



4 MeterHomeTM

**Multi-Part AC Energy Storage System
Model No. MH-1010143E**

Installation & User Manual

Contents

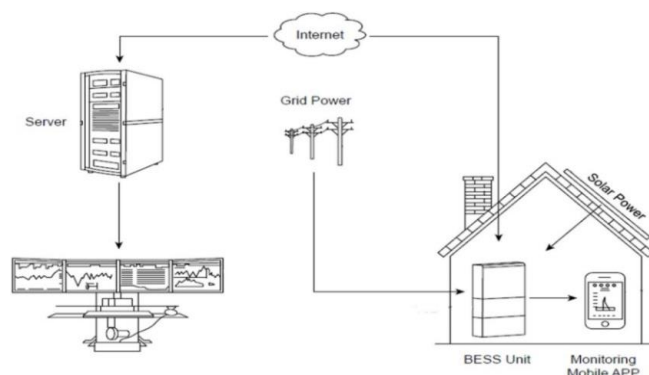
1. Introduction	3
2. About This Manual	4
(a) Target Group	4
(b) Conventions	4
3. Technical Specifications	5
4. Technical Support	7
5. Emergency Procedures	7
(a) In case of fire	7
(b) In case of flooding	7
(c) In case of abnormal noise, odor or smoke	7
6. Simplified Wiring Diagrams	8
(a) Single-Line Diagram:	8
(b) Power and Bonding Cables:	9
(c) BMS to Inverter Data Cable	10
(d) Example Installation with Backup Load/Auxiliary Panel & Transfer Switch	11
7. Safety Considerations	12
(a) Safety Precautions	12
(b) Disposal of ESS Products and ESS Scrapped Parts	13
(c) Symbols Use	14
8. Suggested Tools & Supplies for Completing Installation:	15
(a) Suggested Mechanical Tools:	15
(b) Suggested Electrical Tools:	15
(c) Suggested Standard Installation Materials	15
9. Unpacking and Pre-Planning Installation	16
(a) Installation requirements	16
(b) Installation Distances	17
(c) MeterHome™ Components	19
(d) Pre-Assembly	22
(e) Pre-Commissioning	22
10. System Setup and Installation	23
(a) ESS Inverter Installation/Mounting	24
(b) ESS Battery Enclosure Installation	25
(c) ESS Battery Enclosure Assembly	30
(d) ESS Battery Enclosure Wiring	32
(e) ESS Battery/ESS Inverter Connections	37
(f) Bonding the ESS Battery to the ESS Inverter	40
11. System Startup and Commissioning	41
(a) System Startup	41
(b) Commissioning the MeterHome™ ESS	43

(c) Controlling the ESS Using the Smartphone User Interface App.....	49
12. Decommissioning and Disposal	82
(a) Decommissioning	82
(b) Disposal	82
Appendix A – 120/240 Vac Wiring Diagram	83
Appendix B – 120/208 Vac Wiring Diagram	84
APPENDIX C – ESS Communications	85
(a) BMS Connection (Only for Lithium Battery)	86
(b) BMS communication cable preparation:.....	87
(c) BMS communication cable connection steps:	88
(d) CT/Meter Connection	88
(e) CT/Meter communication cable connection steps:	89
(f) RS485 Connection.....	90
(g) Parallel Communication Connection	91
(h) NTC/RMO/DRY Connection(s)	93
(i) RSD Connection(s)	94
(j) GPRS/WIFI/LAN Module Connection (Optional).....	40
APPENDIX D – Inverter Working Modes	41
(a) Self-consumption Mode.....	41
(b) Feed-in Priority Mode	42
(c) Back-up Mode	45
(d) Forced Charge/Discharge Function	47
(e) Off Grid Mode	47
(f) Startup/Shutdown Procedures	49
APPENDIX E – Maintenance.....	56
(a) De-Energizing and Isolating the ESS Prior to Performing Any Maintenance	57
(b) Routine Maintenance	58
(c) Inverter Troubleshooting	59
APPENDIX F – UL 9540A Unit Level Test Results.....	62
APPENDIX G - Manual Revision Table.....	64

1. Introduction

The MeterHome™ Multi-Part AC Energy Storage System (ESS) can provide up to 10kW of power and store up to 14.3 kWh of electrical energy – enough to power a typical large home during periods of peak time-of-use electrical pricing.

To get the most utility out of your MeterHome™ AC ESS, it is suggested that a backup load panel or automatic transfer switch (not included) be installed and integrated into the system to provide backup power during periods when grid power is not available.



©2025 QPO Energy, LLC. All rights reserved.

The purpose of this instruction manual is to provide trained and certified field technicians and installers with step-by-step guidance on the safe and effective installation of the battery storage system for residential housing. This manual covers necessary procedures, tools, and safety precautions to ensure compliance with industry standards and manufacturer requirements. By following this manual, qualified technicians can ensure a reliable installation that maximizes the performance and safety of the battery storage system for residential applications.

All information contained within this manual is subject to the copyright and intellectual property rights of QPO Energy, Inc. This manual may not be copied, modified, or reproduced, in whole or in part, without prior written permission from QPO Energy Inc.

All brands and/or trademarks mentioned in this manual are the property of their respective owners. Their use in this manual does not in any way imply sponsorship or the recognition of their products and/or services.

2. About This Manual

This manual describes the installation, connection, APP setting, commissioning and maintenance etc. of Energy Storage System(ESS). Please read the manual and related documents carefully before illustrations in this user manual are for reference only. This user manual is subject to change without prior notice. (Specific please in kind prevail.) using the product and store it in a place where installation, operation and maintenance personnel can reach it at any time. The illustrations in this user manual are for reference only. This user manual is subject to change without prior notice.

(a) Target Group

The MeterHome™ ESS must be installed by professional electrical engineers who have obtained relevant qualifications.

(b) Conventions

The following safety instructions and general information are used within this user manual.

 DANGER	Indicates an imminently hazardous situation which, if not correctly followed, will result in serious injury or death.
 WARNING	Indicates a potentially hazardous situation which, if not correctly followed, will result in serious injury or death.
 CAUTION	Indicates a potentially hazardous situation which, if not correctly followed, could result in moderate or minor injury.

 NOTICE	Indicates a potentially hazardous situation which, if not correctly followed, could result in equipment failure or property damage.
 NOTE	Calls attention to important information, best practices, and tips. Also used to provide additional information related to your ESS.

3. Technical Specifications

ESS Inverter — Technical Data



Feature	Specifications
Max. PV Input Power (W)	15,000
Max. PV Input Current (A)	30/22/22
Rated PV Input Voltage (Vdc)	600
Start Up DC Voltage (Vdc)	90
MPPT Voltage Range (Vdc)	90-520
Max. PV Circuit Current (A)	44+44
Number of MPPT	3
Peak Power (off grid)	2 times of rated power, 10s
Power Factor	0.8 leading to 0.8 lagging
DC Injection current (mA)	THD <3% (Linear load <1.5%)
Operating Temperature Range	-20°C to 60°C (-4°F to 140°F)
Dimension (W x D x H)	15.7" x 31.5" x 9.0" (400mm x 800mm x 230mm)
Weight Approximation	70.5 lbs (32 kg)
Communication with BMS	CAN
Safety EMC / Standard	UL1741, ULFCC, IEC/EN 62109-1, IEC/EN 62109-2, IEC/EN 61000-6-1, IEC/EN 61000-6-2, IEC/EN 61000-6-3
Grid Regulation	VDE4105, IEC 61727/62116, VDE0126, AS/NZ4777.2, CEI 0-21, EN50549-1, G98, G99, C10-11, UNE217002, NBR16149 / NBR16150
Max. Efficiency	98.0%
Max. charging / discharging efficiency	94.5%

ESS Battery — Technical Data



Feature	Specifications
Energy Configuration (kWh)	14.3
Dimension (W x D x H)	39.6" x 16" x 34.5" (1006mm x 406mm x 876mm)
Weight Approximation	463 lbs (210 kg)
Max. Charging / Discharging Current (A)	150
Max. Charging/Discharging Power (W)	8760
Battery Operating Voltage (V)	40-58.4
Battery Chemistry	LiFePO4
Enclosure Protection Rating	IP 44
Charging Temperature Range	0°C to 35°C (32°F to 95°F)
Discharging Temperature Range	-30°C to 35°C (-22°F to 95°F)
Humidity	5%-95%
Altitude	≤Max 6562 ft (2000m)
Cycle Life	25°C (77°F) 8000 cycles, 70% SOH / 45°C (113°F) 3000 cycles, 70% SOH
Safety Certification	UL60730, UL1973, UL9540, UL9540A, UN38.3
Installation Style	Indoor, Floor Mounted
Warranty	10 years (Standard)

4. Technical Support

For further support, please contact the installer or the MeterHome™ after-sales service team at: (1) service@meterhome.com or (2) (+1) 866-846-7416. Please be prepared to provide the following information before you contact the MeterHome™ after-sales service team:

- Owner's name
- Your preferred desired contact method (name, phone number, email)
- The serial number of your MeterHome™ ESS (on the ESS Battery Label)
- A brief description of your problem

5. Emergency Procedures

In any hazardous situation that could cause health and serious injury, follow the recommended actions:

- Evacuate to a safe area.
- Call 911 as soon as it is safe to do so.

(a) In case of fire

- Shut off the Inverter ESS circuit breakers, when it is safe to do so.
- Evacuate to a safe area.
- Call 911 as soon as it is safe to do so.
- Use approved fire extinguishing devices, if it is safe to do so.

(b) In case of flooding

- If the wiring sections of the ESS are submerged, please keep away from the water. It is an electrocution hazard.
- Drain the water to protect your ESS, if it is safe and possible.
- If water reaches the battery, please call your installer for an inspection. If the water level is below the battery, please completely dry the site and your ESS before use.

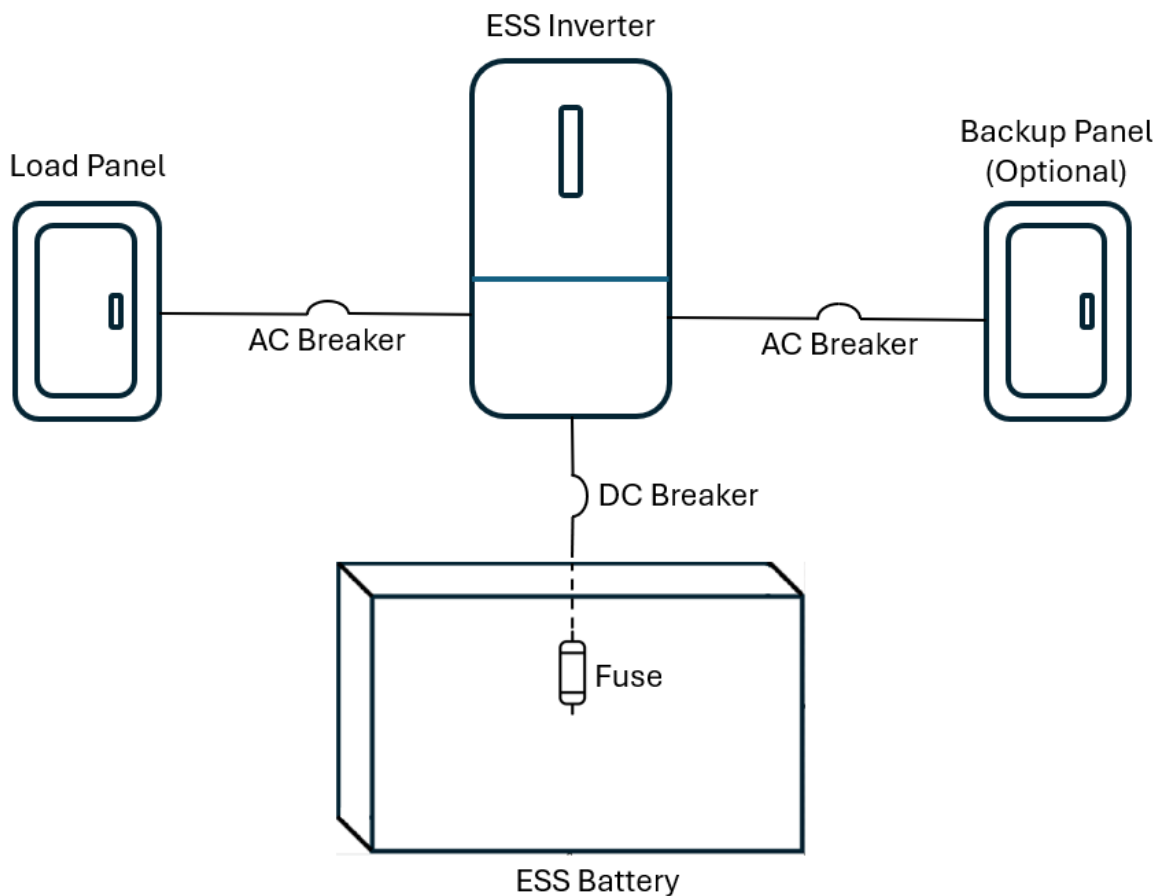
(c) In case of abnormal noise, odor or smoke

- Check to ensure the air vent of the ESS Inverter is not blocked.
- Keep the installation site well ventilated.
- Call your installer or MeterHome™ after-sales support team.

