



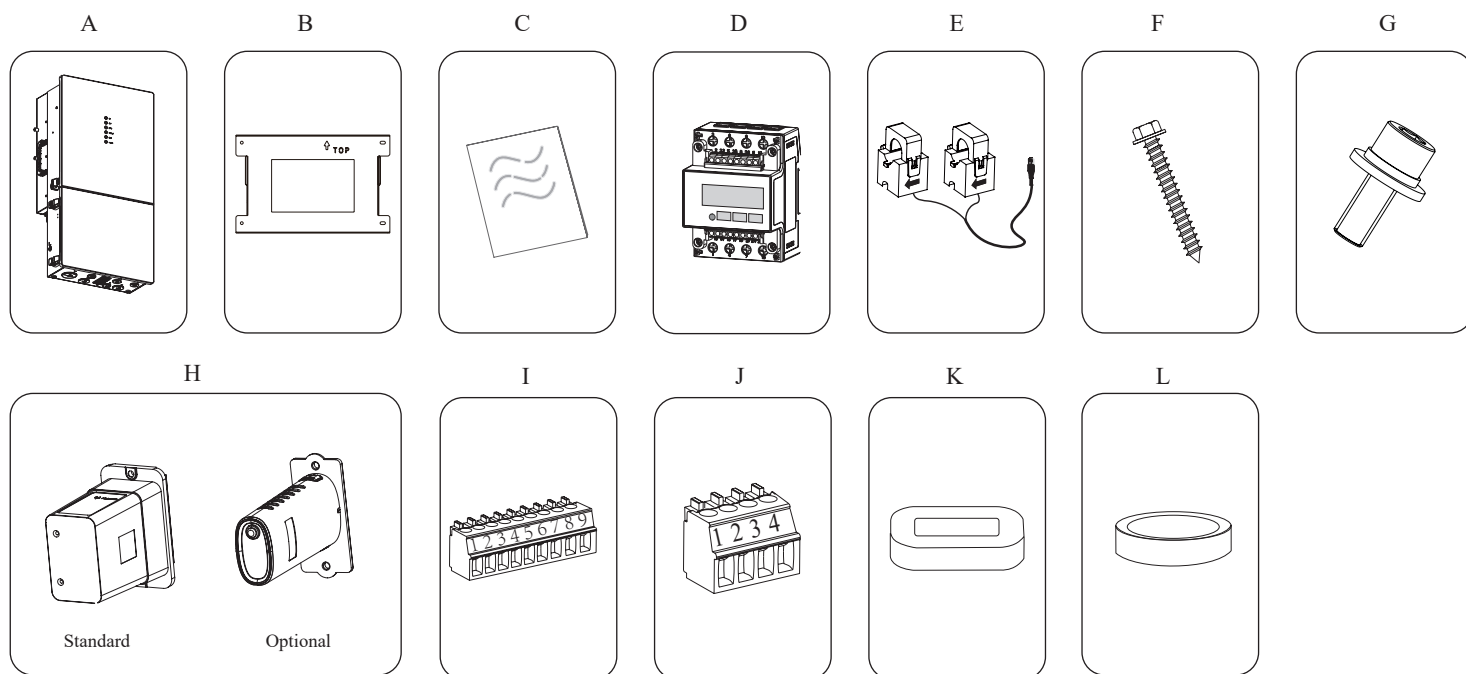
QUICK INSTALLATION GUIDE

Energy Storage System

1. Get to Start

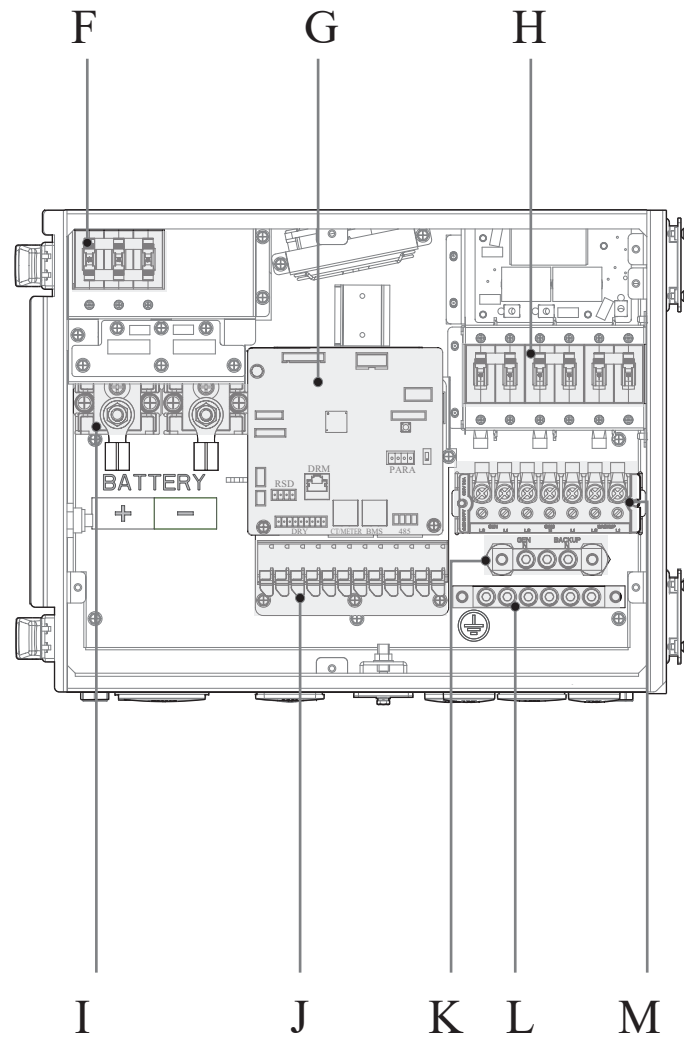
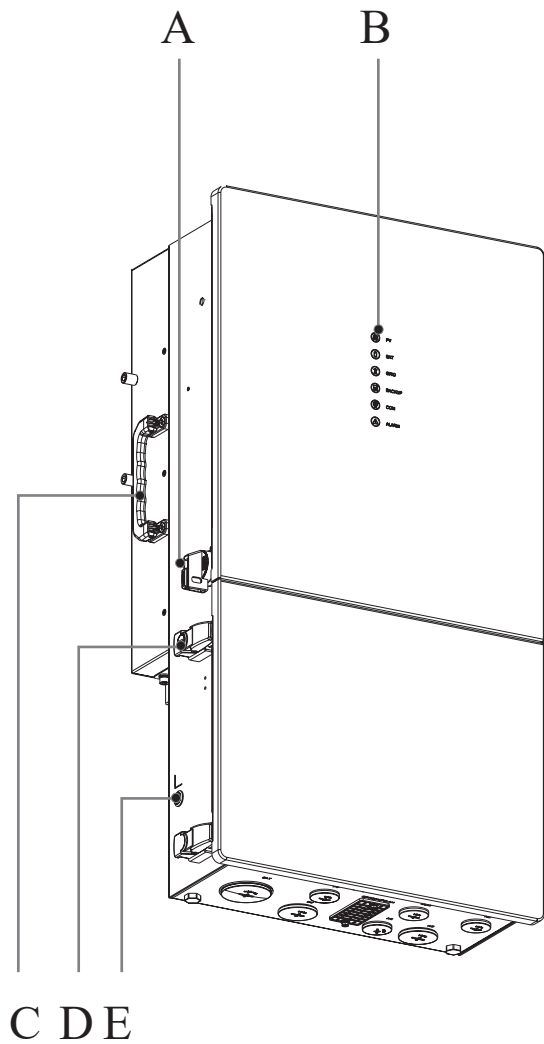
1.1 Component Guide

The box should include all items shown below. If there is any damage or missing parts, please contact your dealer immediately.



