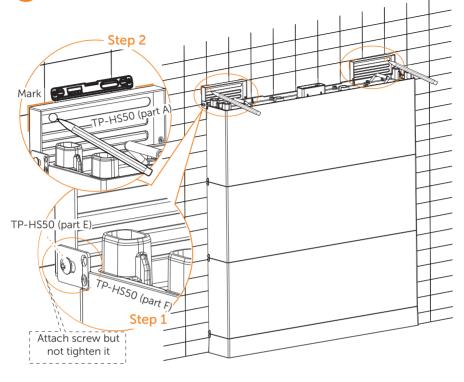


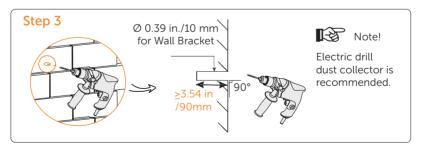
Step 2 Mount the battery module





5

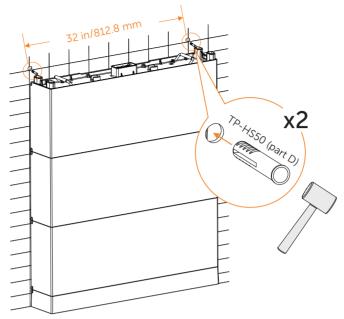


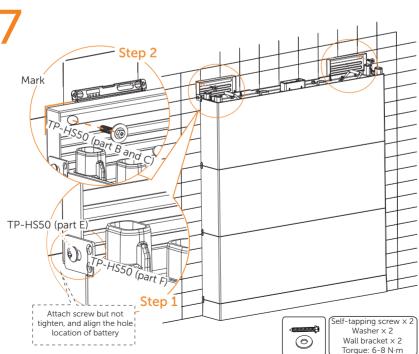


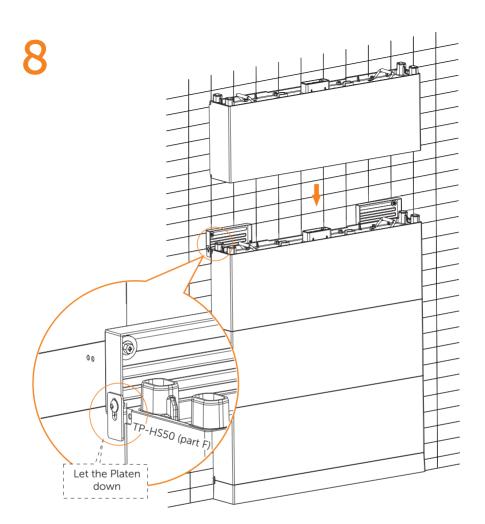
! CAUTION!

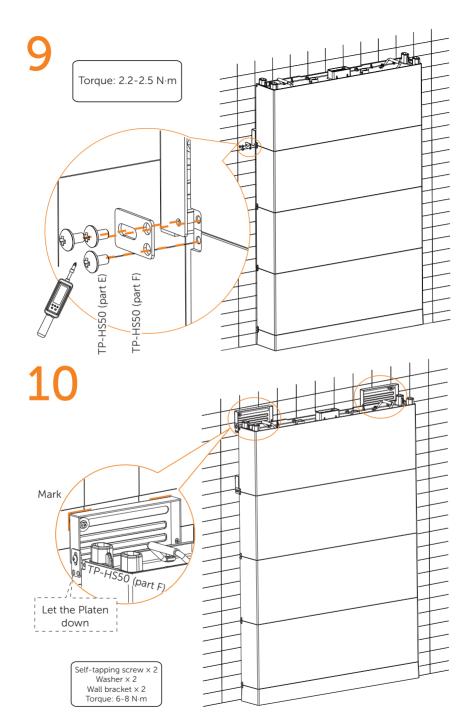
 Please re-mount the dust cover to the battery module before drilling holes to avoid dust falling into the interface and do remember to remove the dust cover again after the installation wall bracket completed.