6. Simplified Wiring Diagrams

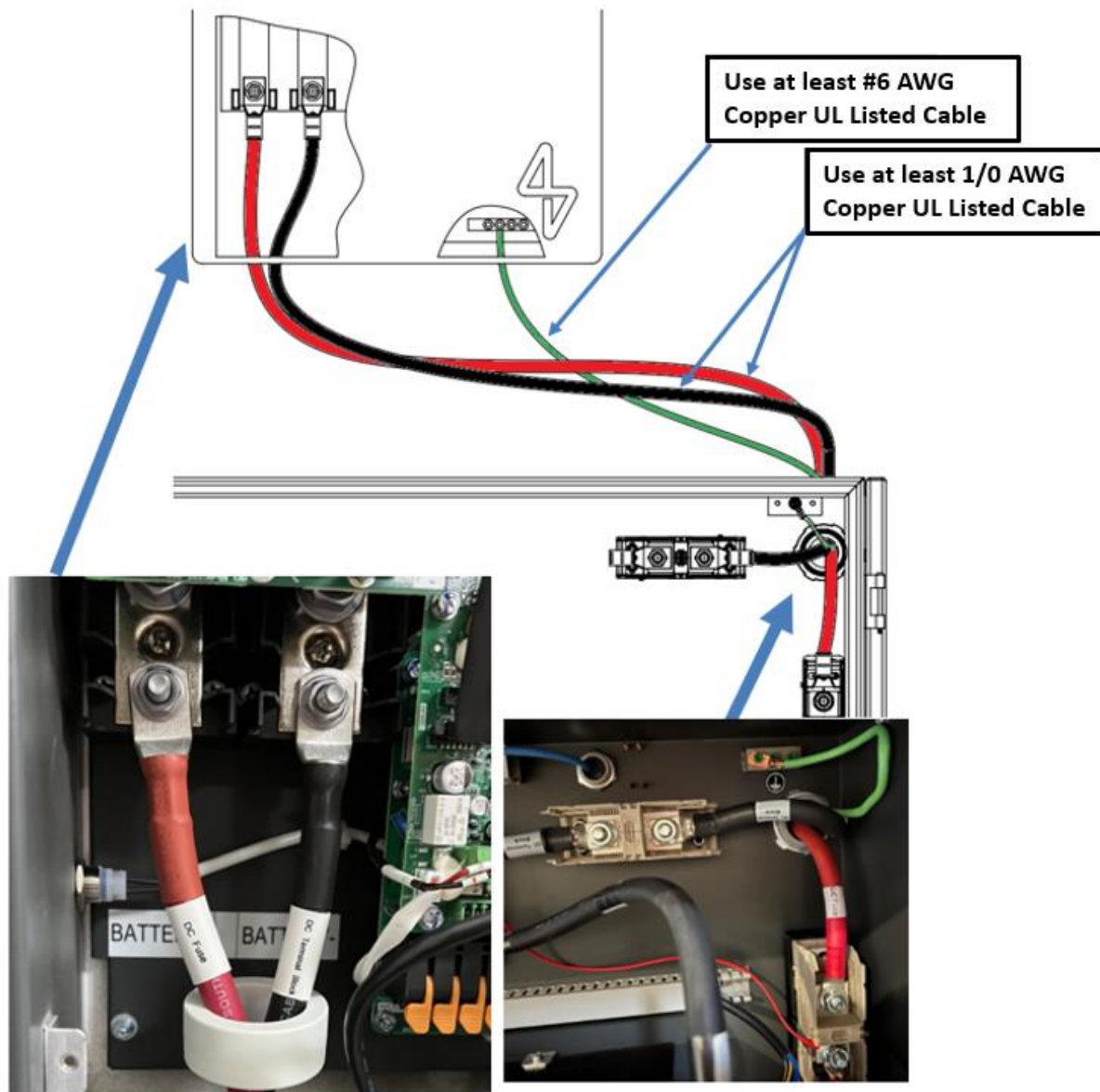
(a) Single-Line Diagram:

The MeterHome™ multi-part ESS consists of an ESS Inverter and an ESS battery. The ESS battery has two battery modules. The ESS inverter is connected to the main load panel of the building/home in which it is installed. The ESS battery is connected to the ESS inverter. An optional backup panel may also be connected to the ESS inverter. The ESS inverter is connected to the main load panel and the optional load panel by 70-amp circuits. Only UL Listed components and wires that are installed according to local building codes and regulations shall be used. For a more detailed wiring diagram, see Appendix A.



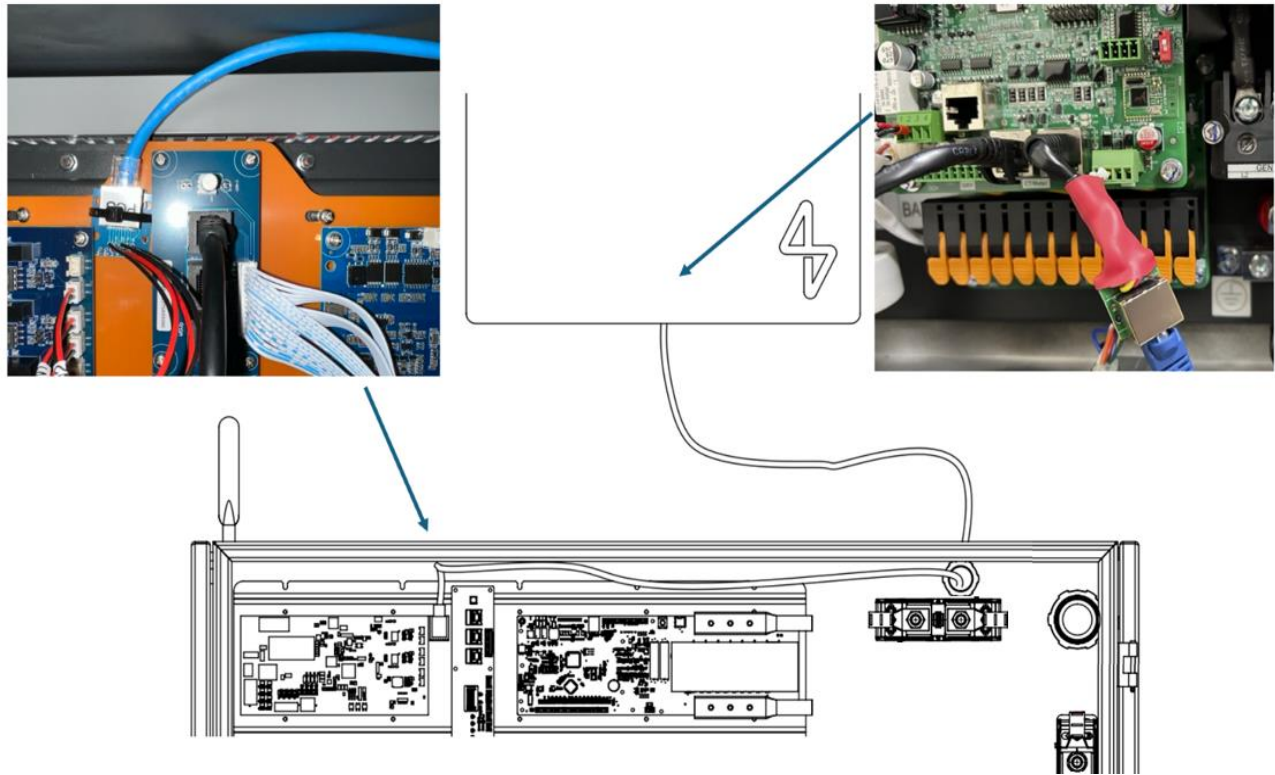
(b) Power and Bonding Cables:

The ESS Inverter is connected to the ESS Battery by two DC cables: (1) a positive terminal cable; and (2) a negative terminal cable. The two DC power cables used to connect the ESS Inverter to the ESS battery should be at least 1/0 AWG copper UL listed cables rated to carry 150 amps continuously. The ESS battery enclosure is bonded to the ESS Inverter by a bonding cable. The bonding cable used to bond the ESS Battery to the ESS Inverter should be at least a #6AWG copper UL listed cable. All local codes and regulations are to be followed when installing and connecting the ESS inverter and ESS battery.



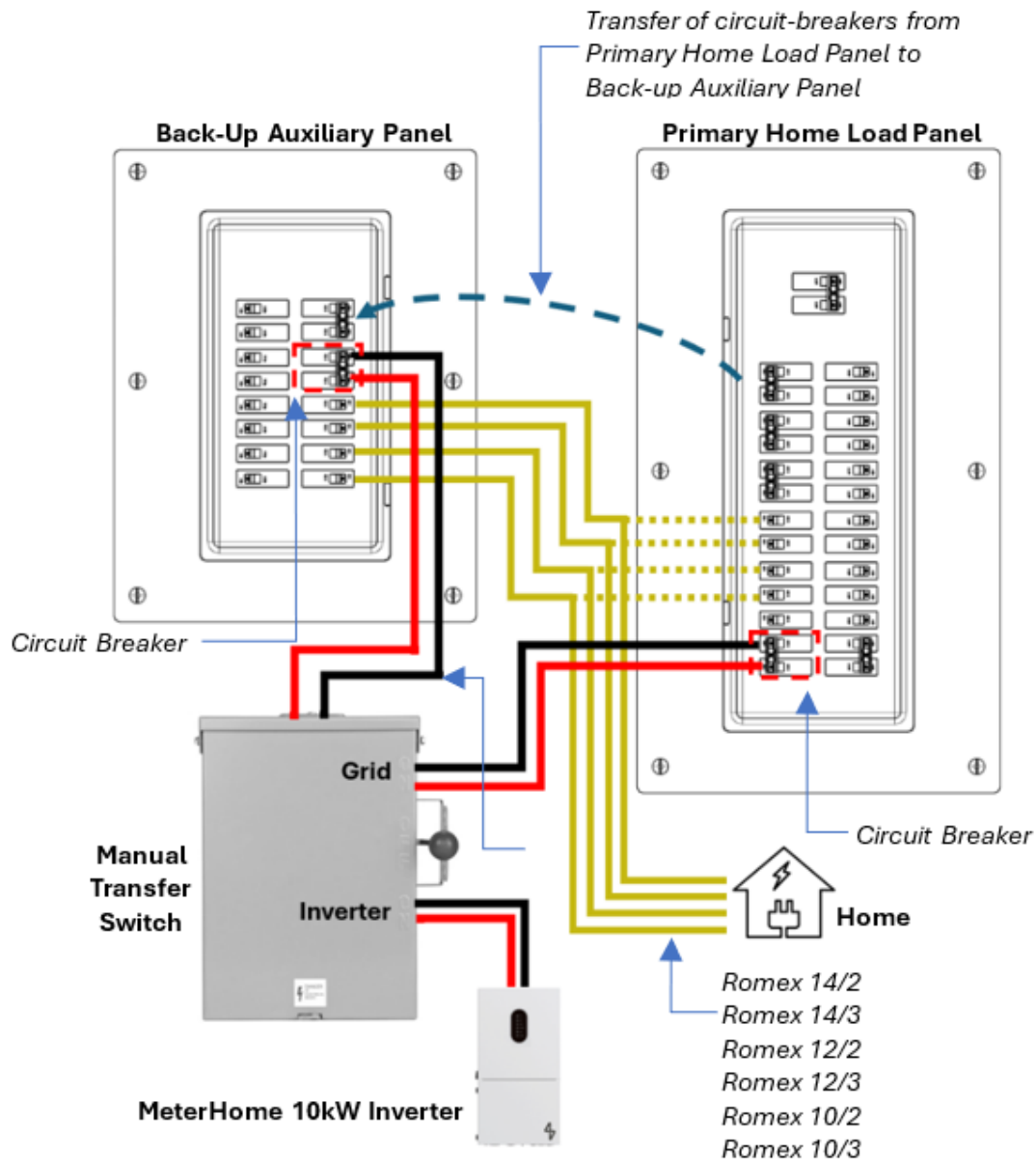
(c) BMS to Inverter Data Cable

The Battery Management System (BMS) Inverter (PCS) communication port (inside the ESS Battery enclosure as shown in the diagram below) is connected to the ESS Inverter BMS communication port (inside the ESS Inverter lower compartment) by a communication cable as shown in the diagram. Use a CAT5e or a CAT6 data cable to connect the BMS to the ESS Inverter. UL Listed wire and components that are installed according to local building codes and regulations shall be used.



(d) Example Installation with Backup Load/Auxiliary Panel & Transfer Switch

As an option, a backup load/auxiliary panel may be installed and connected to the ESS Inverter as illustrated in the diagram below. When installing a backup/auxiliary load panel as shown in the simplified wiring diagram below, only UL Listed components and wires that are installed according to local building codes and regulations shall be used.



7. Safety Considerations

Please read this entire manual carefully to ensure safe and proper installation of the MeterHome™ Battery Energy Storage System, as well as ensuring warranty compliance and maximizing the life and reliability of the system. Failing to heed any warnings or instructions in this manual could result in damage to system components, electric shock, injury, or loss of life.

This manual is intended for qualified professionals and licensed service providers only, and none of the information or recommendations contained herein constitute in any way an implied or expressed warranty. Please see the *QPO Energy LLC MeterHome™ Limited Warranty* document for more information.

	DANGER	Please read this document carefully before installing or using the MeterHome™ equipment. Failure to follow any instructions or warnings in this document may result in damage to the equipment, personal electric shock, severe injury, or even death.
---	---------------	---

The MeterHome™ multi-part ESS kit includes a MeterHome™ ESS Hybrid Inverter capable of outputting up to 10,000 W of power and one or more battery enclosures each housing two battery modules. Installation and final inspection of the ESS system must be performed by a qualified electrician and in accordance with all local building codes and regulations before the system can be commissioned and used.

Please handle battery modules with care. Do not use a battery module that appears to be leaking, damaged, or has been subjected to significant impact force.

Do not use the top of the battery enclosure box for storing liquids or any objects with a combined weight in excess of 20 lb. (9 kg).

When mounting the inverter or battery enclosure box, avoid cutting or drilling holes in pipes or cables inside walls. Ensure that all aspects of system installation and usage comply with all local codes and regulations. Wear appropriate PPE throughout the installation process.

(a) Safety Precautions

- Installation, maintenance and connection of the EES inverter and the ESS battery must be performed by qualified personnel, in compliance with local electrical standards, wiring rules and requirements of local power authorities and/or companies.
- The ESS is an indoor system; it is only intended to be installed in attached or detached garages, sheds, enclosed utility closets, basements, storage or utility spaces within dwelling units and is not intended for installation in habitable spaces and living spaces in dwelling units.
- In Canada, the ESS may only be installed in a garage, a free-standing structure or storage building.
- The ESS is an indoor system. Smoke alarms shall be installed and provided in the residence in

accordance with all local building, fire and installation codes.

- The temperature of some parts of the ESS inverter may exceed 60 °C during operation. Do not touch the inverter during operation to avoid being burnt.
- Ensure children are kept away from ESS inverter and ESS battery.
- Don't open the front cover of the ESS inverter or ESS battery. Apart from performing work at the wiring terminal (as instructed in this manual), touching or changing components without authorization may cause injury to people, damage to the ESS and annulment of the warranty.
- Static electricity may damage electronic components. Appropriate methods must be adopted to prevent such damage; otherwise, the ESS may be damaged, and the warranty annulled.
- Ensure the output voltage of any proposed PV array is lower than the maximum rated input voltage of the ESS inverter; otherwise, the ESS inverter may be damaged, and the warranty annulled.
- When exposed to sunlight, the PV array generates dangerous high DC voltage. Please operate according to instructions, or it will result in danger to life.
- PV modules should have an IEC61730 class A rating.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Completely isolate the ESS inverter and ESS battery before maintaining. Completely isolate the ESS inverter by turning off the PV switch and disconnecting the PV terminal, battery circuit breaker inside the ESS inverter, and all AC circuit breakers both inside the ESS inverter and any connected load panel. Isolate the two battery modules inside the ESS battery by disconnecting the power cables from the battery module terminals.
- The maximum fault current of the ESS inverter for the 70 amps main panel circuit is 16,800 A for a duration of approximately 15 milliseconds.
- The maximum short circuit current of the ESS battery is 4312 amps for 185 microseconds.
- After the ESS inverter is powered off, the remaining electricity and heat may still cause electric shock and body burns. Do not touch parts of the ESS inverter for 10 minutes after disconnection from the power sources.
- Do not insert or pull AC and DC wires when the inverter is running.
- The BACKUP Port of the ESS inverter should not be connected to the grid.
- The BAT Port of the ESS inverter should not be connected to PV and AC voltage. The voltage connected to this port cannot exceed 64 V DC.
- The GRID Port should not be connected to PV voltage.
- A single PV panel string should not be connected to two or more ESS inverters.

(b) Disposal of ESS Products and ESS Scrapped Parts

MeterHome™ ESS products and any ESS scrapped parts (including their internal chemicals and electrical materials) should not be disposed of with household waste. Please refer to your local laws and regulations regarding disposal.



Product should not be disposed of as household waste.