Component	Description	Quantity
A	Inverter	1
B	Mounting Bracket	1
C	File Package	1
D	Meter (Optional)	1
E	CT Pack	1
F	M6 Expansion Screw	4
G	M6 Security Screw	1
H	Wi-Fi / LAN Module (Optional)	1
I	9-Pin Terminal	1
J	4-Pin Terminal	3
K	AC Toroid, for grid L1/L2/N cables	1
L	DC Toroid, for battery cables	1

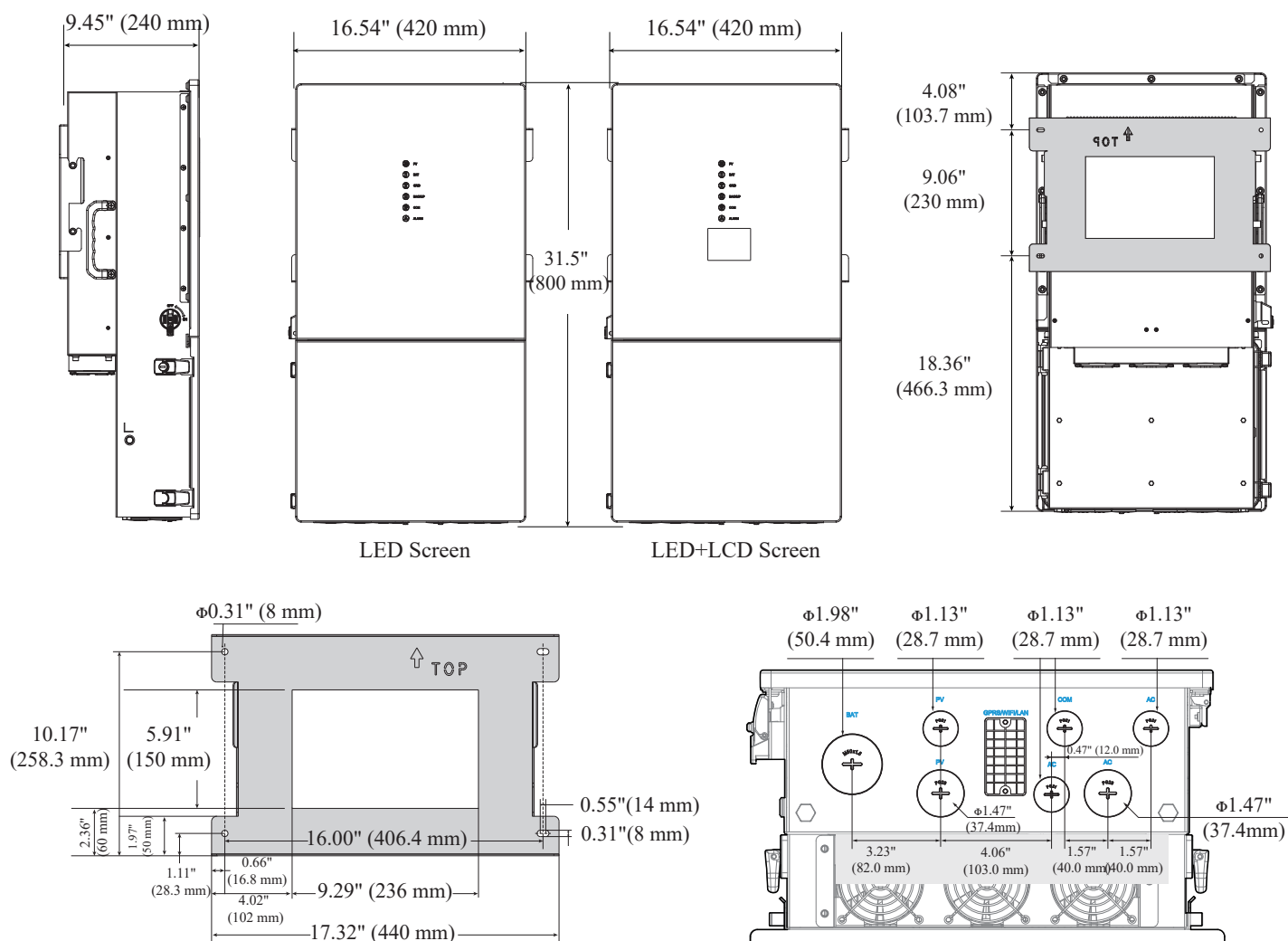
1.2 General Description



Component	Description
A	PV Switch
B	LED Indicator
C	Handle
D	Locks
E	ON/OFF Button

Component	Description
F	Battery Breaker (Optional)
G	Communication Connection Ports (RS485, BMS, DRM, CT/METER, DRY, RSD, PARA)
H	AC Breakers (Optional)
I	Battery Terminals
J	PV Connection Terminal Block
K	GEN/BACKUP Neutral Busbar
L	Ground Busbar
M	GEN/GRID/BACKUP Terminals

1.3 Specifications



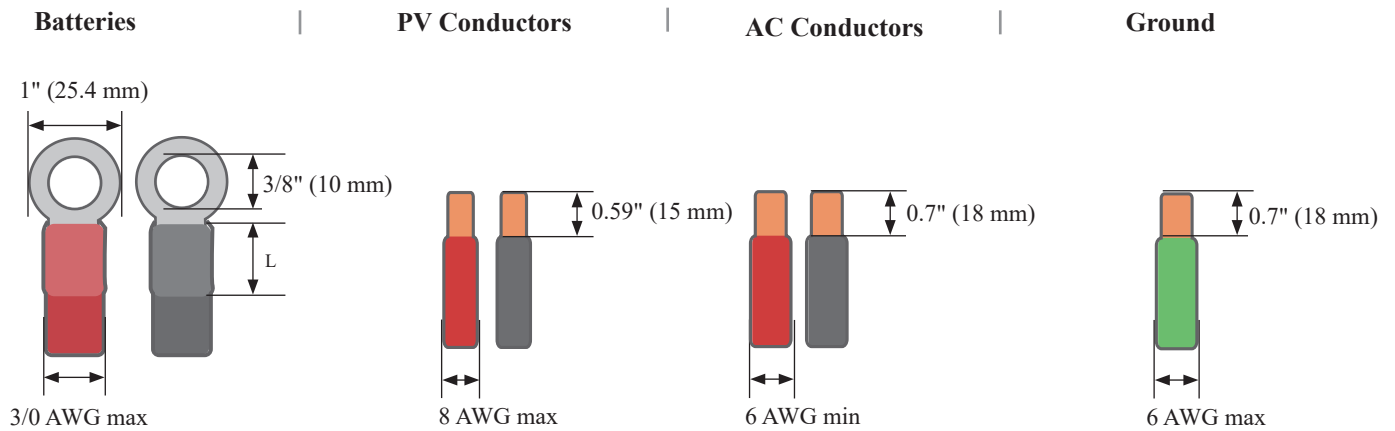
Torque Value Application Note

Terminal	Torque [lb-in]	Torque [N·m]
BAT +/-	177.01	20
GEN	35	3.95
GRID	35	3.95
BACKUP	35	3.95
Neutral busbar	35	3.95
Ground busbar	35	3.95