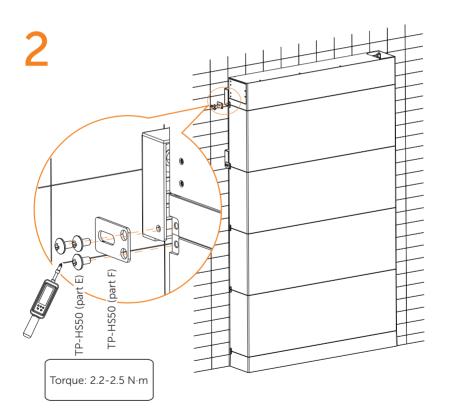




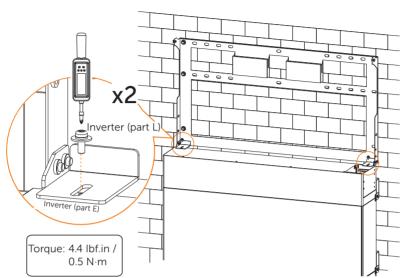
Step 3 Mount the BMS

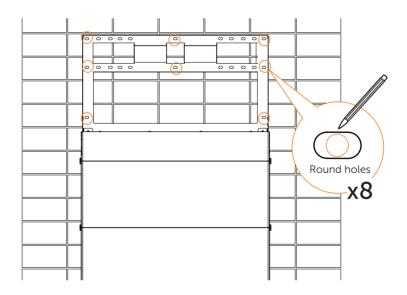
Hand remove

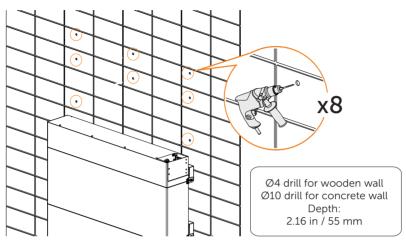




6.1.2 Mount the Inverter

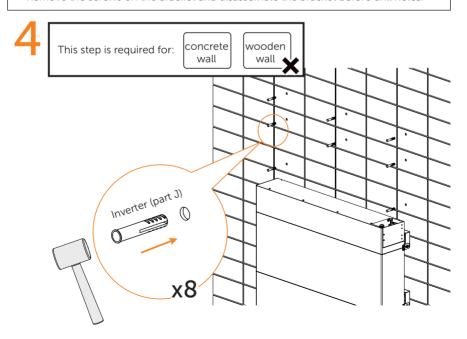


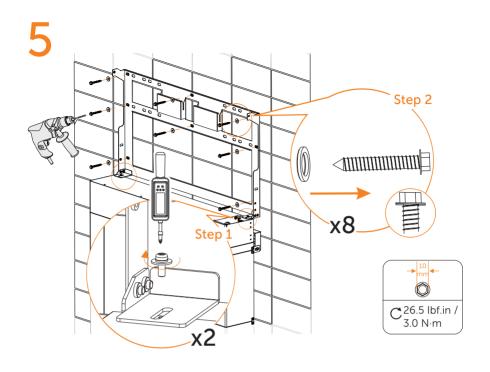


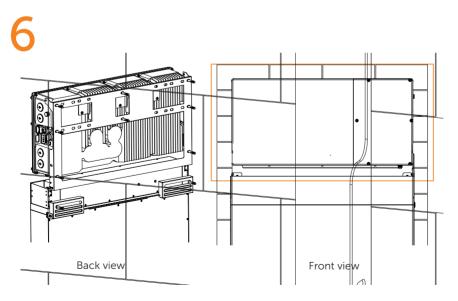


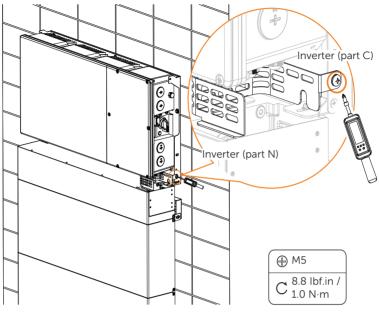
!\ CAUTION!

• Remove the screws on the bracket and disassemble the bracket before drill holes.



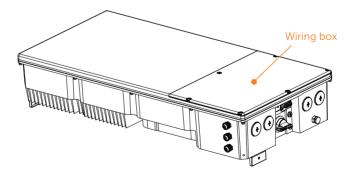








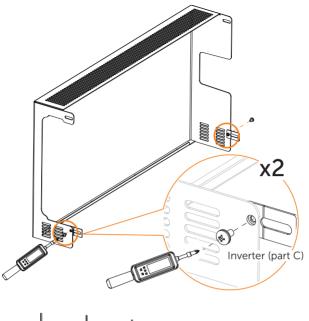
Open the wiring box cover to complete all the wiring connection.

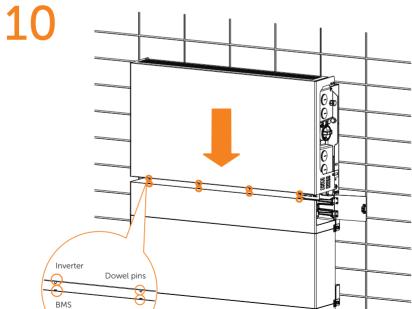


NOTICE

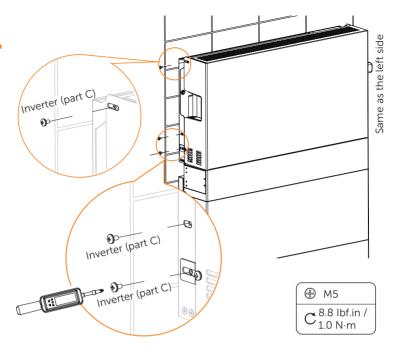
 For detailed wiring connection, please refer to "7.1 Wiring Connection on the Inverter" and "7.2 Wiring Connection Between Inverter and Battery" (Page 68-78).



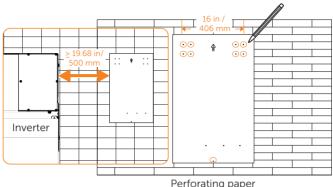




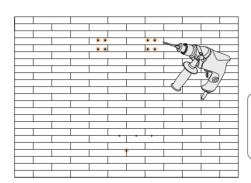
Pins holes



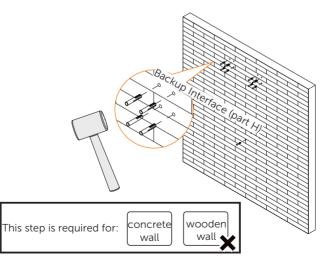
6.1.3 Mount the BI PRO

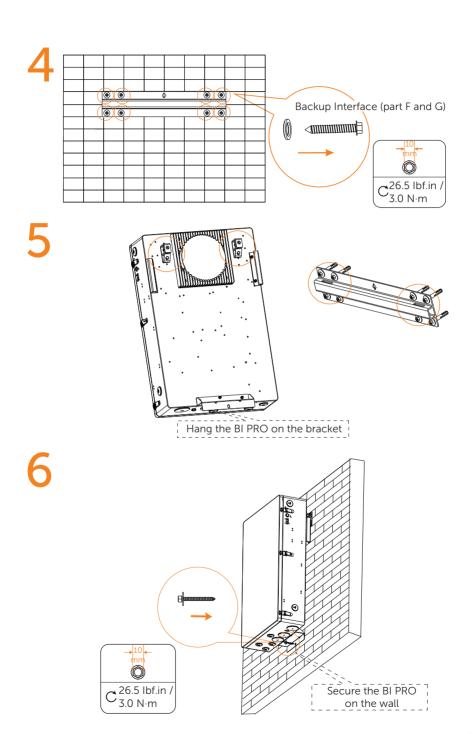


Perforating paper



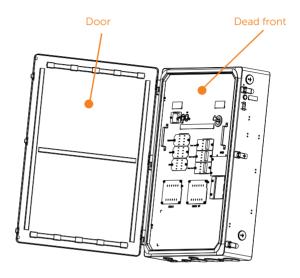
Ø4 drill for wooden wall Ø10 drill for concrete wall Depth: 2.16 in / 55 mm







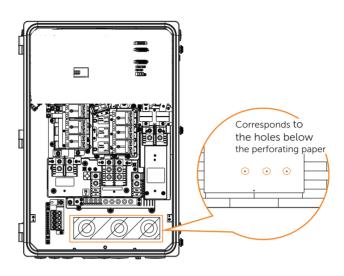
Open the door of Backup Interface and remove the dead front to complete all the wiring connection.



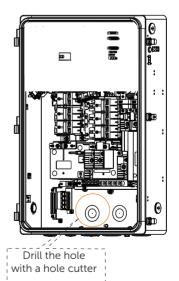
NOTICE

 For detailed wiring connection, please refer to "7.3 Wiring Connection on the BI PRO" (Page 79-90). Drill a hole in the back (Not recommended)
Before drill the hole, please remove the cover first by loosening the screws.