(c) Symbols Use

Safety Symbol	Description
	Danger of high voltage and electric shock! Only qualified personnel may perform work on the inverter.
	A hazardous situation, which if not avoided could cause minor or moderate injury.
	Risk of battery explosion in the event of a fire – Do not open battery enclosure during a fire.
	Residual voltage exists after the inverter is powered off. It takes 5 minutes for the system to discharge to a safe voltage.
	Danger of hot surface
	Environmental Protection Use Period
	Refer to the operating instructions
	Transport this side up.
	Product should not be disposed of as household waste.
	Grounding terminal

8. Suggested Tools & Supplies for Completing Installation:

(a) Suggested Mechanical Tools:

- Philips P3 and Flat Screwdriver
- Hammer
- Power Drill with Standard Drill Set
- Metric Allen Key Set (2.5mm, 6mm, 10mm)
- 10" Channellock plier
- Electrician Lineman's Pliers
- Torpedo Level
- Tape measure
- Stud Finder
- Pencil / Marker
- Safety Glasses
- Electricians Work Gloves
- Socket Wrench Set (7mm, 12mm, 13mm, 17mm, and 19mm Sockets)
- Socket Wrench extension
- Torque Wrench – minimum 45ft-lbs/ 61Nm capacity
- Hand truck, furniture dolly, or lifting straps
- Drywall Cutter (Saw)
- Drywall Screw
- Drywall Putty
- Drywall
- Scrap 2x4 Lumber
- Putty Knife
-

(b) Suggested Electrical Tools:

- Multimeter
- Electrical Tape
- Hydraulic Lug Crimper – AMZCNC, MODEL YQK-300, 160kN (18 Ton)
- High Leverage Cable Cutter
- Klien Tools RJ45 Modular Crimper Pass-Thru VDV226-110

(c) Suggested Standard Installation Materials

The following is a list of suggested materials to have on hand for a standard MeterHome™ Residential Energy Storage installation without a backup load/auxiliary panel. Use only UL Listed components.

- Rolls of 6 AWG AC Stranded Copper UL THHN Wire in black, red, white, and green
- 6 AWG Enclosure ground/bonding wire to inverter ground.
- Compression lug for ¼" screw (enclosure terminal connections)
- ¾" Liquid Tight Conduit Connector – (x1) straight, (x1) 90° Bend
- Roll of ¾" Liquid Tight Conduit
- 1 ½" Liquid Tight Conduit Connector – (x1) Straight, (x1) 90° Bend
- Roll of ½" Liquid Tight Conduit
- 2' x 1 ½" Power Strut channels

- 3/8" x 1" bolts w/ washer and lock washer
- 3/8" power strut nuts
- Roll of CAT5e or CAT6 cable and water-tight pass-through connectors
- RJ45 Joiner (for extension of CAT6 cable) or Smartmeter (for Extension of CT sensor CAT6 Cable)
- Large CT sensors for Main Panels that use BusBars

When installing a backup/auxiliary load panel, it is suggested to have the following materials on hand before performing the installation. Use only UL listed components.

- 100A 20-Space Circuit Breaker Panel – HomeLine
- 100A Manual Power Transfer Switch - MUJURUR
- (x1) 70A Circuit Breaker (Matches customer Main Panel Circuit Breaker Type)
- (x1) 70A HOM Type Circuit Breaker
- (x5) 15A HOM Type Circuit Breaker
- (x5) 20A HOM Type Circuit Breaker
- (x5) 30A HOM Type Circuit Breaker
- Roll of Romex 14/2
- Roll of Romex 14/3
- Roll of Romex 12/2
- Roll of Romex 12/3
- Roll of Romex 10/2
- Roll of Romex 10/3

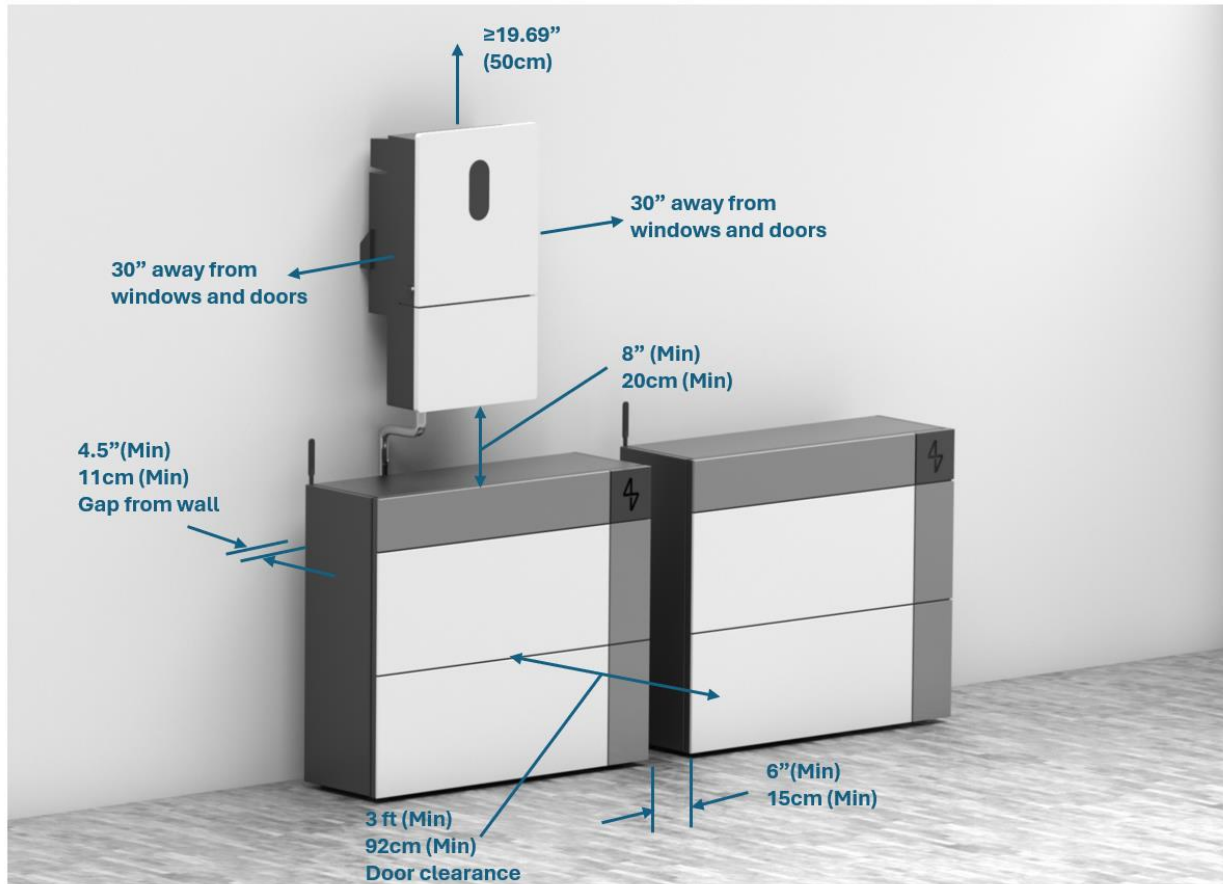
9. Unpacking and Pre-Planning Installation

(a) Installation requirements

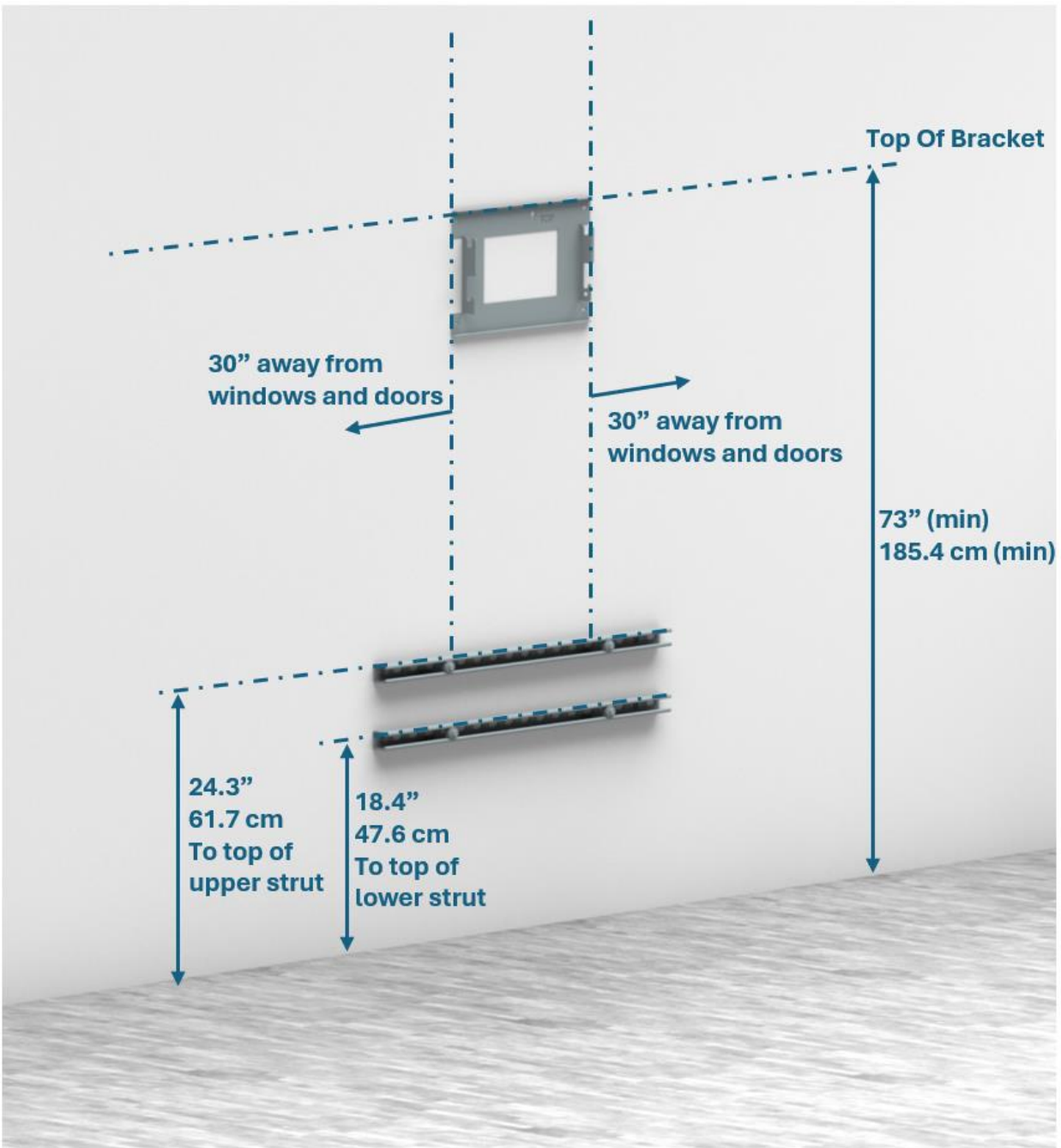
- i) Installation and maintenance of the MeterHome™ Multi-Part Energy Storage System (ESS) must be performed by qualified personnel, in compliance with local electrical standards, wiring rules, and requirements of local power authorities and/or companies.
- ii) The MeterHome™ ESS should be installed in an indoor space, away from sources of moisture or direct sunlight.
- iii) The MeterHome™ ESS is NOT FOR MARINE USE.
- iv) For optimal system performance, the ambient temperature of the installation environment should be between 32°F and 95°F (0°C - 35°C).
- v) The location of the ESS Inverter should be chosen to facilitate short and easy electrical connections to the main household circuit panel and backup circuit panel (if installed).
- vi) The ESS Battery should be set up close to the ESS Inverter.
- vii) To get the most utility out of your MeterHome™ ESS, it is recommended that a backup load panel or automatic transfer switch (not included) be installed.

(b) Installation Distances

The MeterHome™ ESS system shall be installed in accordance with the distances shown in the figure below. The ESS Battery shall be installed at least 4.5 inches from a back wall, 6.0 inches from a side wall, and 6.0 inches from an adjacent ESS Battery. The ESS shall be installed in accordance with minimum separation distances from other exposures (e.g. combustibles, structures) in accordance with all local codes and regulations.



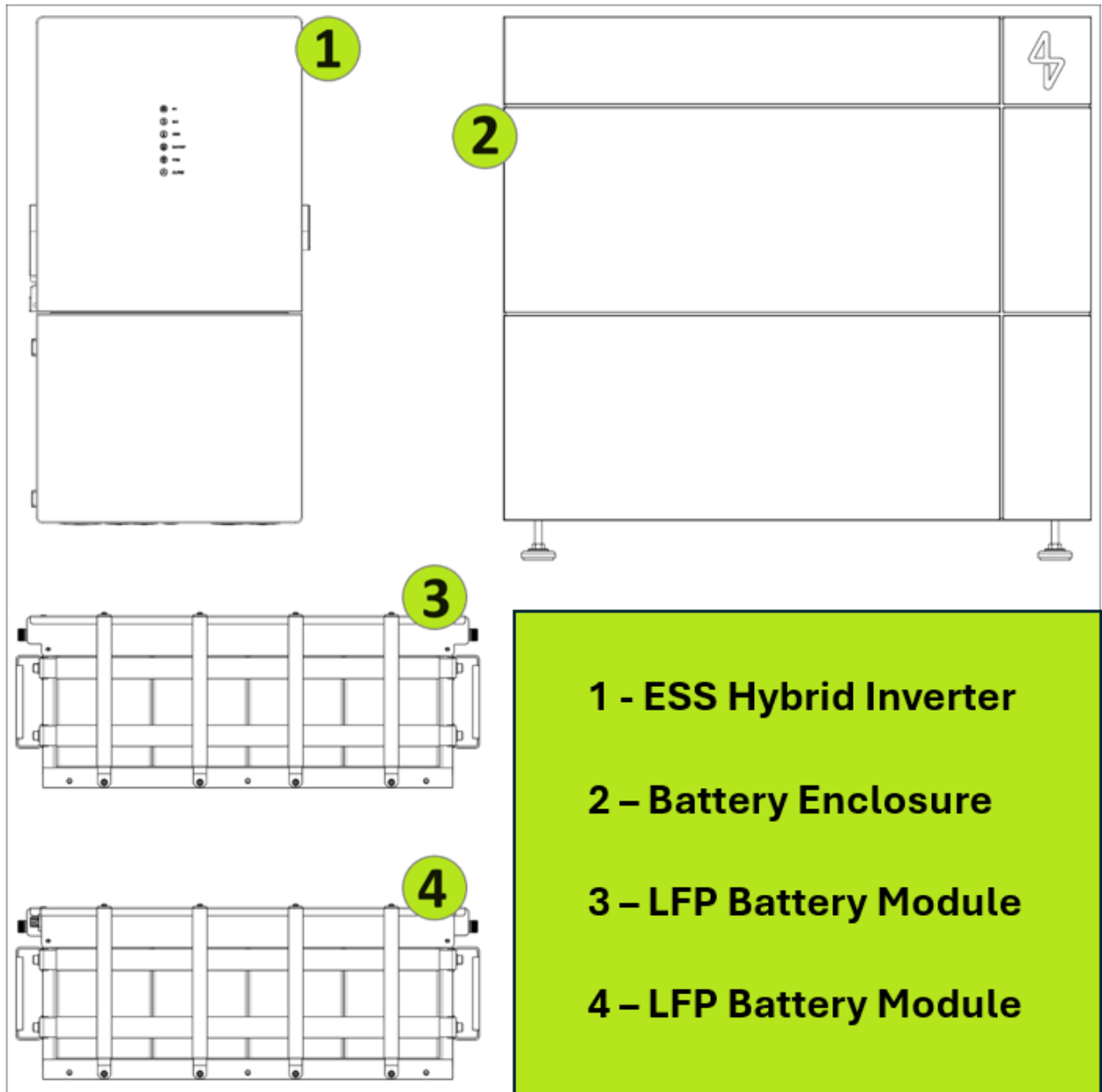
The figure below shows the suggested heights for installing the ESS Inverter support bracket and the ESS Battery support bracket. The support brackets must be attached to wall studs or another structure capable of supporting the weight of the ESS components.