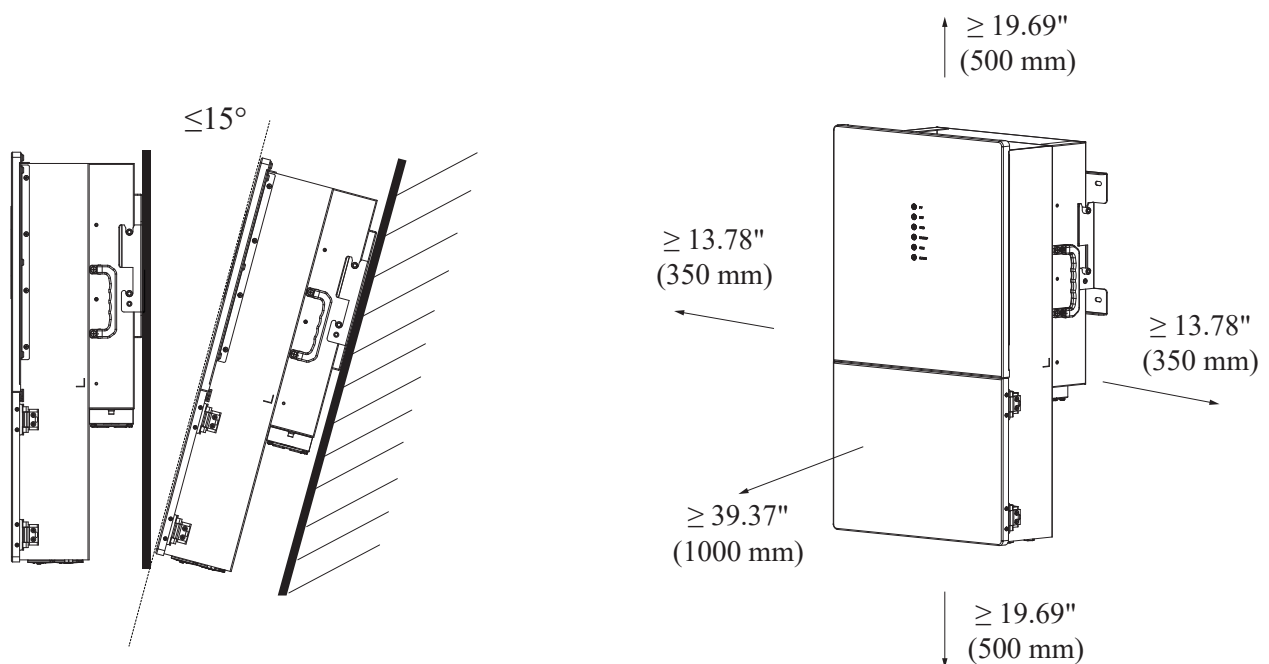
AC/DC Connection Requirements

Prepare cables recommended below as needed.

Port/Terminal	Recommended Cable Size Range	Recommended Strip Length
BAT+/-	3/0 AWG	L+ 0.08"(2 mm)
GEN	Min.6 AWG	0.7"(18 mm)
GRID	Min.6 AWG	0.7" (18 mm)
BACKUP	Min.6 AWG	0.7" (18 mm)
Neutral busbar	Min.6 AWG	0.7" (18 mm)
Ground busbar	8 to 6 AWG	0.7" (18 mm)
MPPT	10 to 8 AWG	0.59" (15 mm)



1.4 Angle and Location



2. Mounting



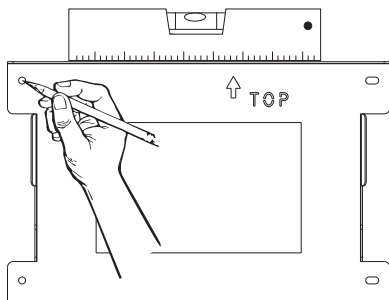
Before drilling the hole on the wall, ensure no damage on the electric wire and/or water pipe inside the wall.



The inverter is heavy! Two or three persons are recommended to install the inverter.

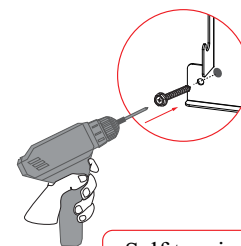
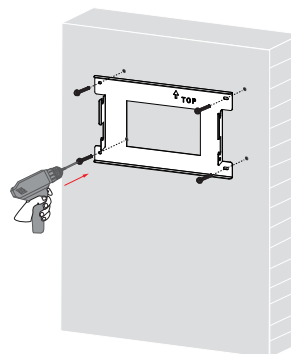
To prevent potential damages and injuries from inverter falling down, please ensure that the inverter is well-mounted.

①

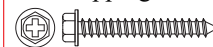


Set bracket horizontally.

②

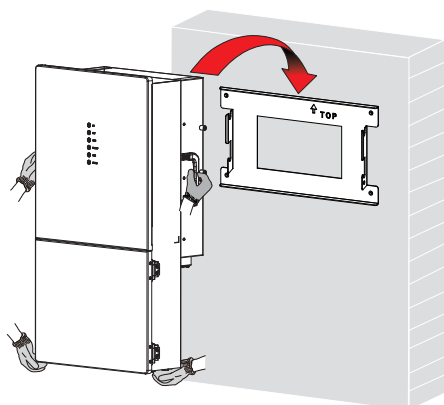


Self tapping screw



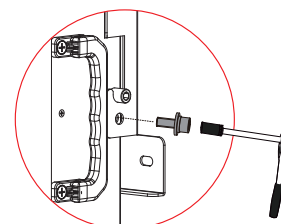
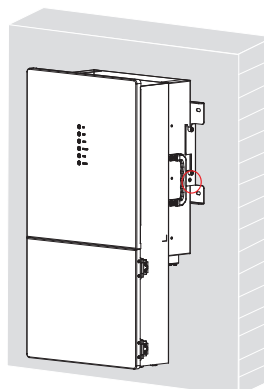
M6; 4x

③



Min. 2

④



M6 Security screw

⌚ 2.5 N·m (22.13 lb-in)

3. Electrical Connection

3.1 Removing Insulation Cover

A shielding cover has been installed over the wiring box of the ESS inverter to protect users from potential electrical injuries. Before electrical connections, remove the insulation cover from the wiring area temporarily, as shown in figure below.



Before removing the cover, please ensure that the inverter and all cables to be installed have been completely powered off during the whole process of installation and connection.



After the electrical connections are complete, if no other connections are made in the wiring area, replace the insulation cover and ensure the grounding cable is well-connected again.

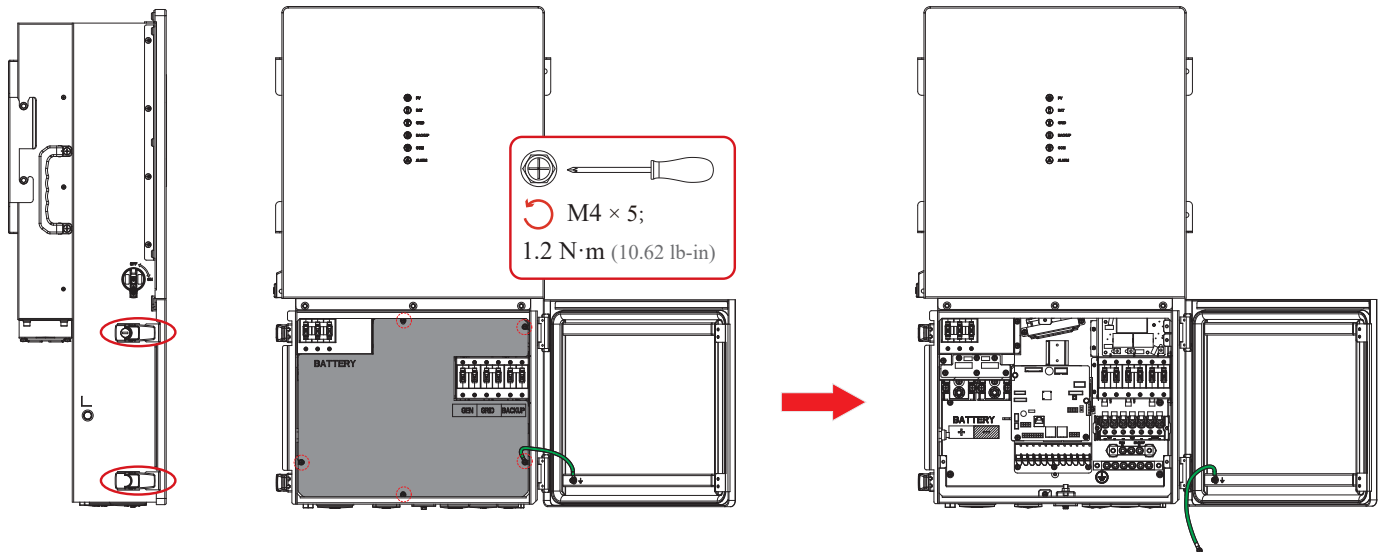


Figure 3-1 Removing insulation cover

3.2 PE Connection



The inverter must be grounded; otherwise, there will be an electric shock risk.