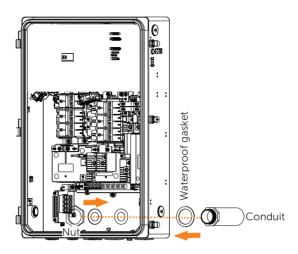
1



2

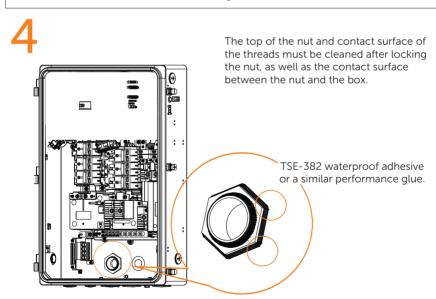


Choose 1 inch or 2 inch size (Metal chips must be cleaned after drilling)



NOTICE!

• Prohibit the flow of water inside the tubing water into the machine!



NOTICE!

• Drilling a hole in the wall is required before cutting a hole in the rear. To guarantee easy installation of the conduit and sealing with the chassis, the hole's size must be greater than the conduit's outside diameter.

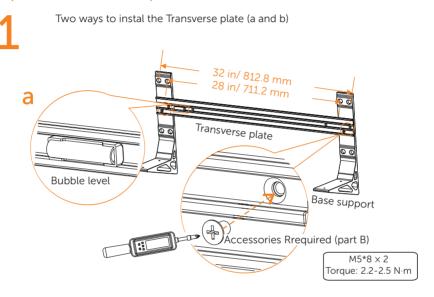
6.2 Mechanical Installation (Wall-mounting)

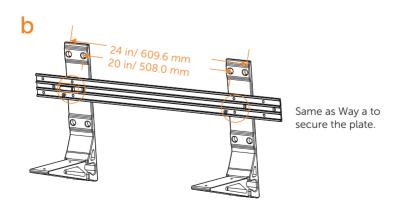
NOTICE

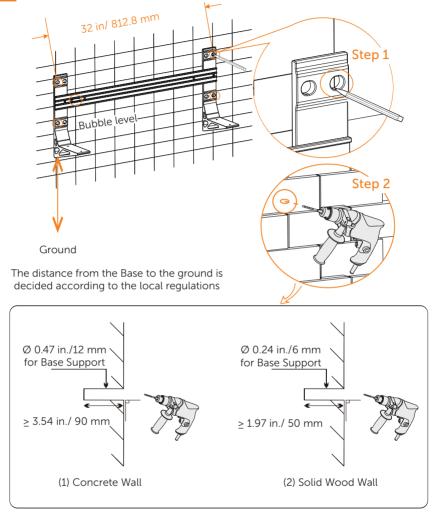
• For wall mounting, make sure the BMS breaker is no more than 6.56 ft/2 m above the ground so that you can easily shut down the system in emergencies.