(c) MeterHome™ Components

The MeterHome™ Energy Storage System is shipped in four boxes. These boxes contain the following:

- Box 1: MeterHome™ ESS Inverter (88lbs/40kg)
- Box 2: MeterHome™ ESS Battery Enclosure (208lbs/94.3kg)
- Boxes 3 and 4: Two MeterHome™ 1P8S LFP (LiFePO₄) Battery Modules (122lbs/55.4kg)

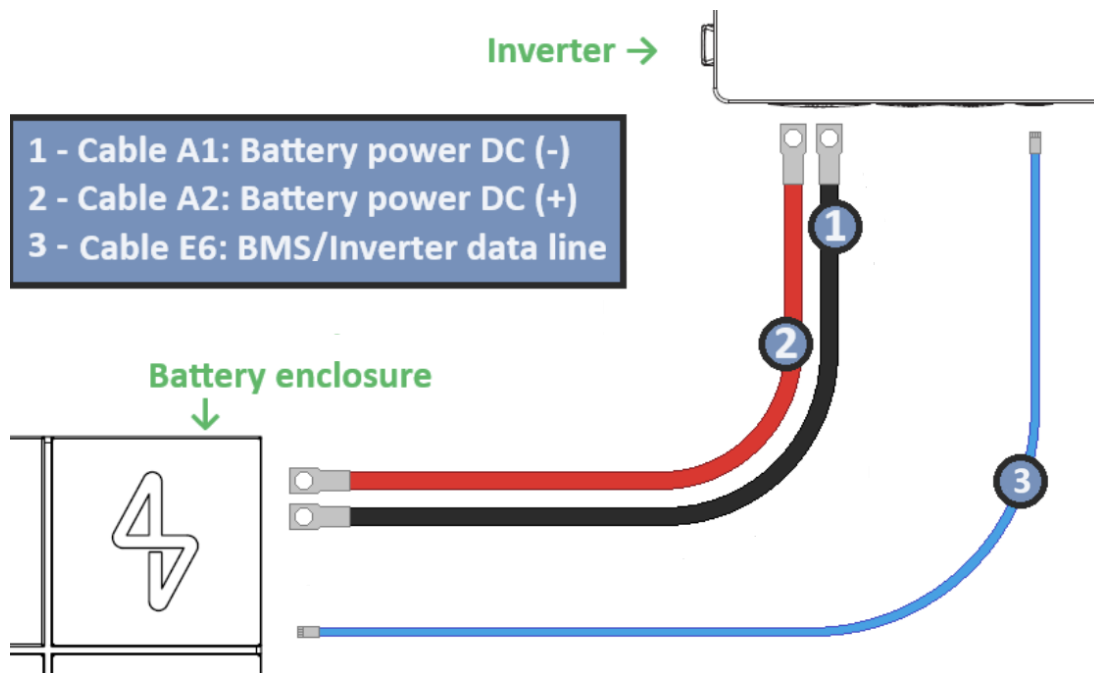


Also included in Box 2 (packaged inside the enclosure box) is the PCB bracket assembly (pre-mounted), Battery Enclosure Wall Mount Adapter, COM Antenna, Inverter COM Adapter, B1 Battery/BMS DC(-), and B4 bridge power cable. Note that many of the cables listed below should already be mounted inside the battery enclosure box; nonetheless, all cable connections should be double-checked to ensure that they are all securely fastened prior to system commissioning.

- **B1** – BMS/Terminal Block DC (-) power cable (*fully mounted*)
- **B2** – Battery 1/BMS DC (-) power cable (*not mounted*)
- **B3** – Battery2/ Fuse DC (+) power cable (*partially mounted*)
- **B4** – Battery 1- Battery 2 bridge power cable (*not mounted*)
- **C1** – COM board DC power cable
- **E1** – BMS Ribbon 1 data cable
- **E2** – BMS Ribbon 2 data cable
- **E3** – COM/Adapter communication data cable
- **E4** – Battery Module 1 harness cable (*partially mounted*)
- **E5** – Battery Module 2 harness cable (*partially mounted*)

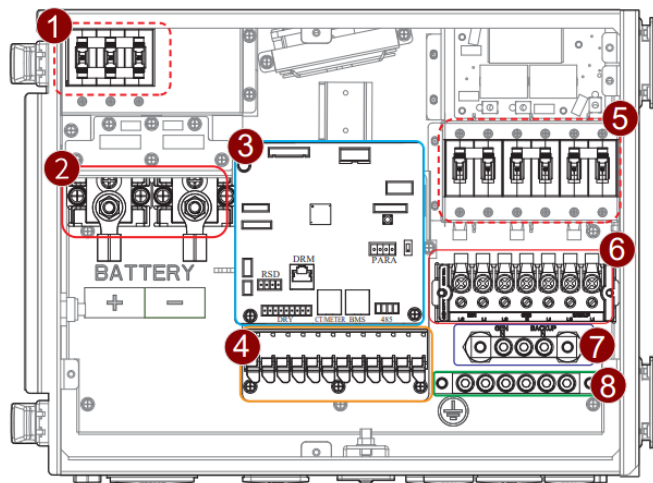
The following cables are needed to complete the installation. These cables can be used to facilitate complete assembly of the system more easily, but they may be substituted for similar cables sourced by the installer.

- **A1** – Inverter/battery DC (-) power cable (1.2m length)
- **A2** – Inverter/battery DC (+) power cable (1.2m length)
- **C4** – Terminal/inverter COM AC power cable
- **E6** – BMS/Inverter communication data cable (1.6m length)
- **Liquid Tight Power Conduit + connectors** (*not pictured below*)
- **Liquid Tight Data Conduit + connectors** (*not pictured below*)



DC cables from the ESS Battery connect inside the ESS Inverter, as shown at item #2 in the figure below.

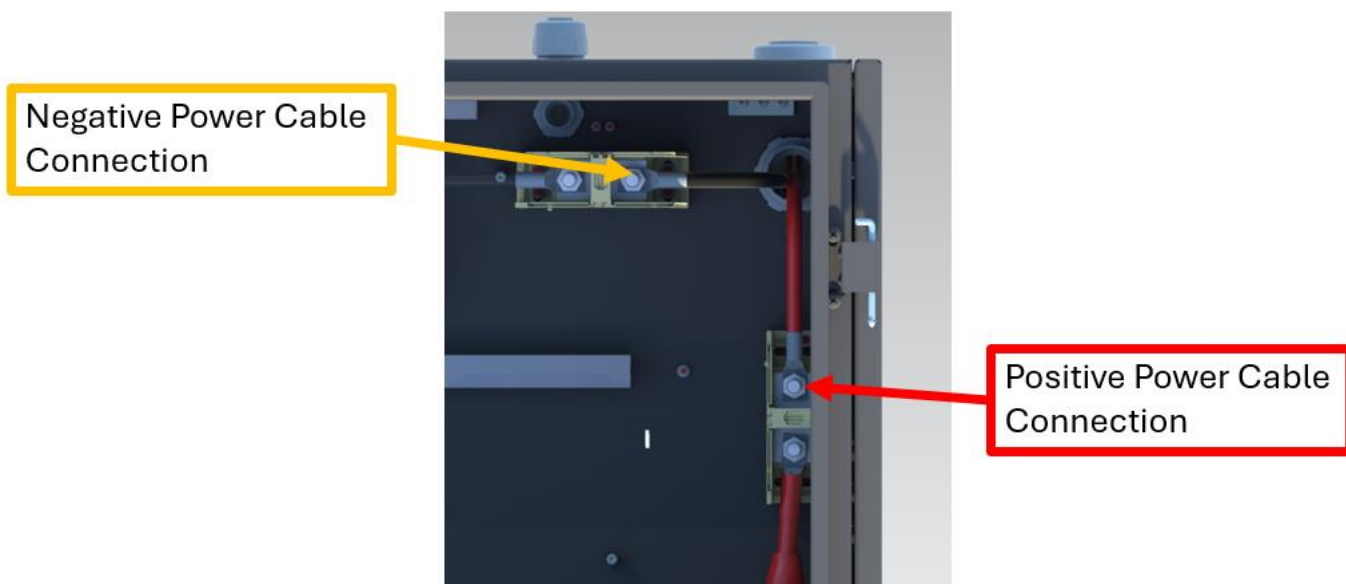
• The Internal Structure of Wiring Box



No.	Description
1	Battery breakers (Optional)*
2	Battery terminals
3	Communication connection ports
4	PV input connector
5	AC breakers (Optional)*
6	GEN/GRID/BACKUP terminals
7	Neutral terminals
8	Ground bus bar

	CAUTION	Do not switch the cable polarity when installing the cables between the ESS Inverter and the ESS Battery.
--	----------------	---

The DC cables (both red & black) are connected to the ESS Inverter from inside the ESS Battery enclosure as shown below.



(d) Pre-Assembly

	CAUTION	The battery modules and battery enclosure are heavy and may cause serious injury and/or damage to the units if dropped. A team lift is required to move them safely.
---	----------------	--

Carefully remove all components from their packaging. Ensure that all components are removed from the ESS Battery enclosure prior to setup. Organize the setup/installation area so that all components can be readily identified for use. Do not remove the protective tape covering the battery terminals until instructed to remove them.

(e) Pre-Commissioning

The MeterHome™ ESS Inverter included as a part of the MeterHome™ ESS is capable of outputting up to 10,000 W of power. Installation and final inspection of the MeterHome™ ESS must be performed by a qualified electrician and in accordance with all local building codes and regulations before the system can be commissioned and used.

Customer account creation and warranty registration should be completed at this point if not already completed. The installing technician should open the packaging and ensure that all components of the Meter Home™ ESS are present. Record all serial numbers below.

❖ **Meter Home™ Kit #:** _____

❖ **MeterHome™ Inverter:** _____ **PH**

❖ **Battery Module 1:** _____ **BM**

❖ **Battery Module 2:** _____ **BM**

❖ **Battery Enclosure:** _____ **BE**

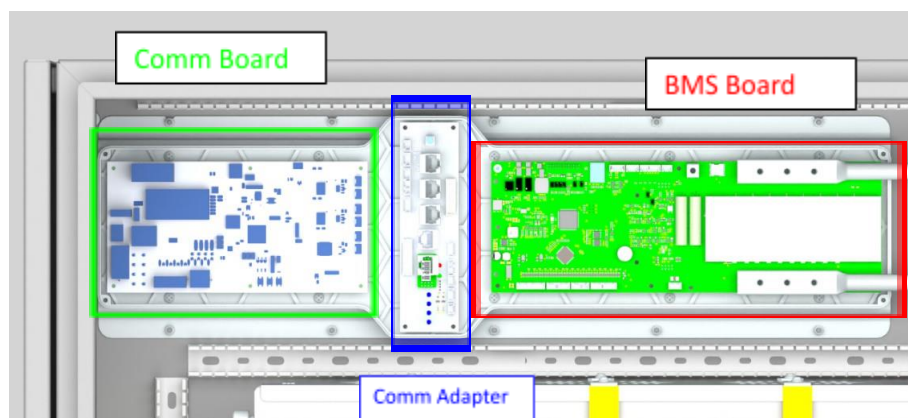
Once the setup process has been completed, be sure to follow the commissioning procedure before turning the system on for the first time.

10. System Setup and Installation

	CAUTION	The inverter, battery enclosure box, and battery modules are heavy, and may cause serious injury and/or damage to the units if dropped. A team lift is recommended to move them safely.
---	----------------	---

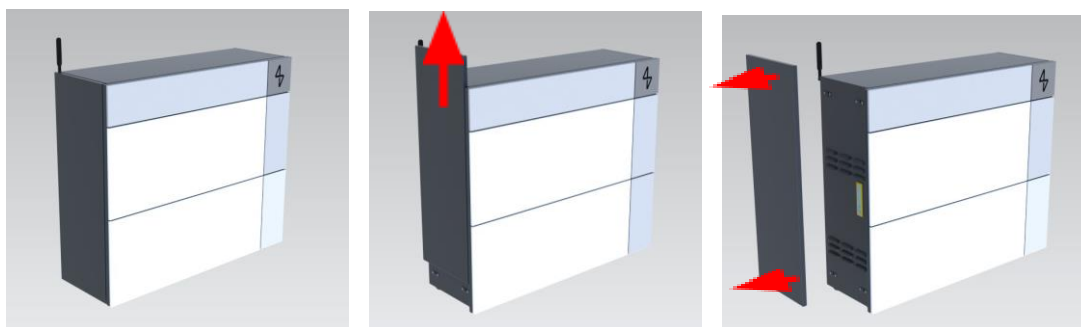
The ESS Battery enclosure should be placed in its final installation position and anchored to the wall prior to installing the battery modules. Once the battery modules are in place, the enclosure is heavy and difficult to move. See Section 3, Technical Specifications, for information about the weight and dimensions of the MeterHome™ ESS.

Inside the ESS Battery enclosure on the upper back panel is a series of three circuit boards. They are, from left to right, the Communication (COM) board, the Communication Adapter, and the Battery Management System (BMS). Most of the wiring and connections in the ESS Battery enclosure should already be complete, but they should be inspected to ensure that they are still secure after shipping.



How to open Battery Enclosure:

- i. To access the front panel lock, slide the left side panel up and remove the side panel.

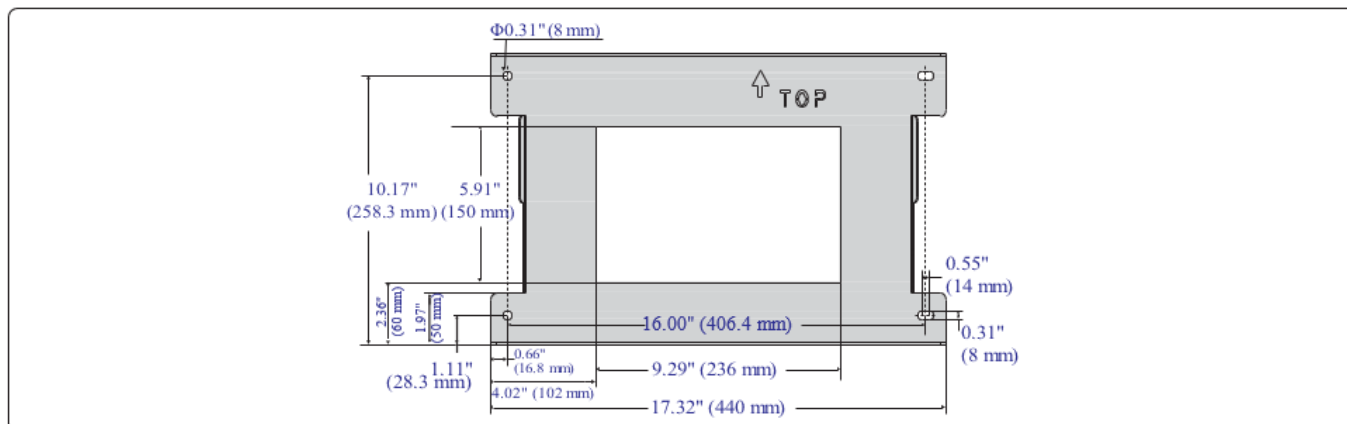


- ii. Use the included enclosure key to unlock the door of enclosure when it is locked.