If the positive pole or negative pole of the PV array is required to be grounded, the inverter output (to AC grid) must be isolated by transformer in accordance with IEC62109-1, -2 standards.

A protective earth (PE) busbar is intergrated in the inverter. Please be sure to connect the PE cable to the PE busbar for reliable grounding.

Terminals Overview

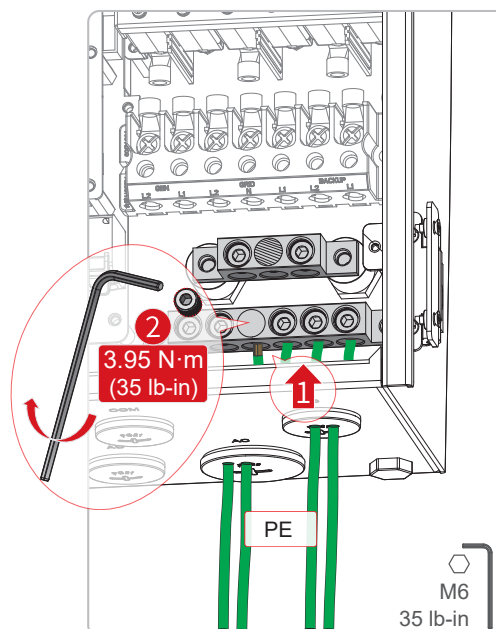
0.7" (18 mm)

8 to 6 AWG

Items	Description
PE cable size	Min. 8 AWG
Strip length	0.7" (18 mm)
Screw	M6
Torque	35 lb-in

Procedures

- Step 1** Run the PE cables through the AC connection ports, namely GEN/GRID/BACKUP connection ports.
- Step 2** Attach the PE cable to the busbar accordingly, and tighten terminal screws with a torque of 3.95 N·m (35 lb-in).
- Step 3** Make sure that all cables are securely fastened in place.



3.3 GEN/GRID/BACKUP Connection

This section explains the requirements and procedures of AC connection. Read carefully before connecting.



1. Before connecting the GEN/GRID/BACKUP terminal, ensure that both the AC terminal and the DC terminal are powered off and the PV switch is OFF. Otherwise there is a risk of high voltage shock.
2. To reduce the risk of fire, please add an overcurrent protection device (OCPD or 'circuit breaker') in accordance with the National Electrical Code ANSI / NFPA 70.
3. An external AC breaker, usually located in a load panel or solar dedicated AC sub-panel, is needed for an on-grid / AC connection to isolate the inverter from the utility grid when necessary.

Procedures

- Step 1** Prepare the proper cable, and strip an appropriate length of the cable insulation. It is recommended to use outdoor dedicated cables.
- Step 2** Run the cables into the wiring box through GEN/GRID/BACKUP connection ports accordingly.
- Step 3** Insert the wire into the terminal according to the label on the terminal block, and then tighten the terminal screws with a proper torque. Finally, ensure that all cables are securely in place.
- When connecting the L1/L2/N cables to the GRID terminals, thread the three cables through the toroid first.
 - AC cable connection ports in the illustrations are for reference only. Select appropriate ports as needed.

①

Strip Length

L1

L2

GEN/BACKUP N

Grid N

Terminal	Cable Specification	Torque (lb-in)	Torque (N·m)	Strip Length
GEN	Min.6 AWG	35	3.95	0.7" (18 mm)
GRID	Min.6 AWG	35	3.95	0.7" (18 mm)
BACKUP	Min.6 AWG	35	3.95	0.7" (18 mm)
N	Min.6 AWG	35	3.95	0.7" (18 mm)

②

③

AC Toroid Dimension:

3.4 PV Connection

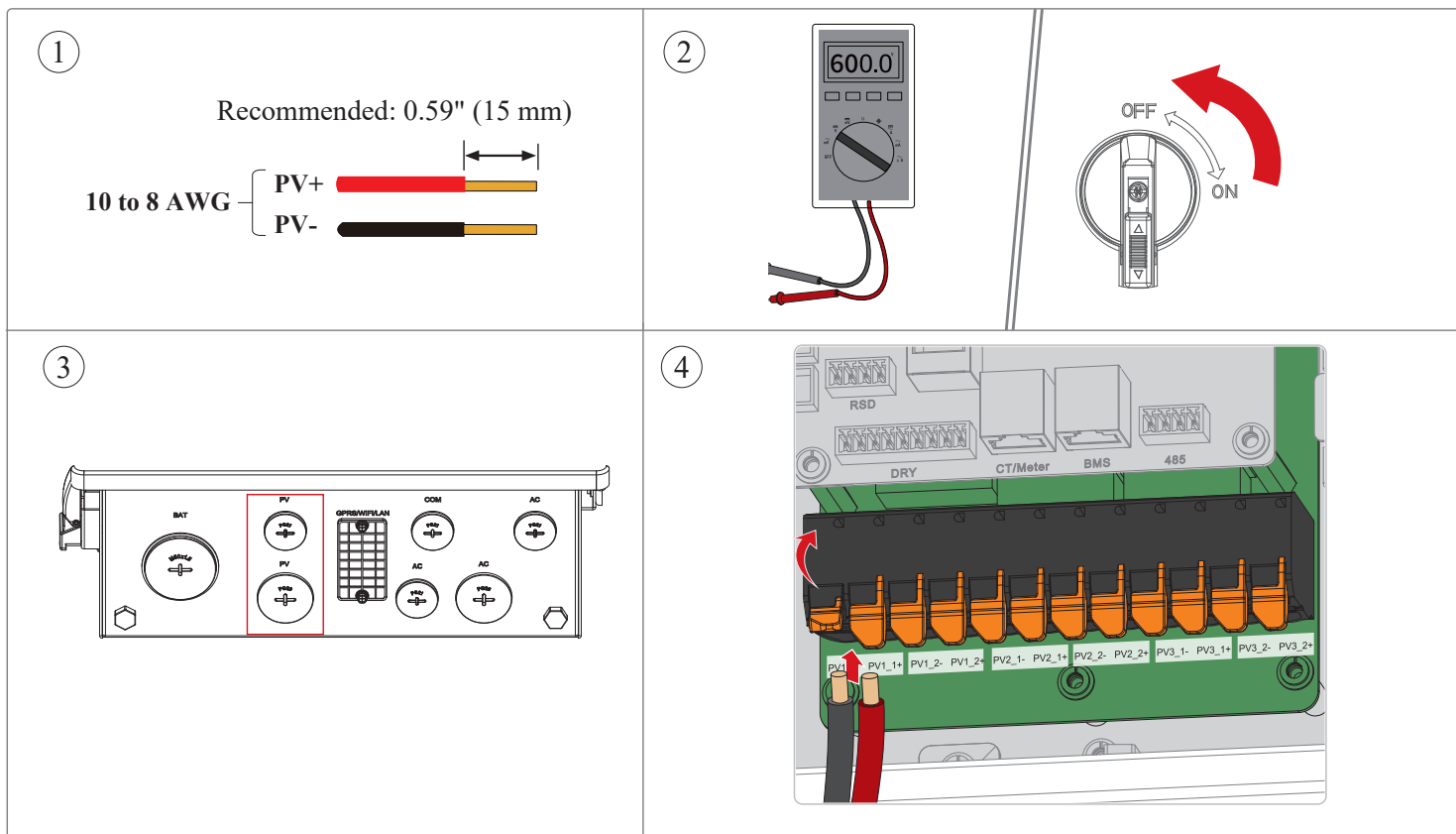


Photovoltaic arrays exposed to sunlight will generate dangerous voltages!