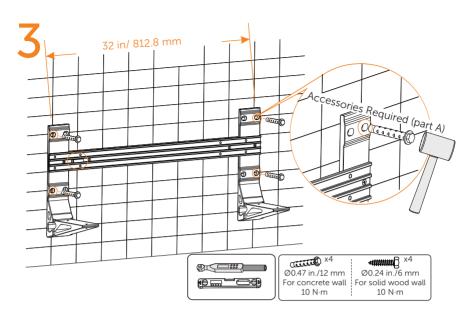
6.2.1 Mount the Battery

Step 1 Install the Transverse plate

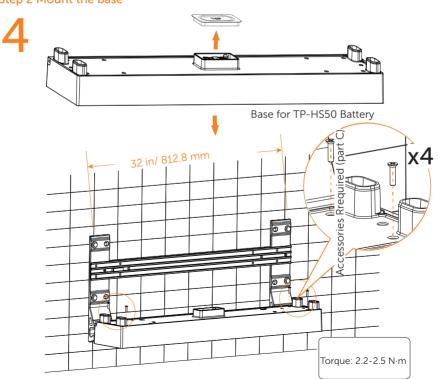




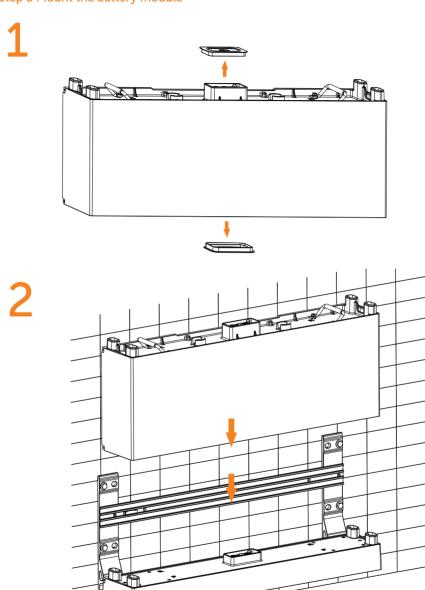




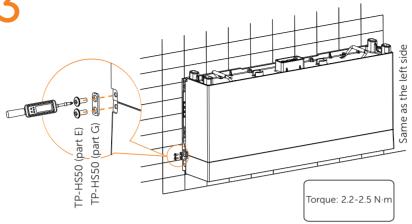
Step 2 Mount the base



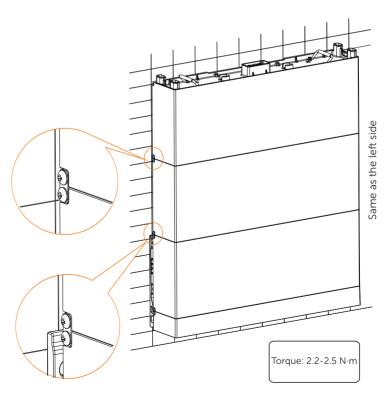
Step 3 Mount the battery module

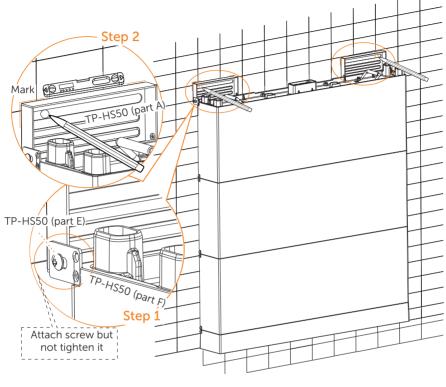


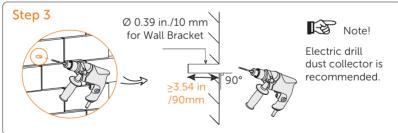






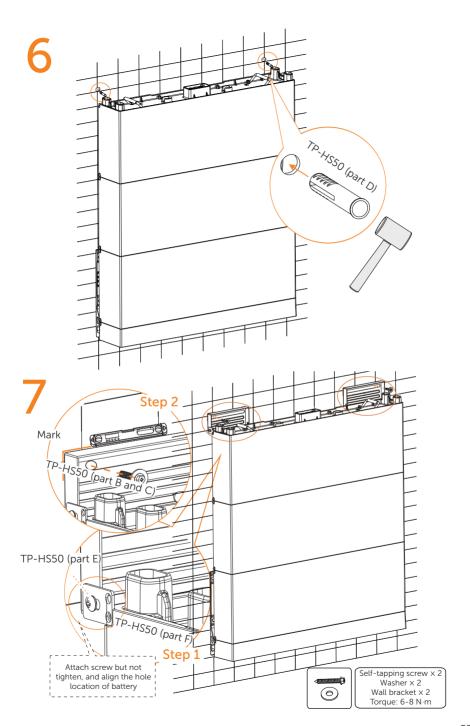


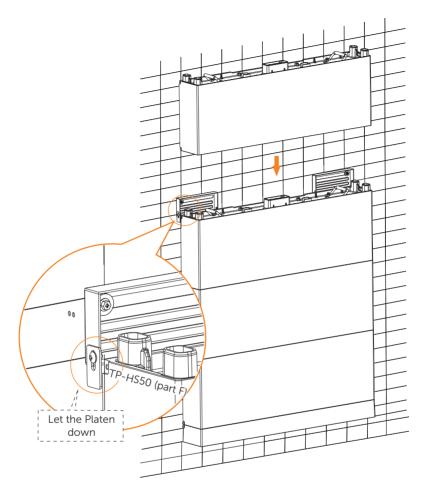


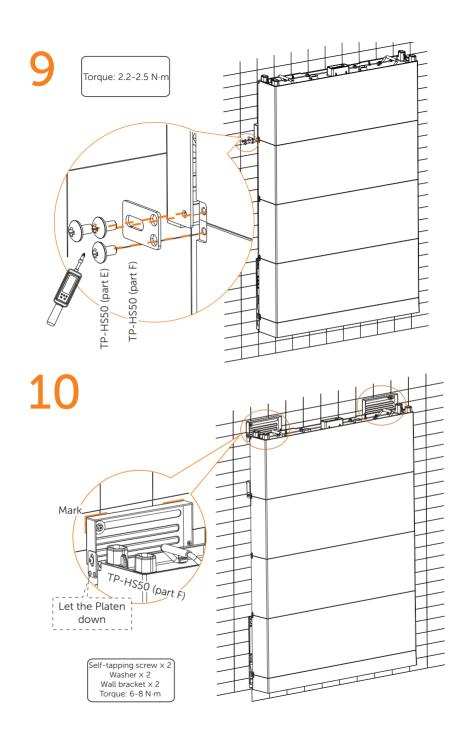


! CAUTION!

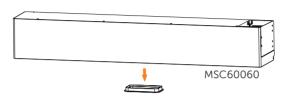
 Please re-mount the dust cover to the battery module before drilling holes to avoid dust falling into the interface and do remember to remove the dust cover again after the installation wall bracket completed.





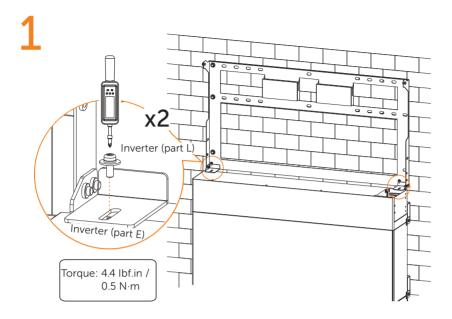


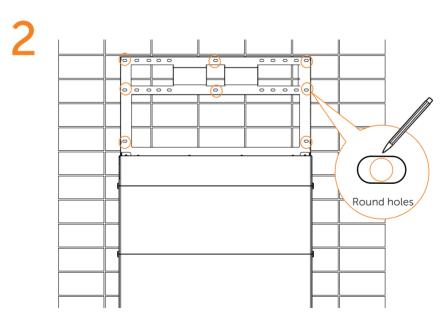
Hand remove

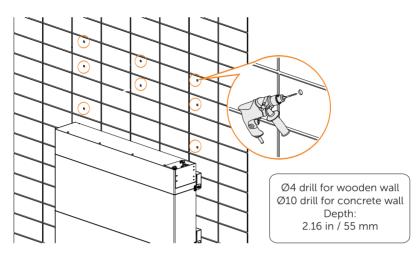


7 (d June 2.2-2.5 N·m

6.2.2 Mount the Inverter

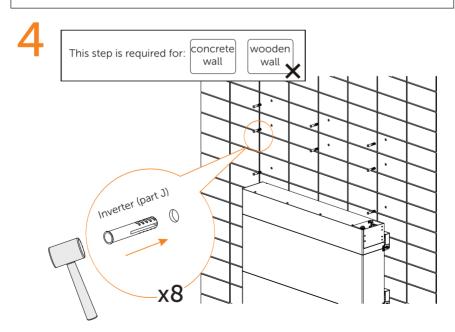


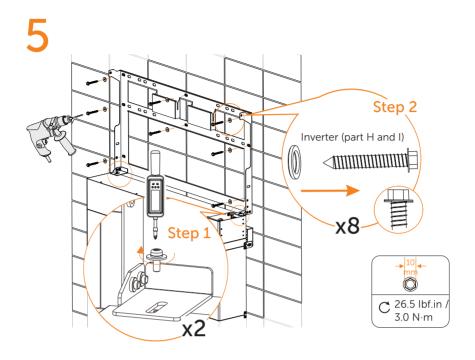




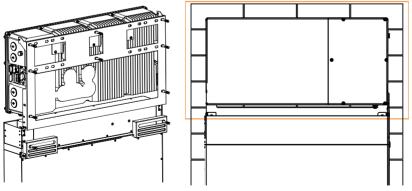
/!\ CAUTION!

• Remove the screws on the bracket and disassemble the bracket before drill holes.