WARNING: The enclosure door is heavy and may cause the enclosure to tip over if the door is opened and the battery modules are not installed. Use foam padding or cardboard underneath the door panel to prevent scratches.

(a) ESS Inverter Installation/Mounting

The dimensions of mounting bracket are shown in the figure below. Before drilling any hole in the wall, ensure that no damage to an electric wire and/or pipe inside the wall will be caused by drilling.

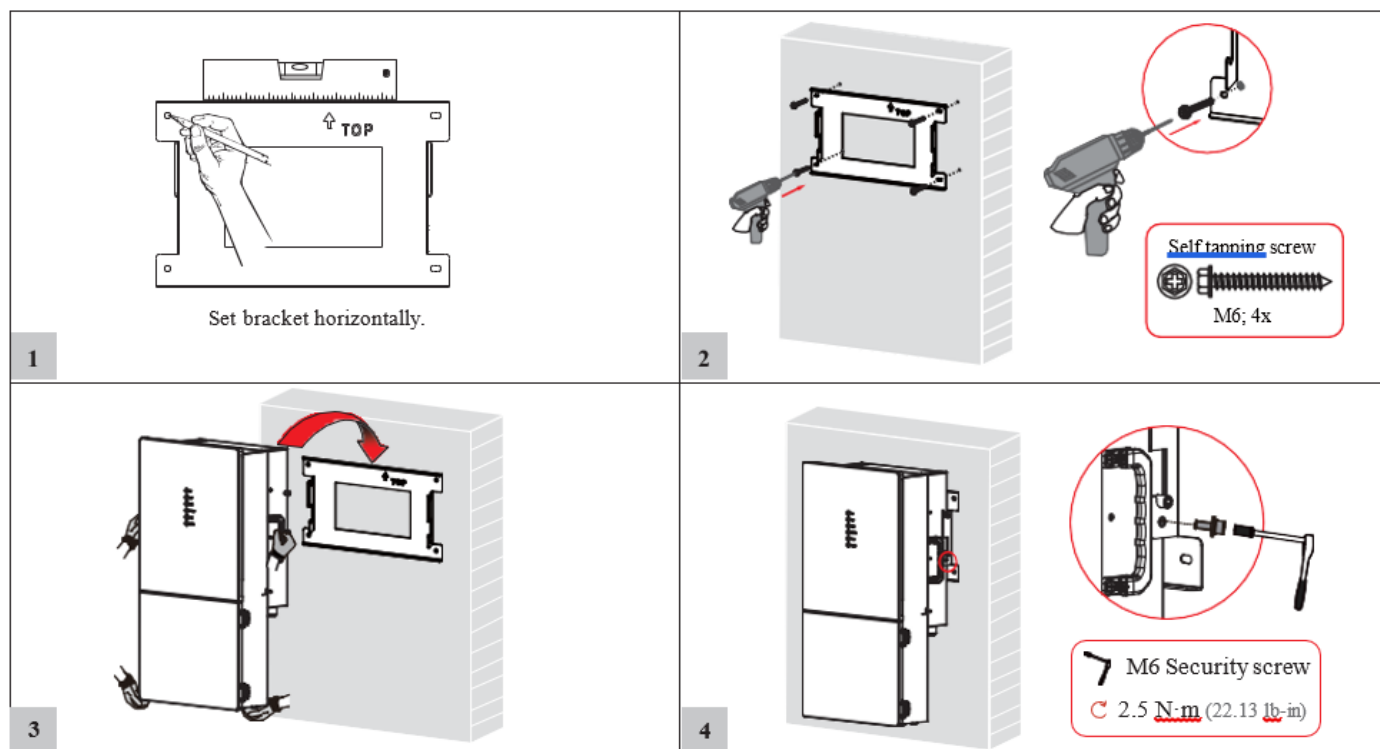


Step 1. Position the mounting bracket against the mounting surface, level it, and mark the mounting hole locations.

Step 2. Drive the screws through the mounting bracket into the mounting surface. Ensure the bracket is firmly attached.

Step 3. Hang the inverter onto the mounting bracket.

Step 4. Lock the inverter using the security screw.



(b) ESS Battery Enclosure Installation

1. Set Battery Enclosure preferred height and level using a leveler.



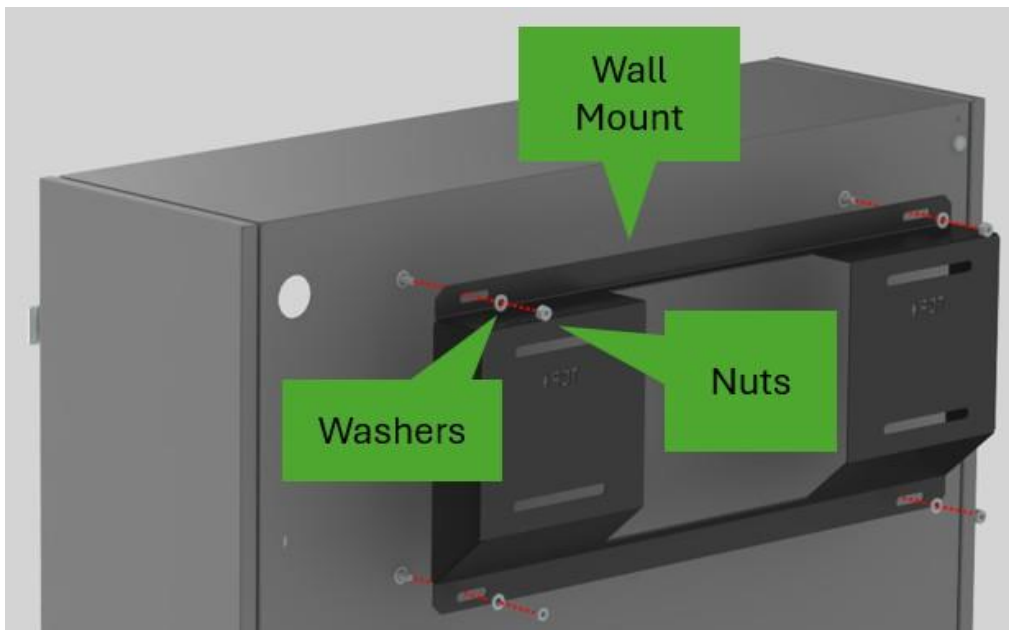
2. Attach the wall mount bracket to the back of the enclosure.
 - a. Install 4x M8 set screws on the back of enclosure



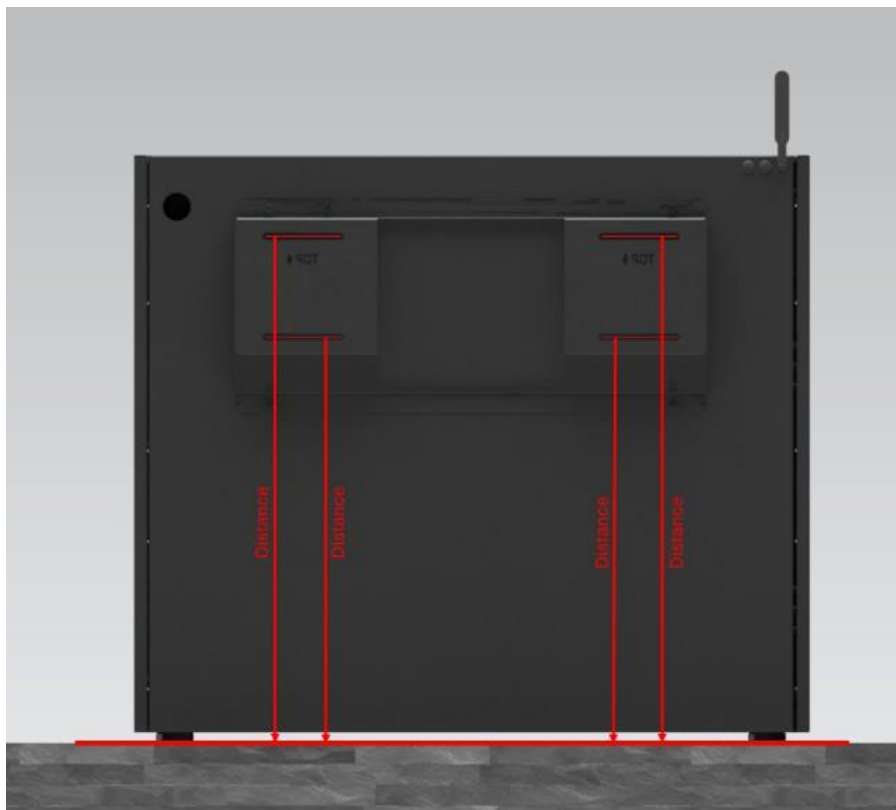
- b. Place the wall mounting bracket to the studs as shown.



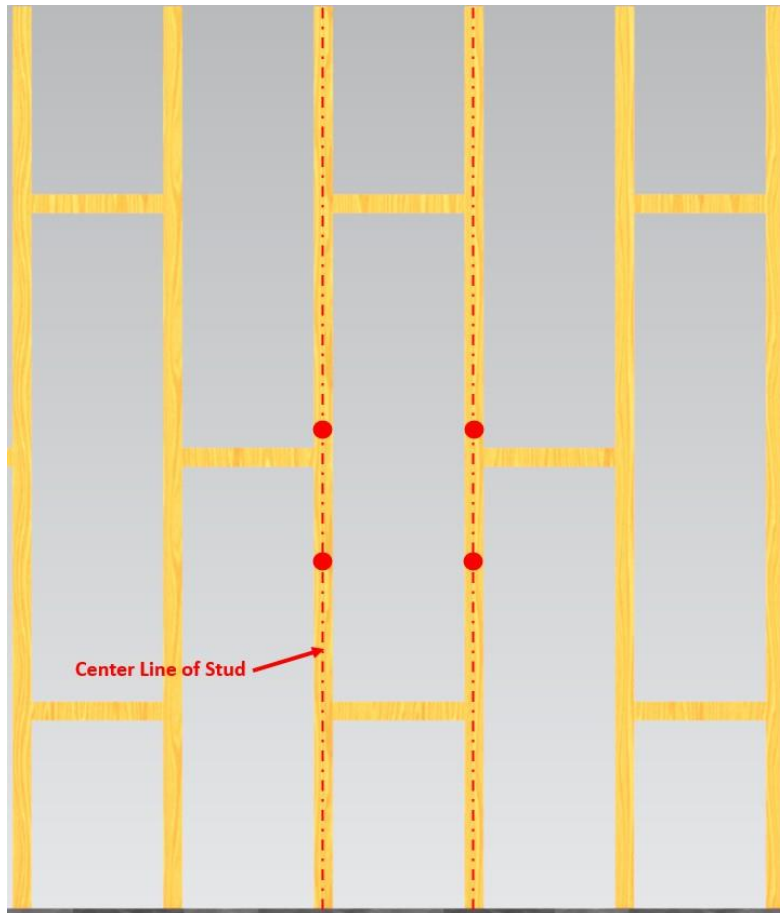
- c. Secure wall mounting bracket with 4x M8 nuts and washers, hand tighten.



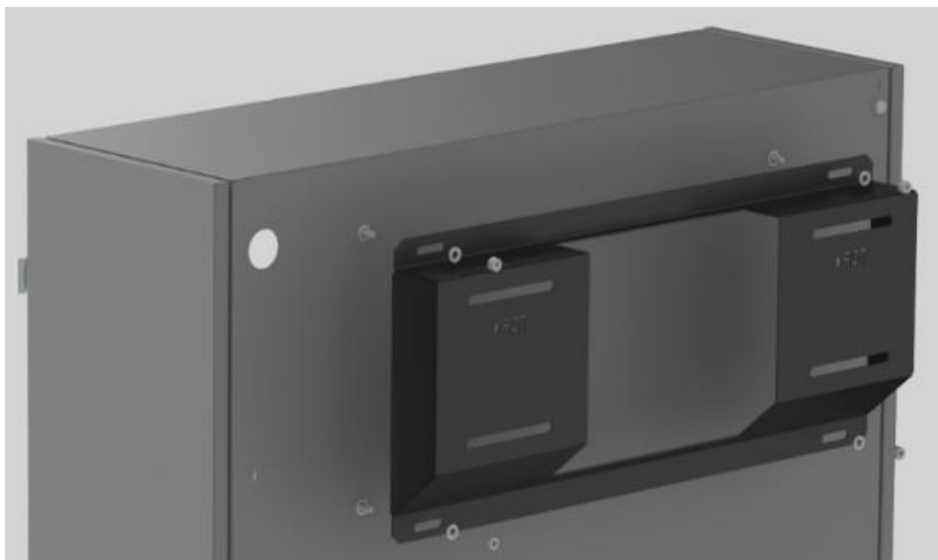
3. Measure the height from the ground up to the centers of each of the four slotted cutouts in wall mount as shown in the Diagram below.



4. Locate and Mark the center of wall studs using a stud finder (Studs are usually 16 inches apart).
5. Mark the four slot heights along their respective stud centers on the installation wall.



6. Remove wall mount bracket from Battery Enclosure.



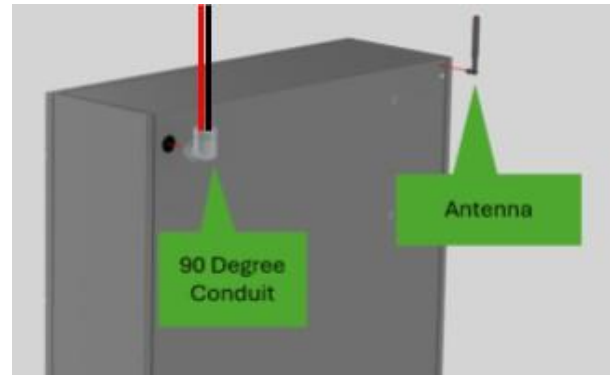
7. Mount strut brackets to installation wall at 'center of stud' and secure to wall studs using 5/16 x 2.5" Lag Bolts. Tools: 3/8" socket wrench, 3" extension, and 1/2" socket.



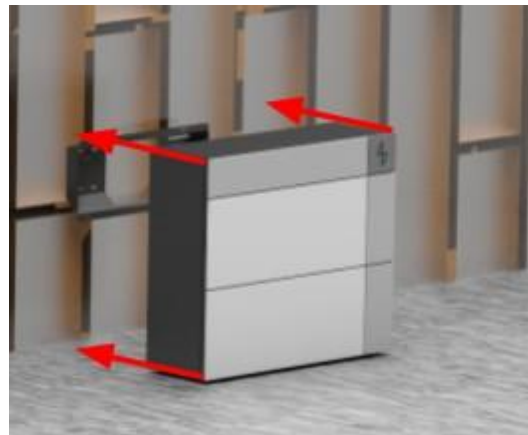
8. For an easier installation, pull the Inverter to Battery Box DC Positive and Negative cables through its liquid tight flexible conduit and through a 90° cable liquid tight conduit connector.



9. Attach 90° cable liquid tight conduit with Inverter to battery cables to the back of the Battery Enclosure. Use channel lock pliers to tighten nuts from inside.
10. Locate the COM Wi-Fi antenna taped to the inside of the enclosure next to the COM board. Remove the tape and fasten the Wi-Fi antenna onto the COM antenna socket on the back of the Battery Enclosure, positioning the antenna for best Wi-Fi connection.