Before connecting the PV terminal, ensure that both the AC terminal and the DC terminal are powered off and the PV switch is OFF. Otherwise there is a risk of high voltage shock.

Procedures

- Step 1** Prepare the proper cable we recommended as shown below, and strip an appropriate length of the cable insulation. It is recommended to use outdoor dedicated PV cables.
- Step 2** Inspection before connection.
- Check correct polarity of wire connection from PV modules and PV input connectors.
 - The test voltage cannot exceed 600 VDC.
 - Ensure that the PV switch is OFF.
- Step 3** Run the cables into wiring box through PV connection ports.
- Step 4** Open the switches of PV input connector. Insert the stripped cable into the PV input connector. When doing so, ensure that the stripped cable and the PV input connector are of the same polarity. Finally, close switches and ensure the wires are tightly fixed.



3.5 Battery Connection



Before connecting the battery terminal, ensure that both the AC terminal and the DC terminal are powered off and the PV switch is OFF. Otherwise there is a risk of high voltage shock.

Procedures

- Step 1** Prepare the proper cable and OT terminal we recommended as shown below, and strip an appropriate length of the cable insulation. It is recommended that the battery cable be less than or equal to 3 m.
- Step 2** Run the cables into wiring box through BAT connection ports.
- Step 3** Insert and tighten the cables into the battery terminals.

①

3/0 AWG — BAT+ BAT- 0.08"(2 mm) + L L OT70-8 Heat shrinkable tube

②

③

⚙ M8
⌚ Max. 20 N·m (177.01 lb-in)

DC Toroid Dimension:

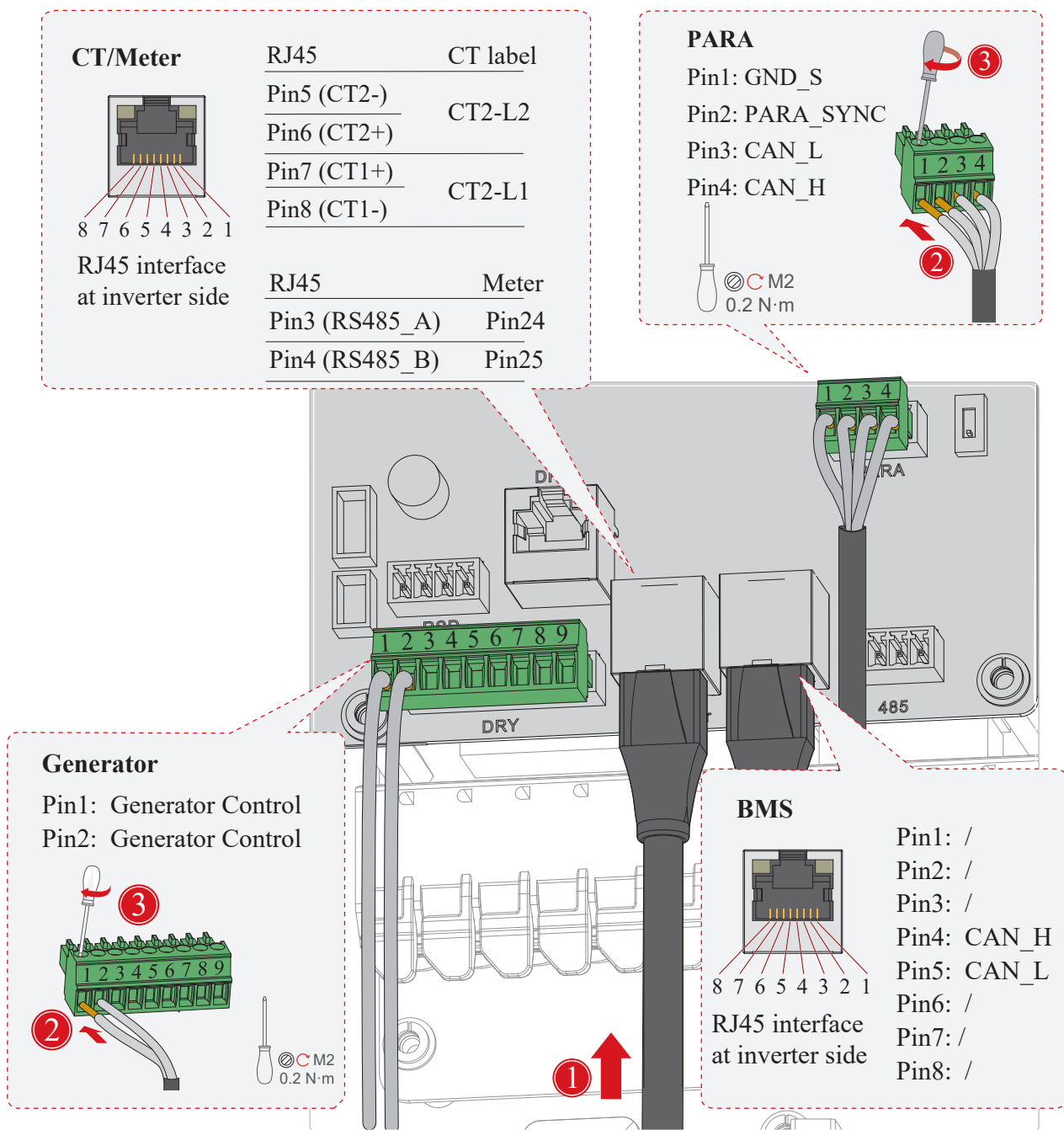
1.44"
(36.6±0.7 mm)
2.50"
(63.6±0.7 mm)
0.96"
(24.4±0.7 mm)

3.6 Communication Connection

 Ensure that the inverter is completely powered off before connecting the CT cable.

Procedures

- Step 1** Run the communication cables through COM port.
- Step 2** Assemble the RJ45/4-Pin/9-Pin terminals according to function description as needed.
- Step 3** Insert the RJ45/4-Pin/9-Pin terminals into their corresponding ports.



3.7 WiFi/LAN Module Connection

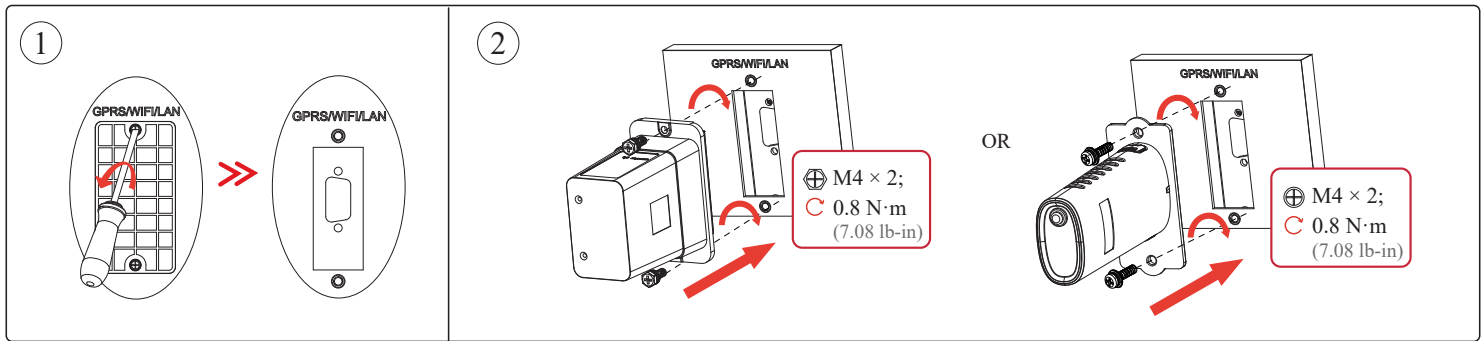
For details, please refer to the corresponding Module Installation Guide in the packing.