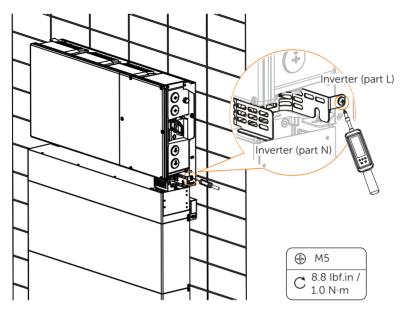




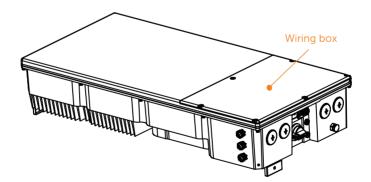




Back view Front view

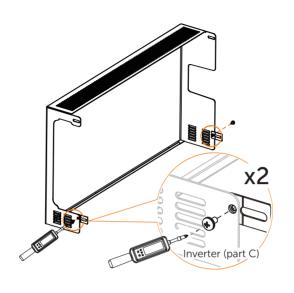


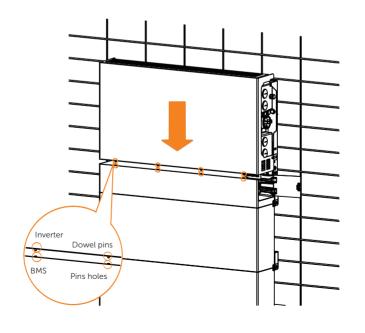
Open the wiring box cover to complete all the wiring connection.

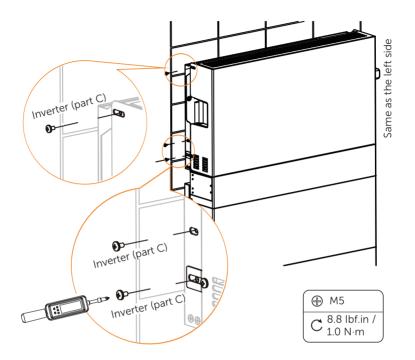


NOTICE!

• For detailed wiring connection, please refer to "7.1 Wiring Connection on the Inverter" and "7.2 Wiring Connection Between Inverter and Battery" (Page 68-78).

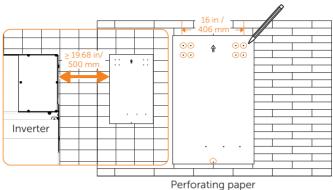






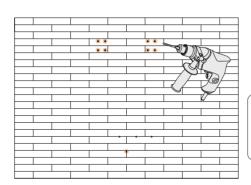
6.2.3 Mount the BI PRO

1

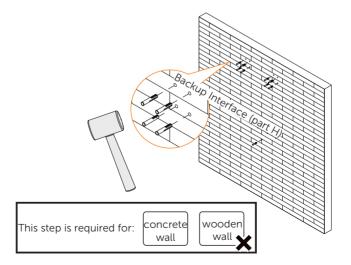


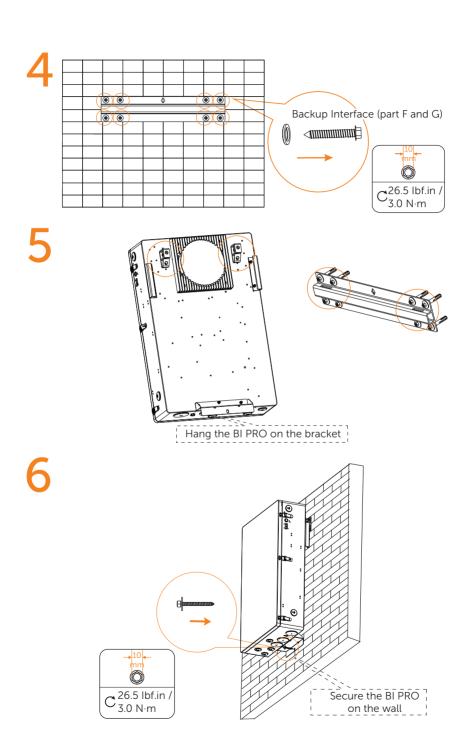
Perforating pape

2



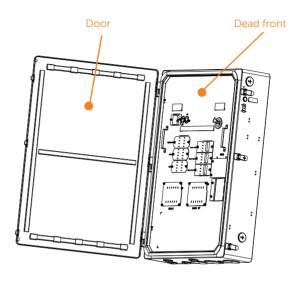
Ø4 drill for wooden wall Ø10 drill for concrete wall Depth: 2.16 in / 55 mm







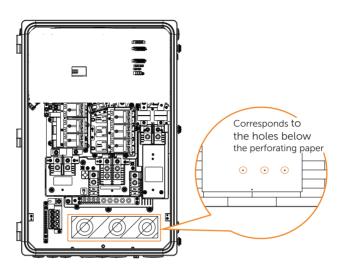
Open the door of Backup Interface and remove the dead front to complete all the wiring connection.



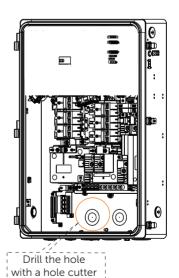
NOTICE

 For detailed wiring connection, please refer to "7.3 Wiring Connection on the BI PRO" (Page 79-90). Drill a hole in the back (Not recommended)
Before drill the hole, please remove the cover first by loosening the screws.

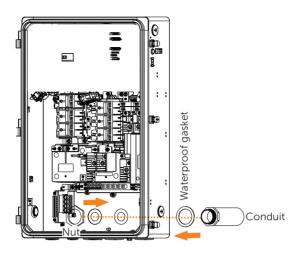
1



2

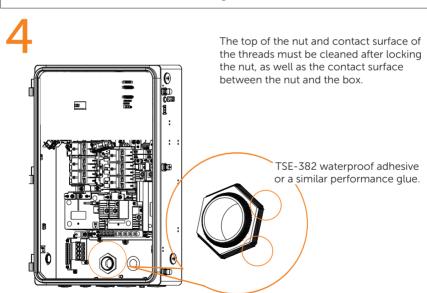


Choose 1 inch or 2 inch size (Metal chips must be cleaned after drilling)



NOTICE

• Prohibit the flow of water inside the tubing water into the machine!



NOTICE!

• Drilling a hole in the wall is required before cutting a hole in the rear. To guarantee easy installation of the conduit and sealing with the chassis, the hole's size must be greater than the conduit's outside diameter.

7 Wiring Connection

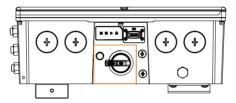
7.1 Wiring Connection on the Inverter

Open the wiring box cover

! WARNING!