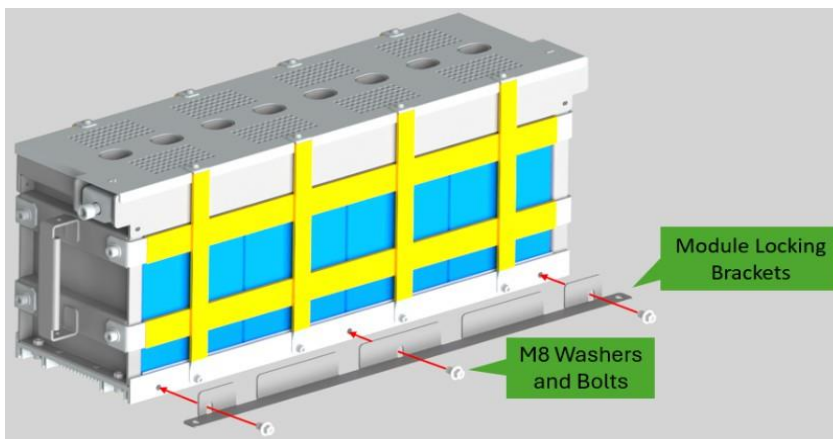
11. Next align the enclosure back up to the secured wall mount and secure it using the 4x M8 nut and washer.



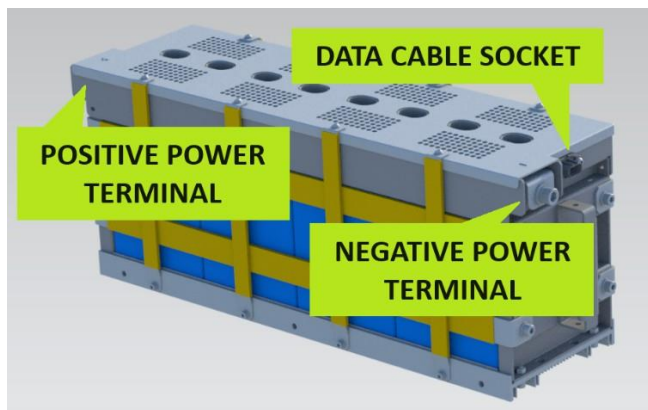
(c) ESS Battery Enclosure Assembly

1. Locate the two Battery Module Locking Brackets and six M8 screws and washers for each battery module. Insert securing screws and tighten to secure Battery Module Locking Brackets to both sides of each battery module using a 6mm Allen wrench.

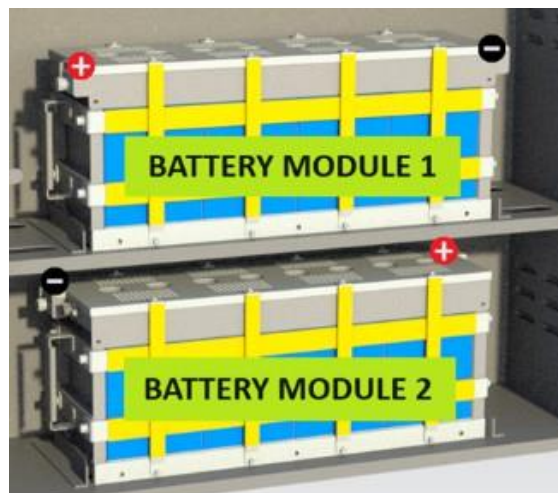
NOTE: Make sure Module Locking Brackets are level to base of Battery Modules



2. Locate the terminal connections on the battery modules. Each module has a positive terminal on one end (marked with a large + on top), and a negative terminal on the other (marked with a large - on top). The + and - symbols may be obscured by the protective tape; the tape may be partially removed to properly identify the terminals if needed. The negative terminal can also be identified by the harness socket next to it.

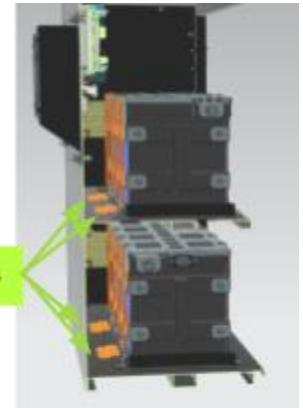


3. Slide one battery module on the bottom shelf of the enclosure, with the Positive terminal on the RIGHT side of the box. This will position the terminals toward the back of the enclosure. This will be Battery Module 2.
4. Slide the other battery module on the upper shelf of the box, with the positive terminal on the LEFT side of the box. This will position the terminals toward the front of the enclosure. This will be Battery Module 1.

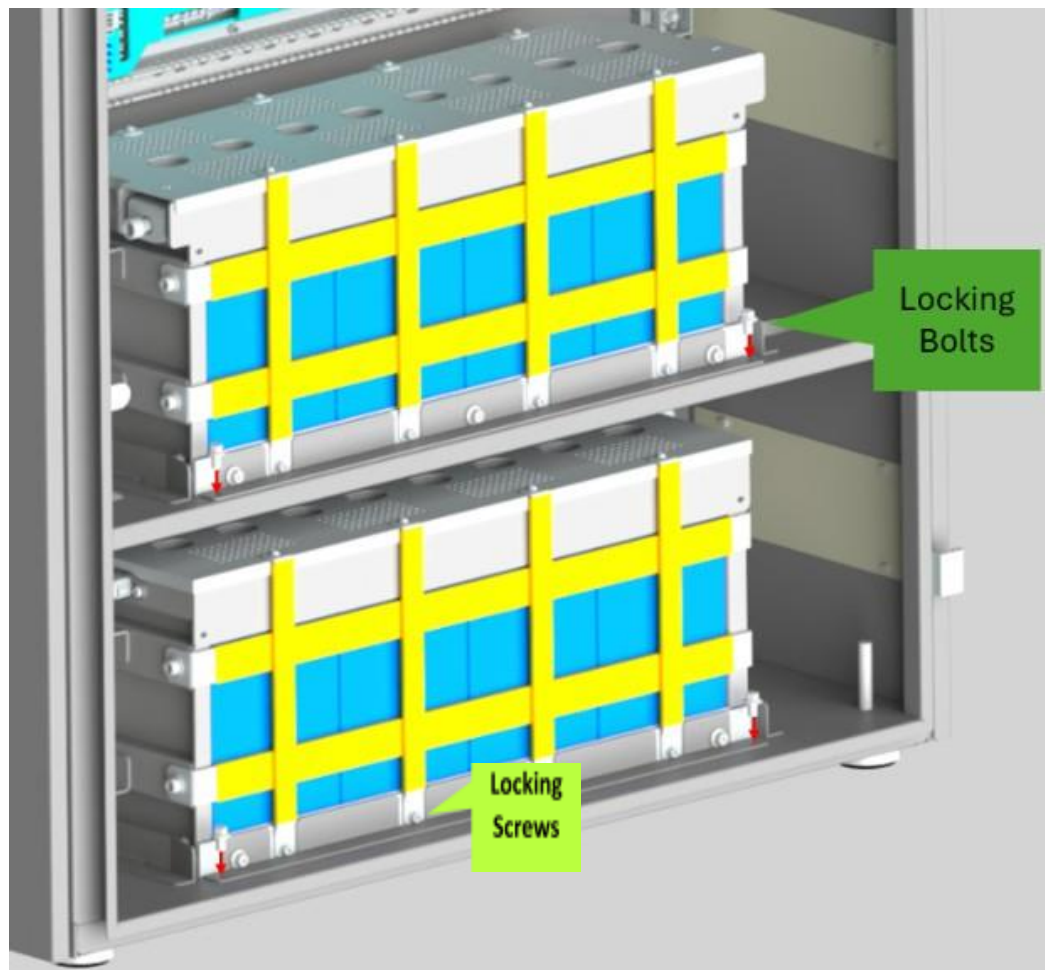


Note: The battery module's back locking bracket will slide under the enclosure's Module Holding Tabs

Module Holding Tabs



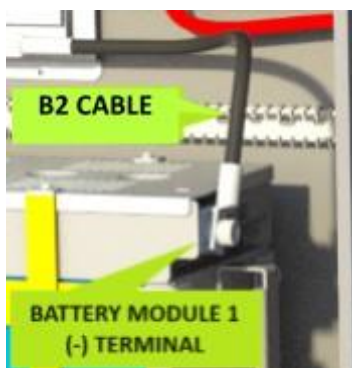
5. Locate the four nuts and screws for each battery module and align the Module Locking Brackets to the predrilled holes. Secure the battery module with its Module Locking Brackets using the 4x M8 screws with a Phillips head P3 screwdriver or a 12mm socket driver.



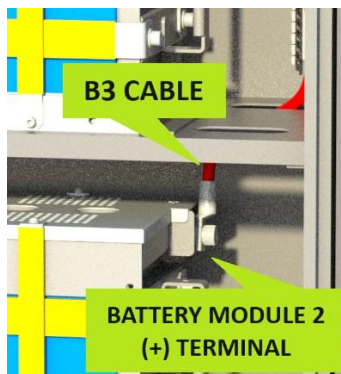
(d) ESS Battery Enclosure Wiring

	DANGER	The following section involves working with high current electrical connections. Failure to properly follow these steps could result in shock, injury, or death; extreme damage to the equipment may also occur. Never touch a positive wire or terminal at the same time as a negative wire or terminal or allow positive and negative wires/terminals to come in contact.
---	---------------	---

1. Identify the cable marked B2; Locate three M4 screws and securely screw the B2 long cable lug onto the three BMS (B-) mounts, located on the lower right side of the BMS board. Remove the M12 screw using 10mm Allen key from the negative (-) terminal of Battery Module 1; attach the B1 cable lug onto the screw, then reattach it to the battery terminal and torque M12 screw to 50Nm [36.8 ft*lb].



2. Identify the cable marked B3; Remove the M10 nut from the Fuse holder and attach B3 cable lug labeled DC Fuse and secure tightly to DC fuse. Then route the B3 cable down to the Battery Module 2 compartment through the inner slotted hole. Remove the M12 screw using 10mm Allen key from the positive (+) terminal of Battery Module 2; attach the B3 cable lug onto the screw, then reattach it to the battery terminal and torque M12 screw to 50Nm [36.8 ft*lb].



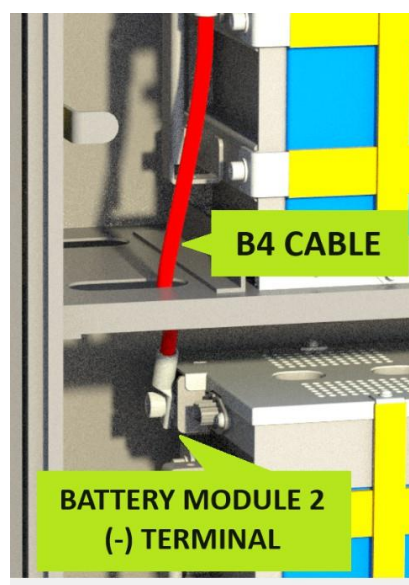
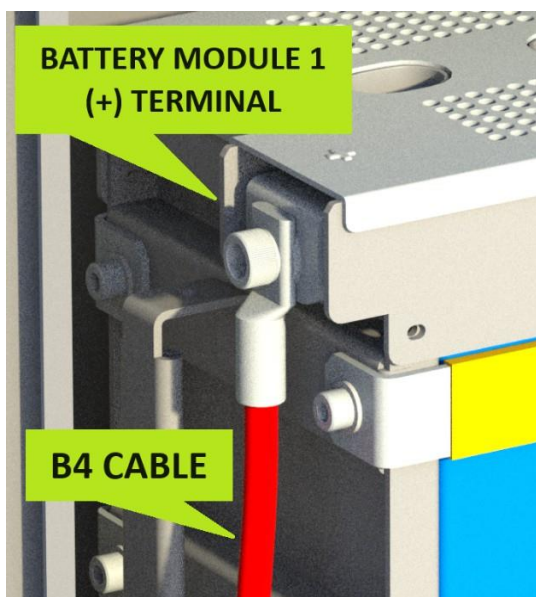
WARNING: Steps 3 and 4 below must be performed after steps 1 and 2.

	CAUTION	DO NOT connect battery cable B4 until after you have connected battery cables B2 and B3. When connecting the battery cables, always use an Insulated “L” shaped 10mm Allen wrench as shown below.  When disconnecting the battery cables, always remove battery cable B4 first before removing battery cables B2 and B3. Always use an Insulated “L” shaped 10mm Allen wrench when disconnecting the battery cables.
	CAUTION	The ESS Battery short circuit current and duration are 4,312A/185μS, and the incident energy due to a potential arc flash is calculated to be less than 0.7 cal/cm² at 18 inches. While the required PPE for the incident energy is Category 0 PPE, it is recommended that persons working on or performing maintenance on the ESS Battery wear Category 1 PPE and use insulated tool when working on or performing maintenance on the ESS Battery.

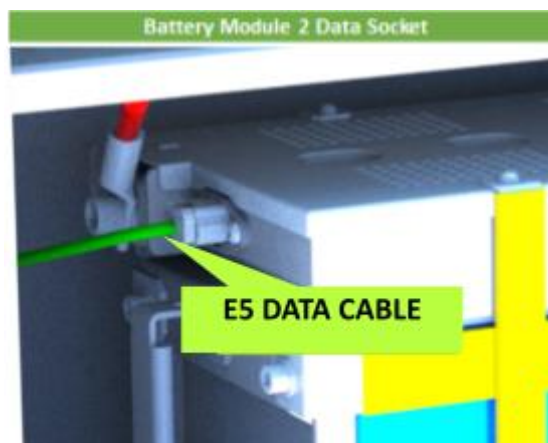
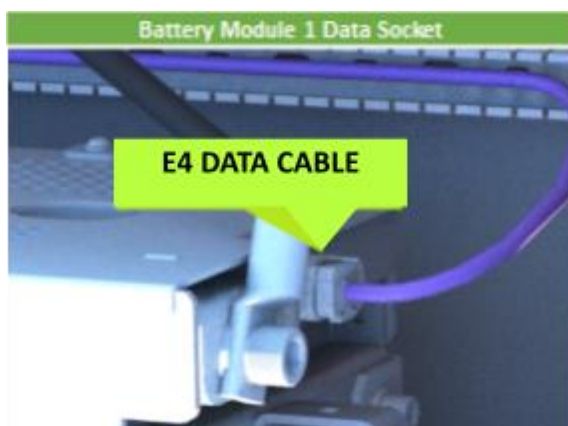
 WARNING	
ARC FLASH AND SHOCK HAZARD	
FLASH PROTECTION ≤1.2 cal/cm² Flash Hazard at 18 Inches Flash Protection Boundary 18 inches Available Fault Current 4312A / 185μs <i>(WHEN ESS BATTERY DOOR OPEN)</i>	SHOCK PROTECTION ≤58.4 VDC Glove Class 0 Limited Aprch. Boundary 42 inches Restricted Aprch. Boundary 12 inches <i>(WHEN ESS BATTERY DOOR OPEN)</i>
Recommended PPE for Flash and Shock: Nonmelting Materials with Weight ≥ 4.5 oz/sq yd (long sleeve) Safety Glasses or Goggles, Hard Hat, Hearing protection, Rubber Insulating Gloves as Required, Leather Gloves (as needed), Leather Work Shoes (EH)	
MeterHome Multi-Part AC ESS Model: MH-1010143E	

- Identify the cable marked B4. Remove the M12 screw from the positive (+) terminal of Battery Module 1; attach the B4 cable lug labeled “+ Bat 1” onto the screw, then reattach it to the battery terminal and torque M12 screw to 50 Nm [36.8 ft*lb].