The appearance of the module may vary slightly. The figure shown here is for illustrative purposes only.

Procedures

Step 1 Unscrew and remove the cover.

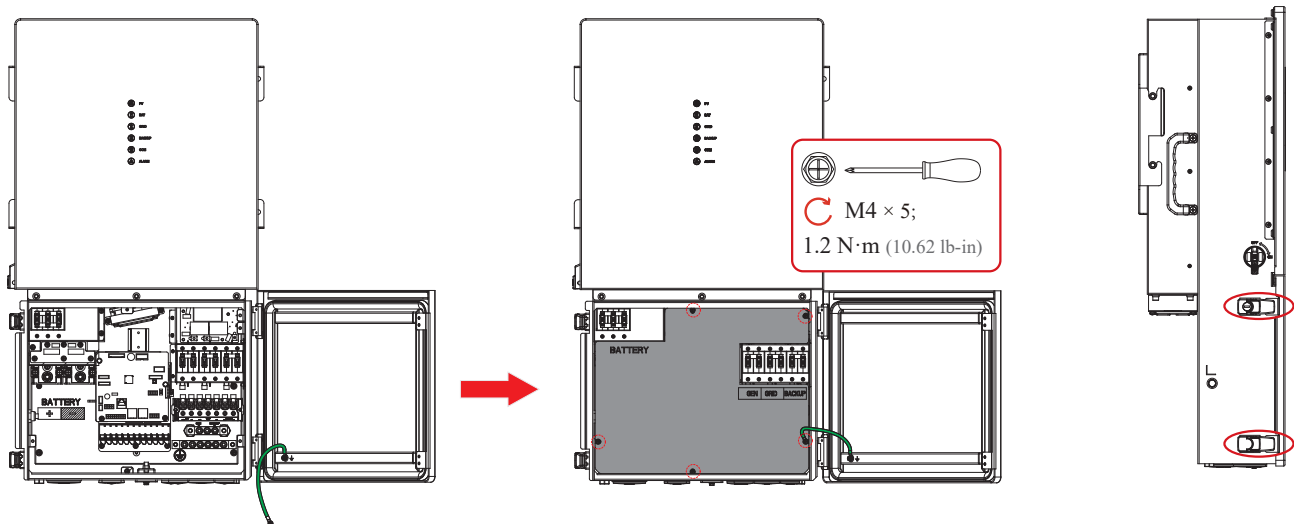
Step 2 Install and secure the module.



3.8 Reinstalling Grounding Cable and Insulation Cover



1. Before installing insulation piece, please turn on all circuit breakers in wiring box.
2. After the electrical connections are complete, if no other connections are made in the wiring area, replace the insulation cover and ensure the grounding cable is well-connected again.



4. Wiring Diagrams

This Chapter illustrates wiring diagram of general use cases. While these diagrams offer general guidance, they may not encompass all variations and specifics required by load codes. Consult with relevant authorities and ensure compliance before proceeding wiring. The diagram presented herein are not exhaustive and should not be relied upon solely for permitting or warranty verification. Installers are encouraged to exercise caution, seek professional advice when necessary, and undertake installations in accordance with established electrical standards and regulations.

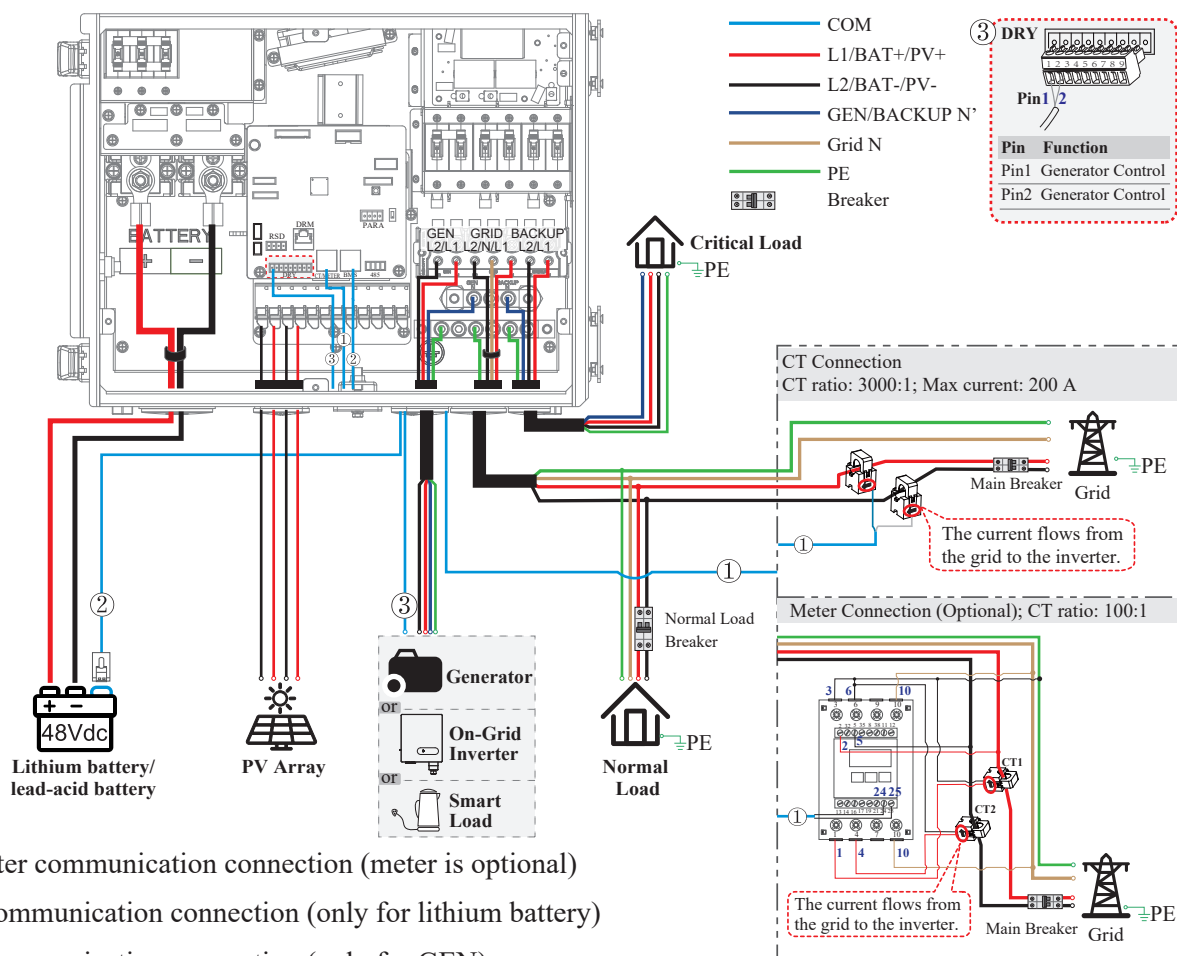


Ensure that the inverter and all cables to be installed have been completely powered off during the whole process of installation and connection. Otherwise, high voltage may result in fatal injury.

Standard Non-parallel Wiring Diagram

120/240Vac Split Phase

120/208Vac 2/3 Phase



- ① CT/Meter communication connection (meter is optional)
- ② BMS communication connection (only for lithium battery)
- ③ DRY communication connection (only for GEN)

* The BACKUP /GEN neutral and GRID neutral must connect to different terminals separately.