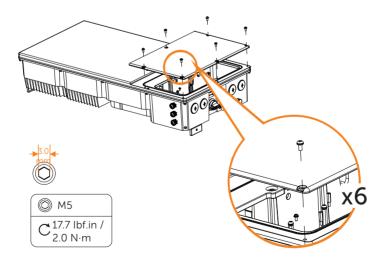
 Before inverter wiring connection, Make sure no live voltages are present on PV input and AC output circuits, and make sure that the DC switch is in "OFF" position, meanwhile, the breaker of battery is in OFF position.

Step 1: Turn DC switch to "OFF" position. Note that the cover cannot be removed when the DC switch is in "ON" position.



Step 2: Make sure the breaker of battery is in OFF position.

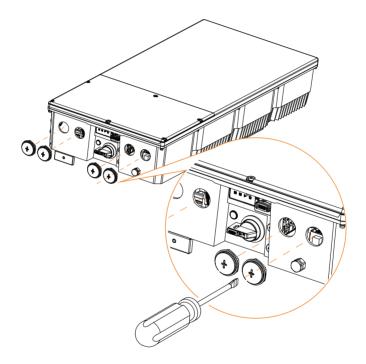
Step 3: Remove the 6 cover screws using Allen key, then disassemble the cover.



Remove the wiring box waterproof plugs

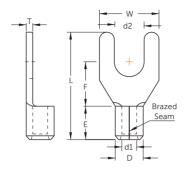
A1-HYB-G2 series inverter is equipped with four 1 inch conduit fittings which are used for electrical wiring access. Four waterproof plugs have been installed on the inverter at the factory. Before wiring connection, these waterproof plugs should be removed by the operator.

- **Step 1:** Remove the waterproof plugs by placing a flat blade screwdriver in the slot on the waterproof plug face and turning while gripping the nut on the inside of the enclosure to ensure it does not slip.
- **Step 2:** Unscrew the nut from the waterproof plug and slip the conduit plug out of the waterproof opening.

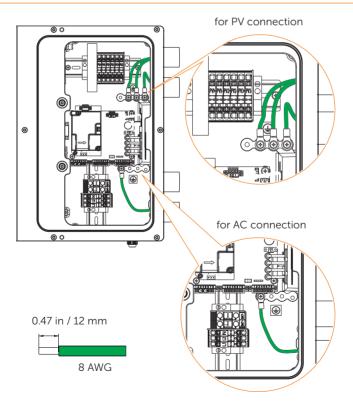


• GND cable

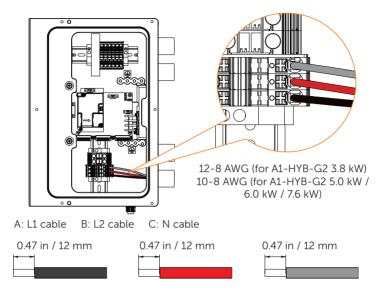
Grounding terminals are provided in the accessory package, If using a Spade terminal additionally, select according to the following model.



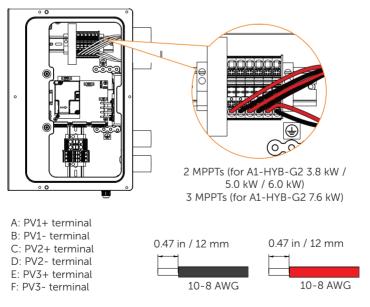
Wire Range (AWG / mm²)	Brazed Seam	Stud Size (in. / mm)	Dimension (in. / mm)						
		d2	W	F	L	E	D	d1	Т
8/8	SNB8-5	0.209 / 5.3	0.413 / 10.5	0.319 / 8.1	0.819 / 20.8	0.335 / 8.5	0.283 / 7.2	0.177 / 4.5	0.047 / 1.2



• AC cable

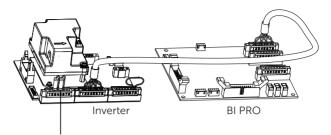


• PV cable

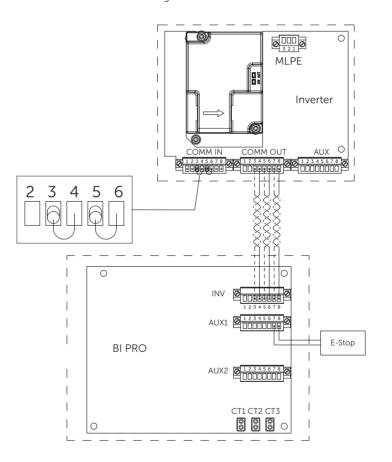


• Communication cable

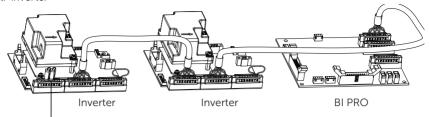
Single inverter



120-Ohm terminating resistor



Multi-inverter



120-Ohm terminating resistor

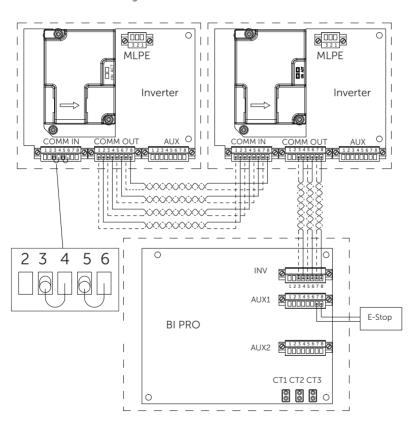


Diagram for communication connection steps between inverters

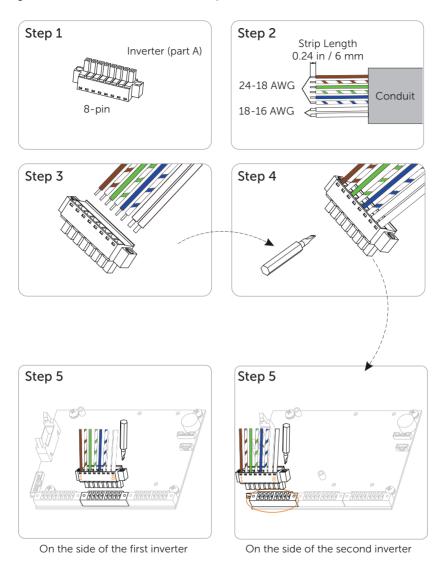
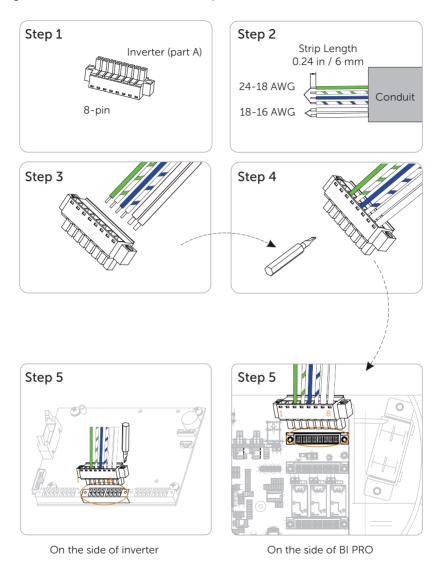
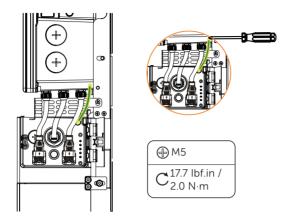