4. Thread the other end of the B4 cable through the front passthrough hole in the shelf; remove the M12 screw from the negative (-) terminal of Battery Module 2; attach the B4 cable lug labeled “- Bat 2” onto the screw, then reattach it to the battery terminal and torque M12 screw to 50 Nm [36.8 ft*lb].



5. Identify the sensor cables marked E4 and E5 and plug them into their corresponding modules. The shorter E4 cable, which is routed to the right in the cable tray, is plugged into Module 1 (top module) with its connector facing the right side. The longer E5 cable is routed to the left of the cable trays and is plugged into Module 2 (bottom module) with its connector facing the left.

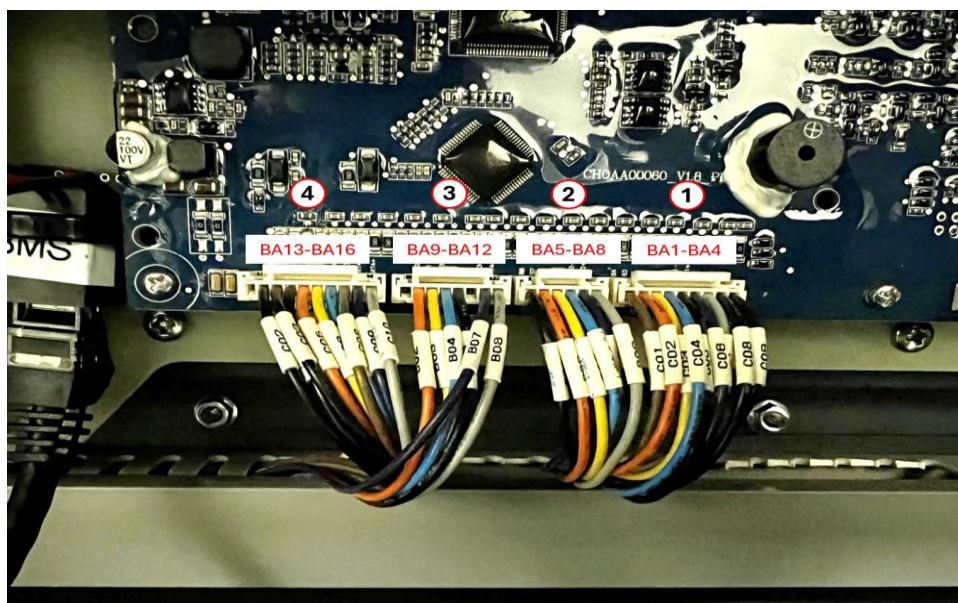


WARNING: Step 6 below must be followed in stepwise order, to prevent damage to the BMS board.

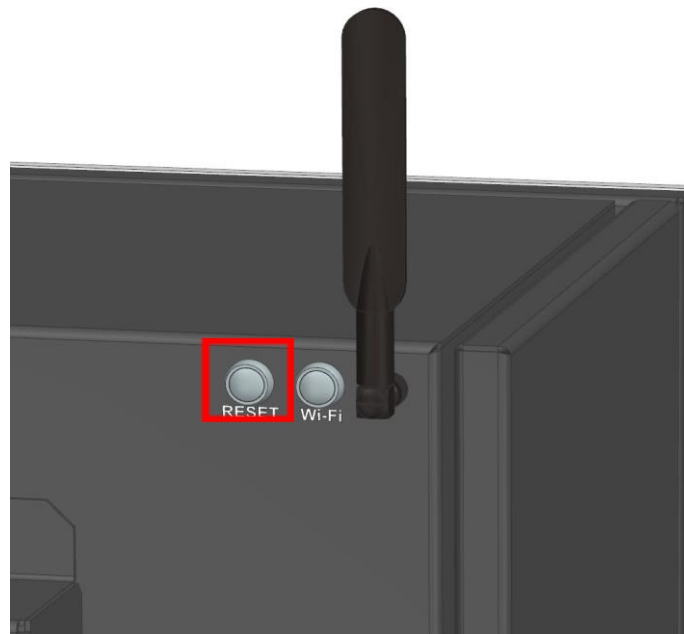
	CAUTION	DO NOT plug in Connectors no 1-4 until all of the installation steps are complete, and the full system is ready to be turned-on.
---	----------------	---

6. Identify the two white connectors on Module 1's E4 cable. First connect the 9-Pin Female connector labeled with C01-C09 into the BA1-4 Male connector on the BMS. Next, connect the 6-Pin female connector labeled with B01-B06 into the BA5-8 Male connector on the BMS.

Then Identify the two white connectors on Module 2's E5 cable. First connect the 8-Pin Female connector labeled with B02-B08 into the BA9-12 Male connector on the BMS. Finally, connect the 10-Pin female connector labeled with C02-C10 into the BA13-16 Male connector on the BMS.



Note: When BA13-BA16 is plugged into the BMS system, the BMS will automatically turn-on. Turn-off the BMS until it is ready for commission by pressing and holding the reset button on the back of the enclosure (furthest away from the Wi-Fi Antenna) for 5 seconds. Once you see the flashing LED lights you can release the button.



Note: When disconnecting connectors from the BMS, disconnect in reverse order starting from BA13-BA16, then BA9-BA12, then BA5-BA8, and finally BA1-BA4.

Note: The Energy Storage System (ESS) and its Battery Management System (BMS) have been evaluated by Intertek and found to comply with the requirements of Annex H of UL 60730-1:2016 Ed.5+R:18Oct2021. The results of the evaluation are documented in Intertek Test Report UL 60730-1, Automatic Electrical Controls, Report No. 240200123TPE-001. The BMS provides active monitoring, keeping track of the temperature, current, and voltage of the battery modules and battery cells. When the detected values exceed the specified range, the BMS MOSFETs used to cut off the main circuit are activated and stop the battery modules from being charged or discharged. As documented in the report, the control functions of the BMS comply with Class B as defined in Annex H of UL 60730-1.

(e) ESS Battery/ESS Inverter Connections

	DANGER	The following section involves working with high current electrical connections. Failure to properly follow these steps could result in shock, injury, or death; extreme damage to the equipment may also occur. Never touch a positive wire or terminal at the same time as a negative wire or terminal or allow positive and negative wires/terminals to come in contact.
---	---------------	--

WARNING: Never work on the ESS Inverter or the ESS battery when the ESS Inverter is energized. When working on the ESS Battery, battery power cable B4 should be disconnected from the battery modules.

	CAUTION	<u>DO NOT</u> work on the ESS Inverter or the ESS battery when the ESS Inverter is energized. When working on the ESS Battery, battery power cable B4 should be disconnected from the battery modules. When connecting or disconnecting the battery power cables, always use an Insulated “L” shaped 10mm Allen wrench as shown below. 
---	----------------	--

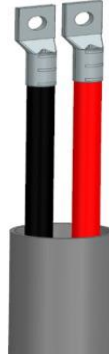
The following cables are recommended to connect the ESS Battery to the ESS Inverter. Cables A1 and A2 will facilitate the power connections between the battery box and the inverter. These cables should already be threaded into the wire conduit. Connect the corresponding DC power cables to their corresponding positive and negative inverter terminals prior to attaching the free end of the Power Conduit to the inverter housing.

	Cable A1 – Negative (-) Battery DC Power (1.2m) 1/0 AWG; Compression Lugs for M12 Screws
	Cable A2 – Positive (+) Battery DC Power (1.2m) 1/0 AWG; Compression Lugs for M12 Screws
	Cable E3 – BMS communication (to be fabricated by installer (1.6m)) CAT6/RJ45 Shielded

Cable E3 will facilitate the data connection between the ESS Battery and the ESS Inverter. For ease of installation, this cable may be pulled into the lower inverter compartment and connected to the BMS port prior to attaching the free end of the Data Conduit to the inverter housing.

The steps below describe connecting the ESS Battery to the ESS Inverter.

1. Identify Cables A1 and A2. Thread both cables through the Power Conduit, ensuring the ends marked INVERTER are all together. [Fig 5.20 photo: two cables threaded through the conduit correctly]

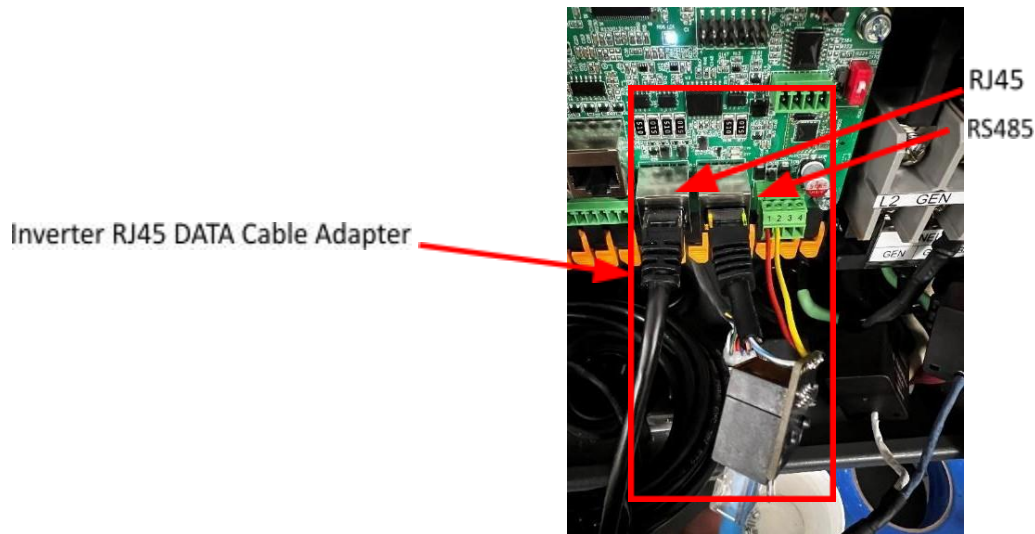


2. Identify Cable **E3**.
3. Open the inverter door; remove the inner faceplate to access the electrical connection terminals. [Fig 5.21 photos: door open, removing faceplate screws; connection terminals exposed]. For more details, refer to MeterHome™ ESS Inverter User Manual (Appendix I)

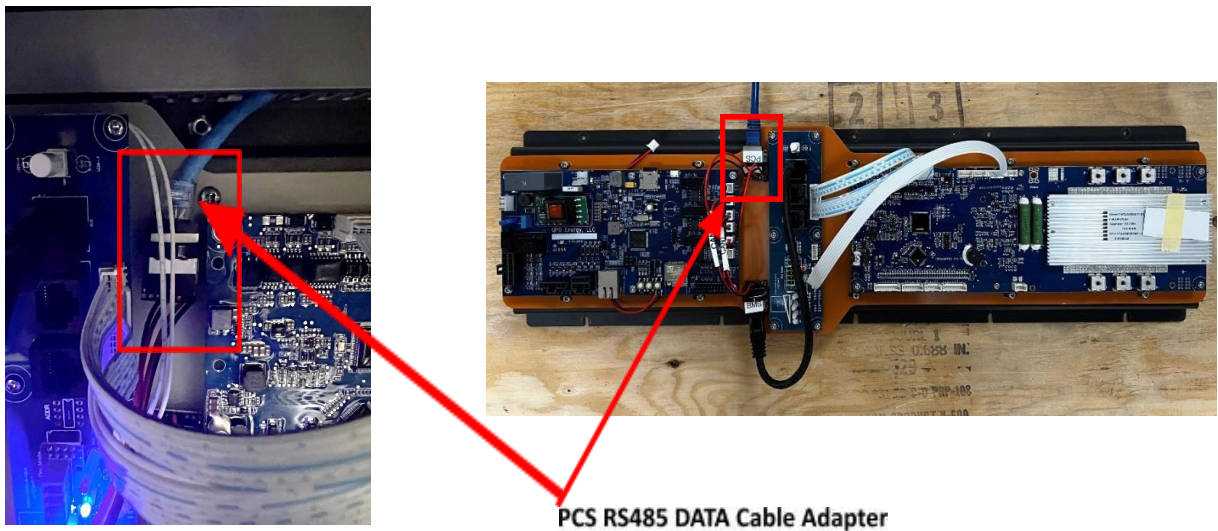


4. Identify the large opening marked BAT on the underside of the inverter. Remove the gland cover and the nuts on the battery terminals with the 13mm socket wrench. Note: there are two glands for the battery (marked + and -), but only one is needed to facilitate the battery connections.
5. Thread the A1 and A2 cables into their conduit connector and through the BAT opening of the inverter terminal connection box. Cut the A1 and A2 cables to length needed to reach the BAT+ and BAT- Terminals of the inverter and crimp on the lugs, included in the kit.
6. Attach the A1 cable to the negative battery terminal, replace the nut and secure tightly. Attach the A2 cable to the positive battery terminal, replace the nut and secure tightly. [Fig 5.23 photos: bolting down A1 and A2]

7. Plug the E3 CAT6 cable into the PCS RJ45 DATA Cable Adapter shown below on the BMS + Comm Assembly
8. Attach the Inverter RJ45 DATA Cable Adapter to the inverter via its male RJ45 plug (ethernet) and RS485 plug (green plug) as shown below



9. Route the other end of the E3 CAT6 cable through its own data conduit into the inverter and connect to the Inverter RS485 DATA Cable Adapter inside the inverter

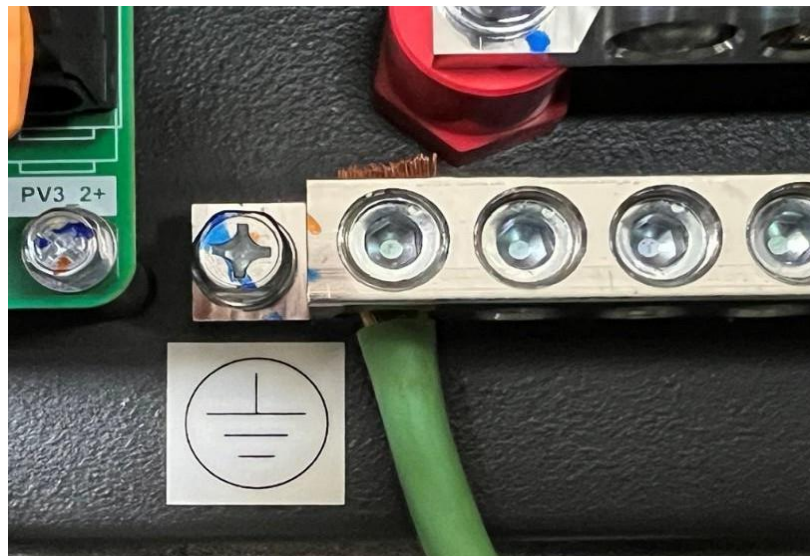


(f) Bonding the ESS Battery to the ESS Inverter

1. Bond the ESS Battery enclosure to the ESS Inverter using at least #6 AWG UL Listed cable. Attach one end of the bonding cable (recommend crimping on a compression lug for ¼" screw) to the grounding bar in the top left corner of the ESS Battery enclosure, as shown in the photo below.