* The GEN port supports connection to generators of two voltage types: Split Phase (120/240V) and 2/3 Phase (120/208V). When using the GEN port to connect a generator, ensure that the voltage type of the inverter's grid port is consistent with that of the generator port. Then, perform the following steps via the app (log in with an Installer account):

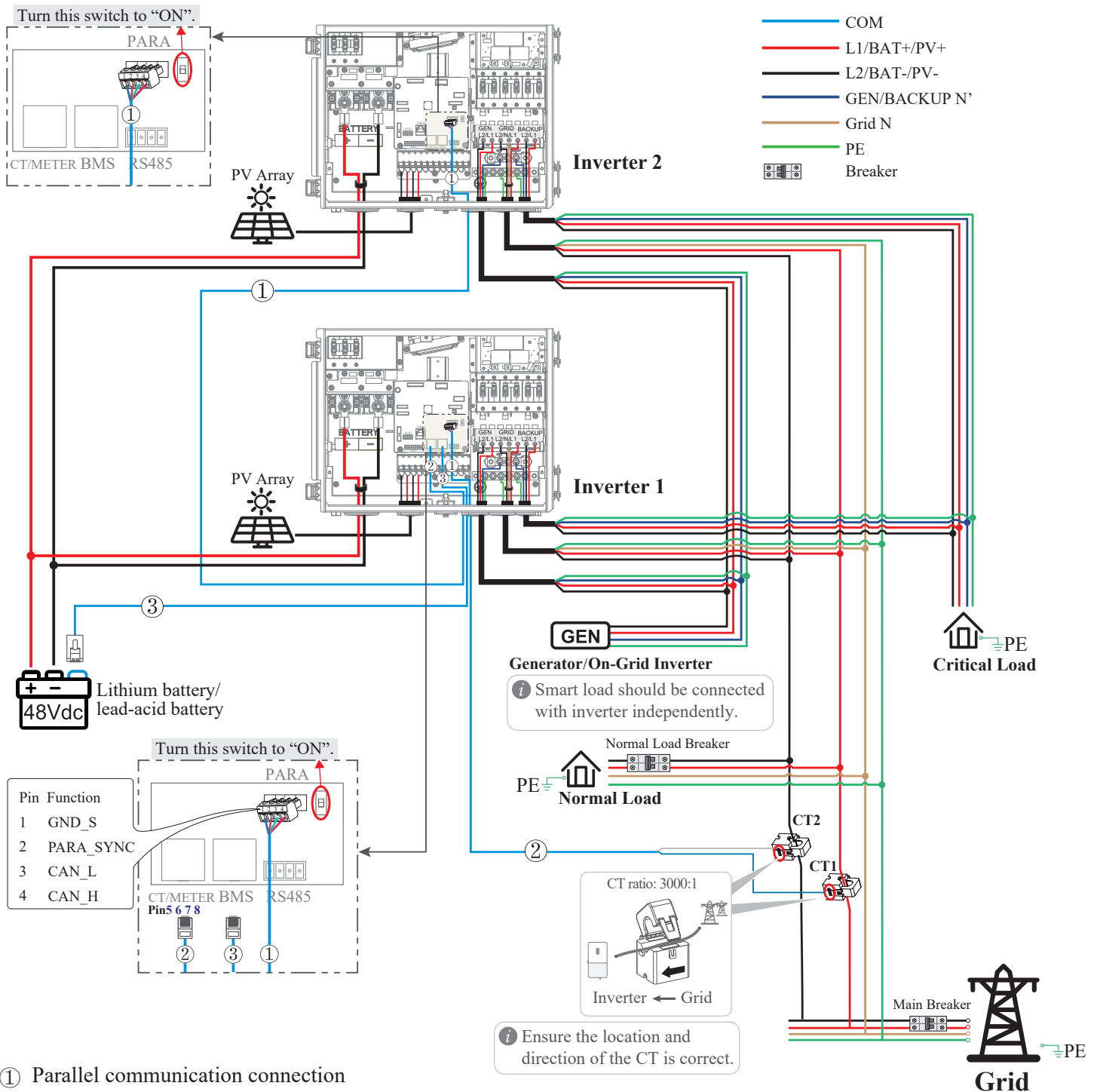
- First, select the Gen port type via **Settings > Inverter > Gen > Generator**
- Then, select correct grid voltage type via **Setting > Inverter > Parallel > Grid voltage type > Split phase or 2/3 phase**

* The specification of main breaker and normal load breaker depend on household loads.

Parallel Connection Mode-Scheme A (N=2)

120/240Vac Split Phase

120/208Vac 2/3 Phase

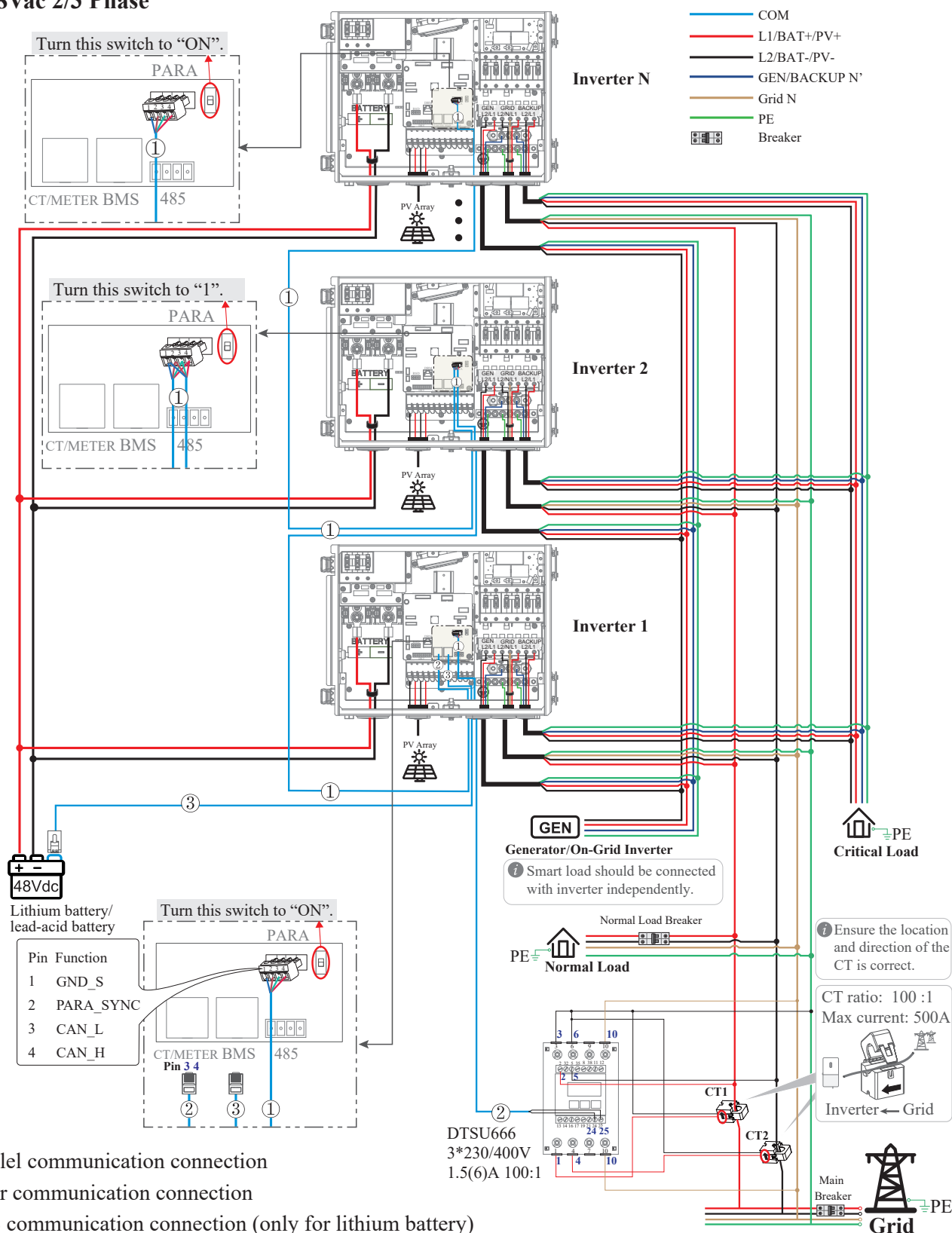


- * CT and BMS communication cables can be connected to any inverter of the parallel system, but they must be inserted into the same inverter and this inverter will be inverter 1.
- * The BACKUP /GEN neutral and GRID neutral must connect to different terminals separately.
- * The specification of main breaker and normal load breaker depend on household loads.
- * Please refer to **Note for parallel wiring diagrams** to learn more information about this parallel diagram.