Diagram for communication connection steps between inverter and BI PRO



7.2 Wiring Connection Between Inverter and Battery

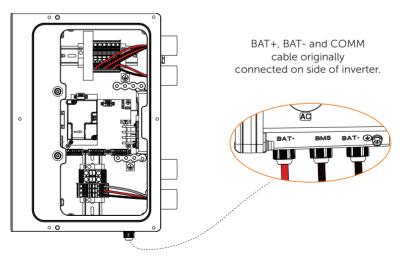
GND conductor



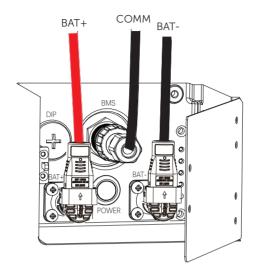
For easier connection, please connect the grounding conductor on the BMS first.

NOTICE!

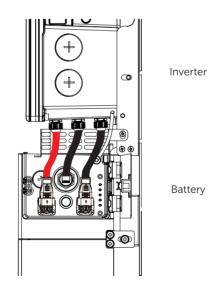
- Ensure to connect the ground conductor.
- BAT+, BAT- and COMM cable



On the side of inverter



On the side of battery



Connection between inverter and battery

77

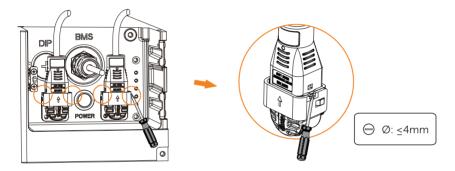
· Dismantling the battery

NOTICE

- Before dismantling the battery, make sure you have shut down the battery system.
- If the BAT cables will be reused after disconnecting, please reinstall and secure the buckles back onto these cables first before reconnecting them. For details, see step 2.
- The arrow direction on the buckle indicates the vertical direction of the groove.

Step 1: Disconnect the cables between BMS and the inverter.

- (1) Unscrew the communication cable from the BMS port.
- (2) Find the overall position of the groove according to the buckle arrow, place a flat-head screwdriver on the groove at either left or right side of the buckle, and then pry open the buckles fastened on BAT+ and BAT- cables.



Step 2: (Optional) Reinstall and secure the buckles to the BAT cables.

- (1) Align the curve of the cable head to that of the buckle, and then stick the cable head into the buckle base.
- (2) Align the buckle cover to the buckle base, and then press the cover down to lock it until a "click" sound is heard.



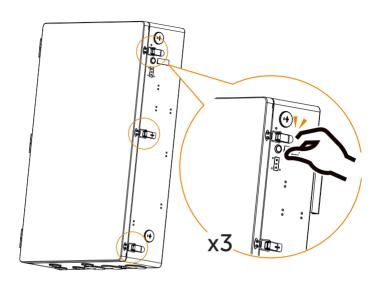
Step 3: Disconnect the series wiring terminal on the battery.

Step 4: Disconnect the rest cables.

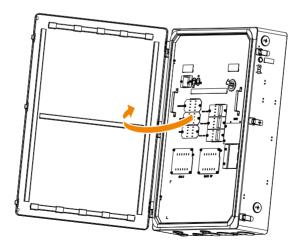
7.3 Wiring Connection on the BI PRO

Please open the door and remove dead front first.

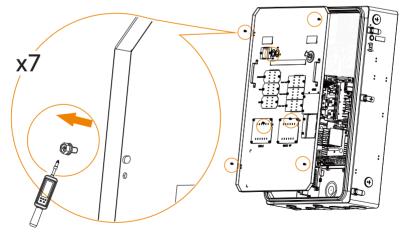
1



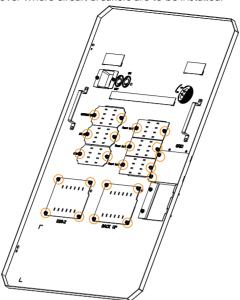
2







Unscrew the metal cover where circuit breakers are to be installed.



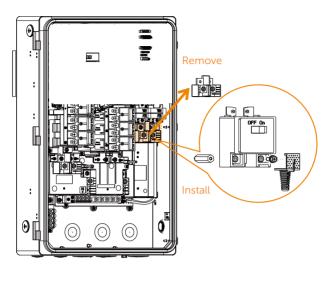
7.3.1 Install Breakers

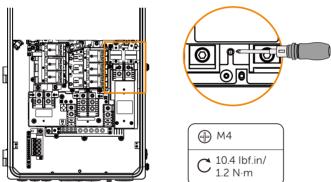
Install a main breaker

For Service Equipment

The product is "SUITABLE FOR USE AS SERVICE EQUIPMENT". For this scenario,

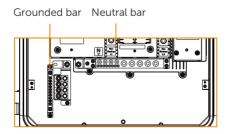
- 1. The following main breaker accessory needs to be installed.
 - a. EATON main breaker b. Line side barriers
- 2. Loosen the original terminals; remove the plastic terminal block.
- 3. Install the hex support columns with a 10 mm socket and 12 kgf.cm torque.
- 4. Install and fasten main breaker with M4*12 screw, with a torque of 12kgf.cm.
- 5. To cover the main breaker with line side barrier.
- 6. Apply the marked as "SUITABLE FOR USE AS SERVICE EQUIPMENT".
- 7. Neutral is bonded to ground with "Bonding Jumper".
- 8. Apply the "SERVICE DISCONNECT" labels adjacent to appropriate circuit breakers.





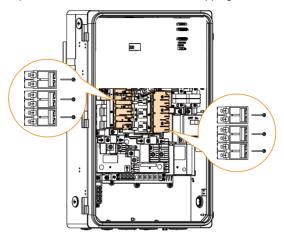
For Subpanel

Remove Neutral-Ground bonding strap from BI PRO if not installed as service equipment. Proper earth connection and Neutral-Ground bonding strap is required for safe operation of the system and for compliance with local code requirements.



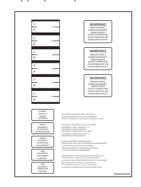
Install branch circuit breakers

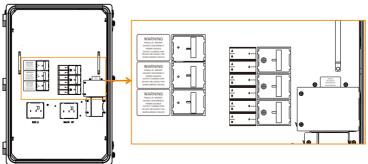
- **Step 1:** Install the breaker.
- **Step 2:** Use a Phillips screwdriver to tighten the self-tapping screws on the circuit breaker with a torque of 13 lb-in. (#5-20*2 7/8 in. self-tapping screw)



Paste labels

Paste the attached label in the appropriate place as follows.

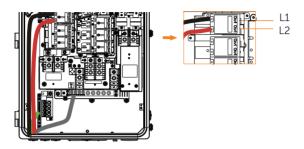




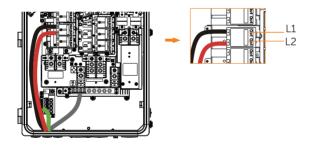
7.3.2 Make AC Connection to Inverter, Generator, Load and Grid

NOTICE

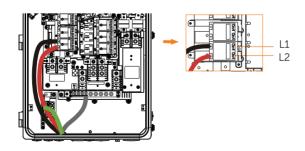
- For the specific requirement of cable and torque, please refer to "5.4 Terminals and breaker of BI PRO" (Page 22-25).
- Connect the generator conductors to BI PRO



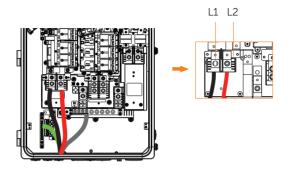
• Connect the solar conductors to BI PRO



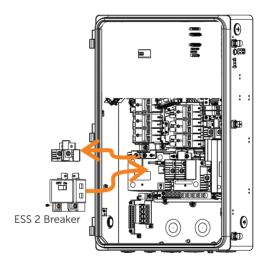
• Connect the ESS 1 conductors to BI PRO



• Connect the ESS 2 conductors to BI PRO



Before installing a main breaker

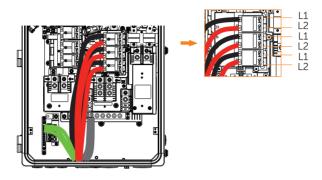


Installing a main breaker

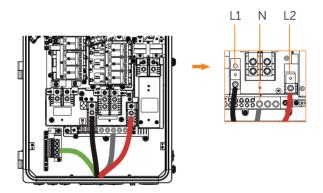
NOTICE

• After installing the main breaker, lugs feed opposite bus.

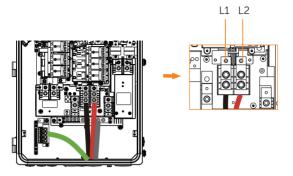
• Connect the smart load conductors to BI PRO



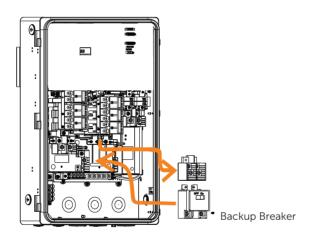
• Connect the non-backup conductors to BI PRO



• Connect the backup conductors to BI PRO



Before installing a main breaker

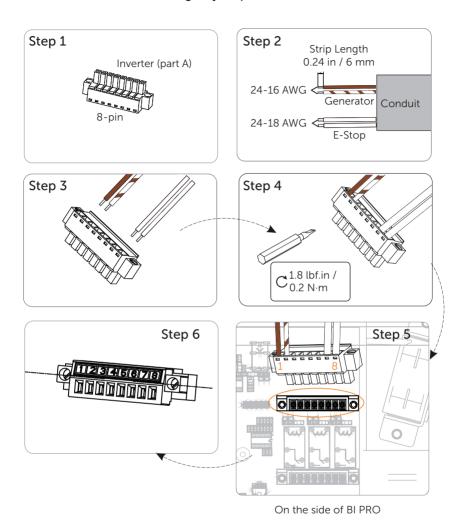


Installing a main breaker

NOTICE

• After installing the main breaker, lugs feed opposite bus.

• Connect Generator and Emergency Stop Conductors to BI PRO



7.3.3 Connect CT to BI PRO

A set of CTs (CT L1A, CT L2A, 200A) has been built in the BI PRO. In some application scenarios, it can measure both load and generation and there is no need to connect external CTs. But in some application scenarios, such as Partial-Home Backup solution, connecting external CTs (CT L1B, CT L2B) to measure total current both load and generation is needed. In addition, if the site includes solar equipment, a solar CT is placed after the solar inverter to measure the solar output.

CT L1A terminal and CT L1B terminal have been connected in parallel on PCB. CT L1A and CT L1B are used to measure total current both load and generation of the same phase L1.

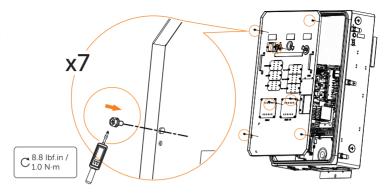
CT L2A terminal and CT L2B terminal have been connected in parallel on PCB. CT L2A and CT L2B are used to measure total current both load and generation of the same phase L2.

NOTICE

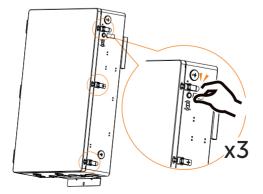
 For detailed information about how to configure external CT, please refer to "BI PRO CT configuration for A1-ESS-G2" by scanning the QR code.



Lock the dead front and close the door.







Contact Information



+1 (888) 820-9011

service.us@solaxpower.com

Warranty Registration Form



For Customer (Compulsory)

Name	Country			
Phone Number	Email			
Address				
State	Zip Code			
Product Serial Number				
	Electrician License No.			
For Installer				
Module (If Any)				
Module Brand				
Module Size(W)				
Number of String	Number of Panel Per String			
Battery (If Any)				
Battery Type				
Brand				
	Signature			

Please visit our warranty website: $\frac{https://www.solaxcloud.com/\#/warranty}{https://www.solaxcloud.com/\#/warranty} \ or \ use \ your \ mobile \ phone \ to \ scan \ the \ QR \ code \ to \ complete \ the \ online \ warranty \ registration.$



For more detailed warranty terms, please visit SolaX official website: <u>www.solaxpower.com</u> to check it.



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