Parallel Connection Mode-Scheme B ($2 \leq N \leq 9$)

120/240Vac Split Phase

120/208Vac 2/3 Phase



① Parallel communication connection

② Meter communication connection

③ BMS communication connection (only for lithium battery)

* Meter and BMS communication cables can be connected to any inverter of the parallel system, but they must be inserted into the same inverter and this inverter will be inverter 1.

* The BACKUP /GEN neutral and GRID neutral must connect to different terminals separately.

* The specification of main breaker and normal load breaker depend on household loads.

* Please refer to **Note for parallel wiring diagrams** to learn more information about this parallel diagram.

Note for parallel wiring diagrams

1. BMS communication connection is only for lithium battery.
2. It is necessary to turn the matched resistance switch (or DIP switch) of inverter 1 and inverter N to “ON” and others to “1” in parallel connection mode.
3. It is necessary to additionally purchase suitable CT and energy meter according to the specific requirements in parallel connection mode-Scheme B in which the CT ratio is 100:1.
4. For a parallel system, it is required to enable parallel mode on one of the inverters, which can be done via the APP (log in as an **Installer** first, then go to **Setting > Inverter > Parallel**).
5. In one parallel system, the smart load is only allowed to be connected to GEN port in a non-parallel way.
6. The external DC/AC breakers are not supplied with the inverter and must be purchased separately. Prepare the external parallel breakers with a nominal current $\geq 2 * N * I_{\max}$. (N refers to the parallel inverter quantity; $I_{\max}$ refers to the maximum output current of the inverter.)
7. The GEN port supports connection to generators of two voltage types: Split Phase (120/240V) and 2/3 Phase (120/208V). When using the GEN port to connect a generator, ensure that the voltage type of the inverter's grid port is consistent with that of the generator port. Then, perform the following steps via the app (log in with an Installer account):
 - First, select the Gen port type via **Settings > Inverter > Gen > Generator**
 - Then, select correct grid voltage type via **Setting > Inverter > Parallel > Grid voltage type > Split phase or 2/3 phase**

5. Startup/Shutdown Procedure

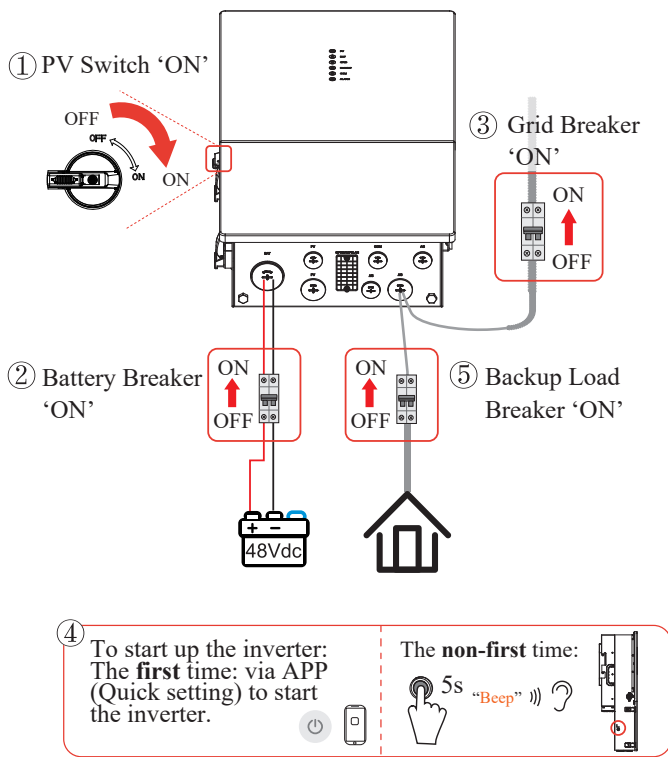


Figure 5-1 Startup procedure

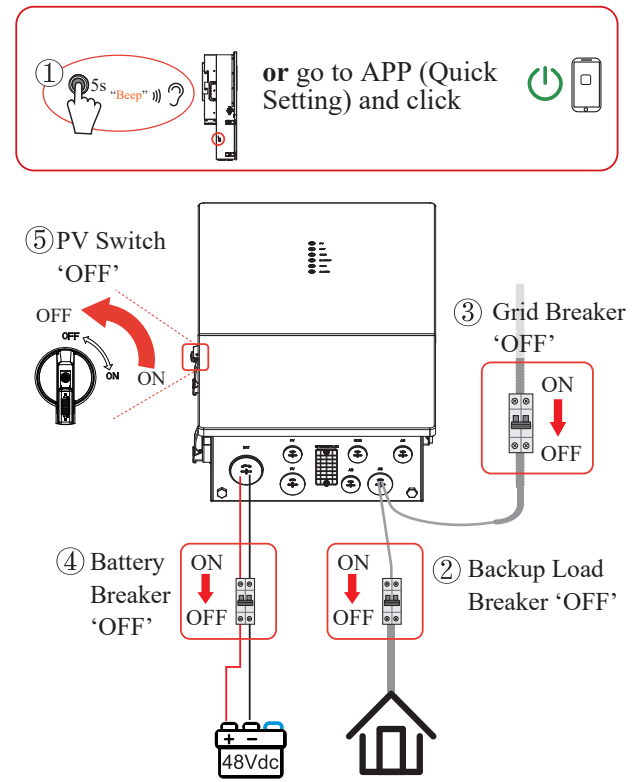
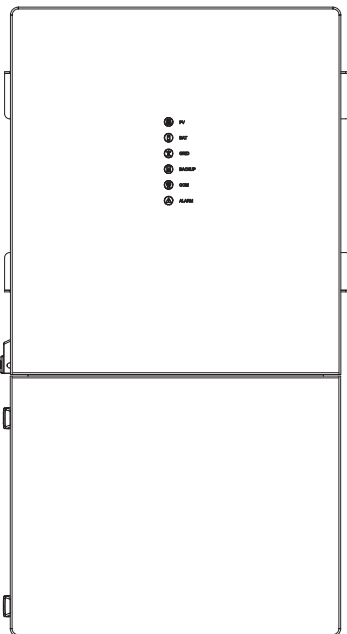


Figure 5-2 Shutdown procedure

6. LED Indicators



LED Indicator	Status	Description
PV	On	PV input is normal.
	Blink	PV input is abnormal.
	OFF	PV is unavailable.
BAT	On	Battery is charging.
	Blink	Battery is discharging. Battery is abnormal.
	OFF	Battery is unavailable.
GRID	On	GRID is available and normal.
	Blink	GRID is available but abnormal.
	OFF	GRID is unavailable.
COM	Blink	Data are communicating.
	Off	No data transmission.
BACKUP	On	BACKUP power is available.
	Blink	BACKUP output is abnormal.
	OFF	BACKUP power is unavailable.
ALARM	On	Fault has occurred and inverter shuts down.
	Blink	Alarms have occurred but inverter doesn't shut down.
	OFF	No fault.