2. Route the bonding wire through the power conduit with the DC Bat+ (A1) and DC Bat- (A2) cables.
3. Connect the other end of the bonding cable to the grounding bar in the bottom compartment of the ESS Inverter as shown below.



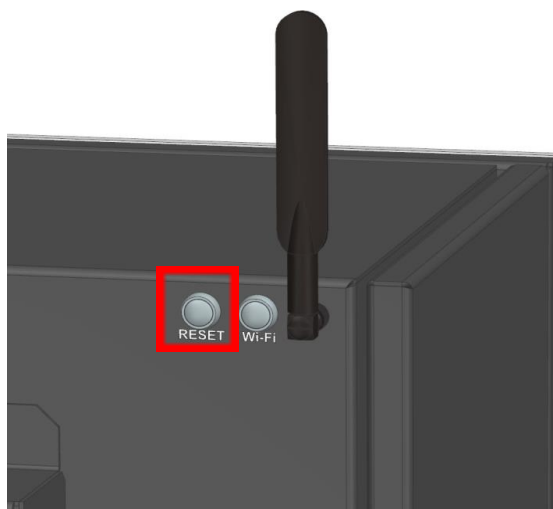
11. System Startup and Commissioning

(a) System Startup

1. If the BMS is powered off (no LEDs on), power-on the BMS by pressing and holding the reset button on the back of the enclosure (furthest away from the Wi-Fi Antenna) for at least 5 seconds. Once you see the flashing LED lights you can release the button. The four blue LED lights will flash and some or all will turn solid (i.e., the number of solid LED lights turned-on shows the current state of charge of the battery).

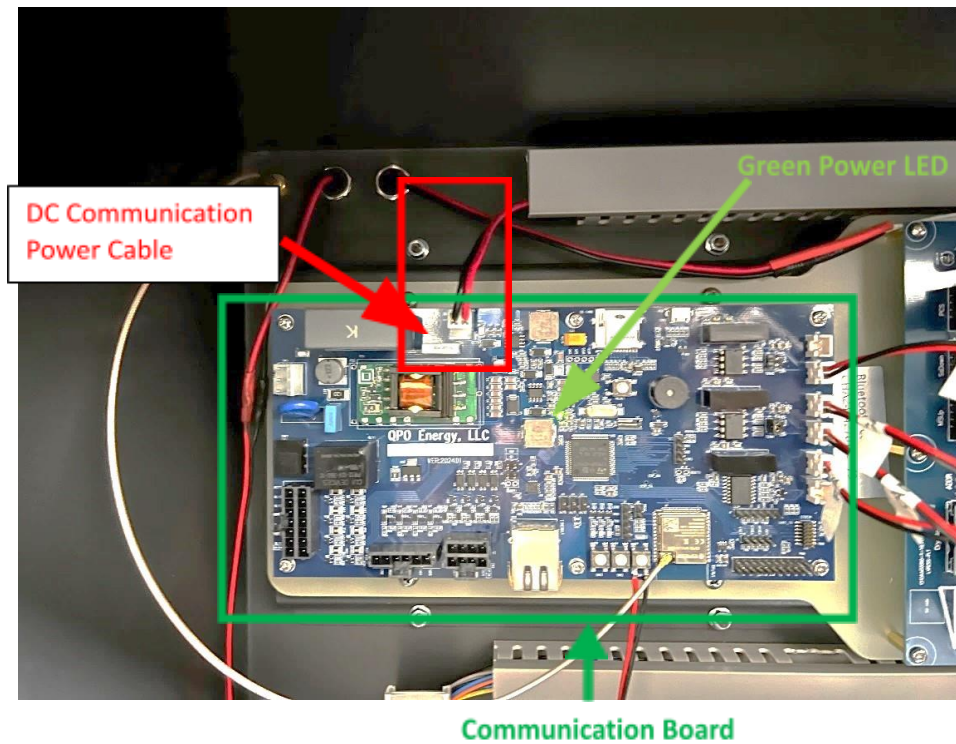


Blue and Green Lights on the Communication Adapter Board Indication the BMS is Turned-On



Reset Button used to turn-on and turn-off the BMS

2. Once the BMS is on, you can turn on the Communication board by plugging in the DC communication power cable, which you can find tucked in the top cable tray in the top left corner of the ESS Battery enclosure as shown below.



3. Once the DC communication power cable is plugged in, you are ready to start the commissioning process in Section9(b) below.

(b) Commissioning the MeterHome™ ESS

Download and install the “MeterHome” and the “SolarHope” app from the Apple store or the Google Play store.

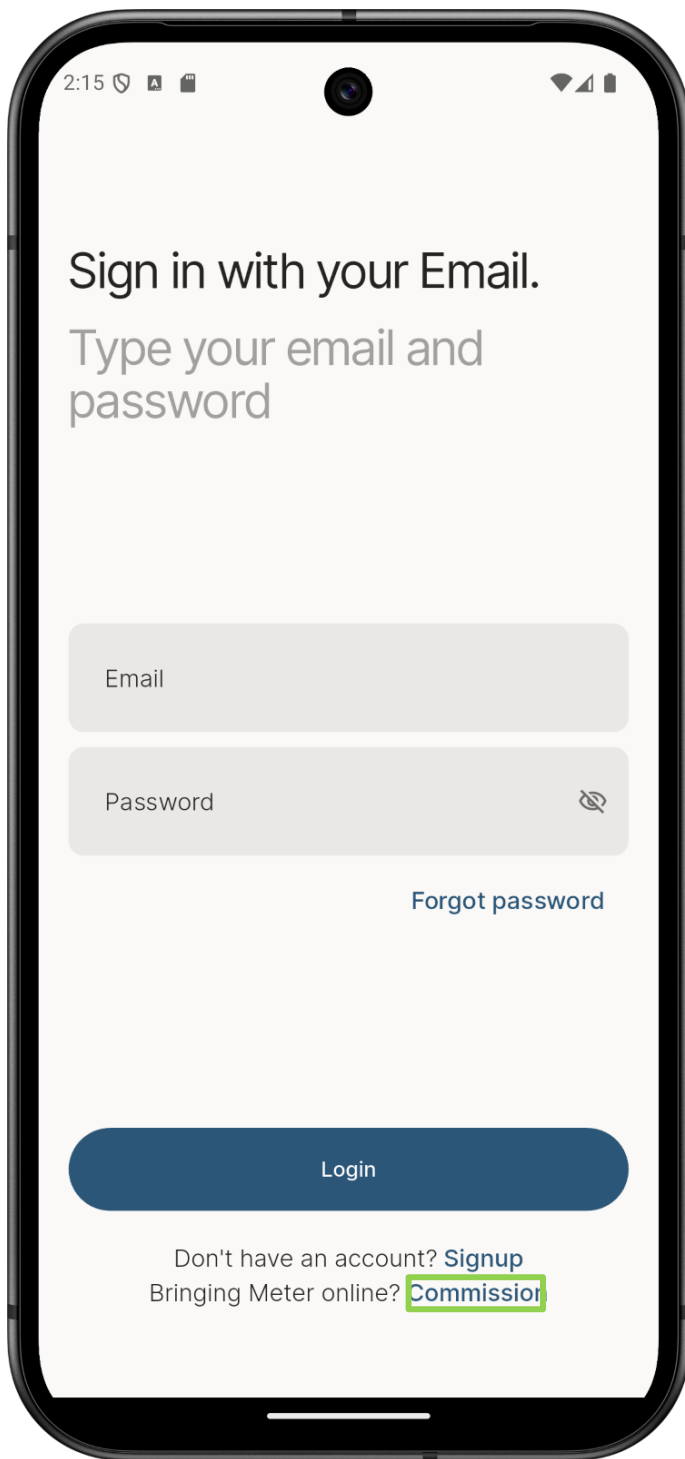
IOS App Store: [Download on The App Store](#)



Google play Store: [Download on The Google Store](#)



The commissioning setup is only done the first time the ESS is set up. When you reach the Login page, select Bring Meter Online “**commission**”.

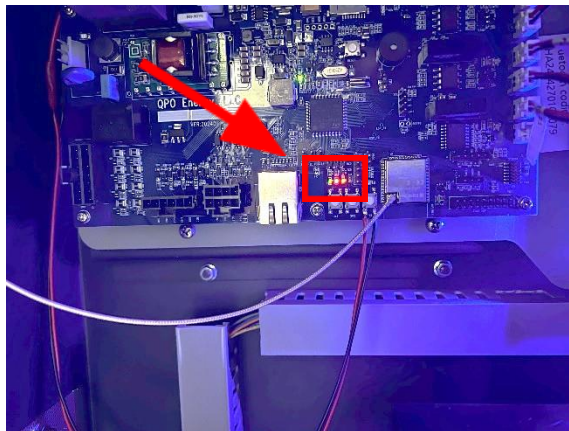
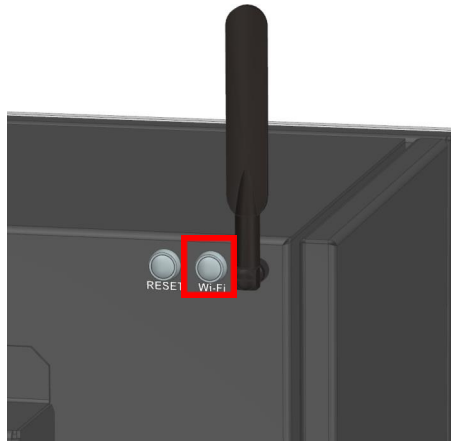


When you reach the add meter battery screen, click continue and scan the QR code on the left side of

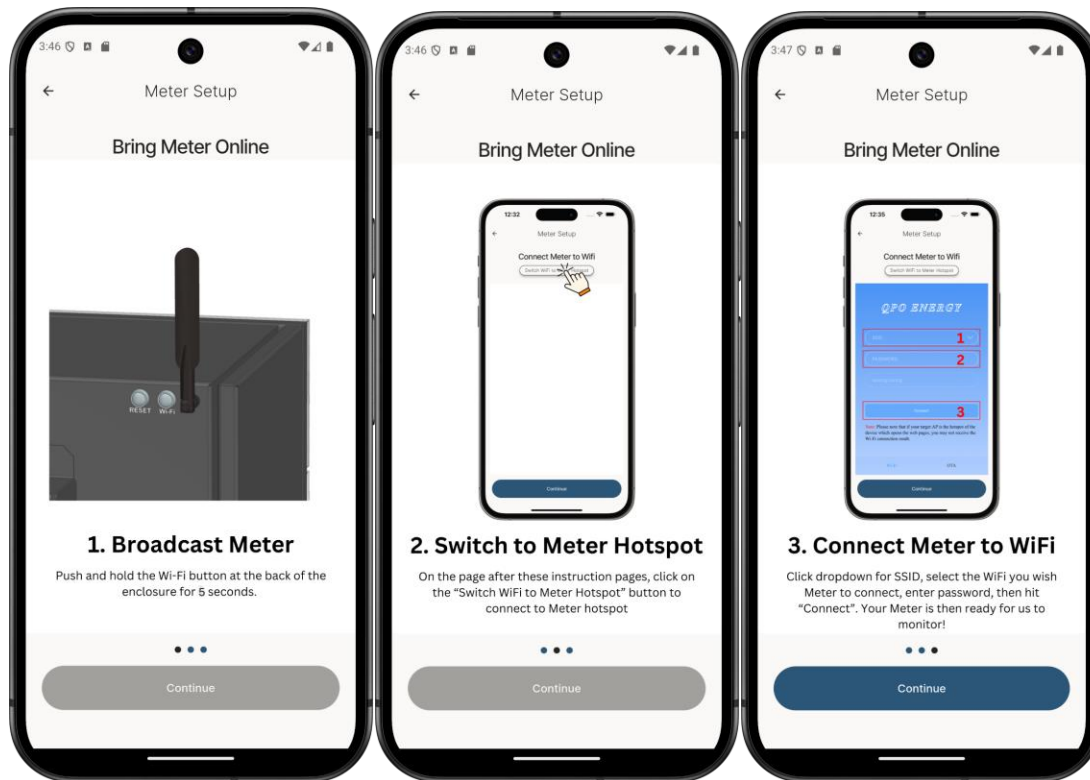
the enclosure under the removable panel.

4. Connect the Communication Board to the Wi-Fi:

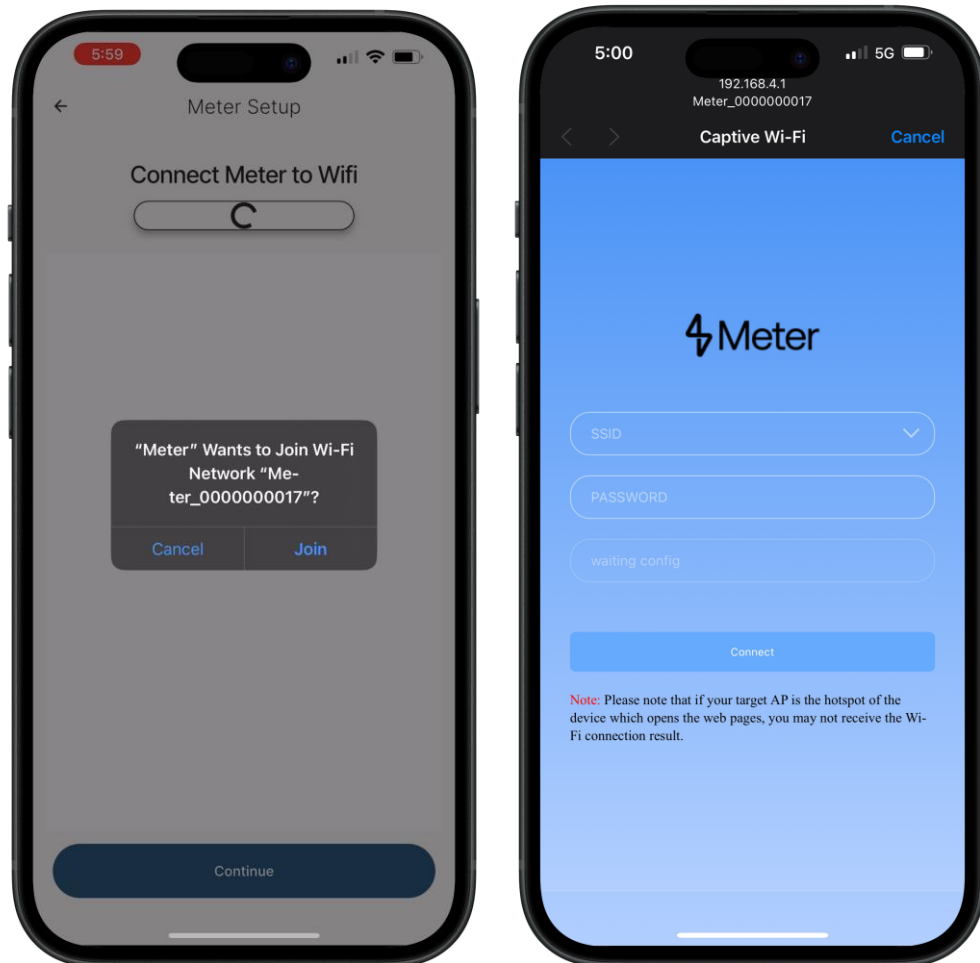
- a. Press and hold the Wi-Fi button on the back of the enclosure (closest to the Wi-Fi antenna) until the green, red, and orange LED lights turn on

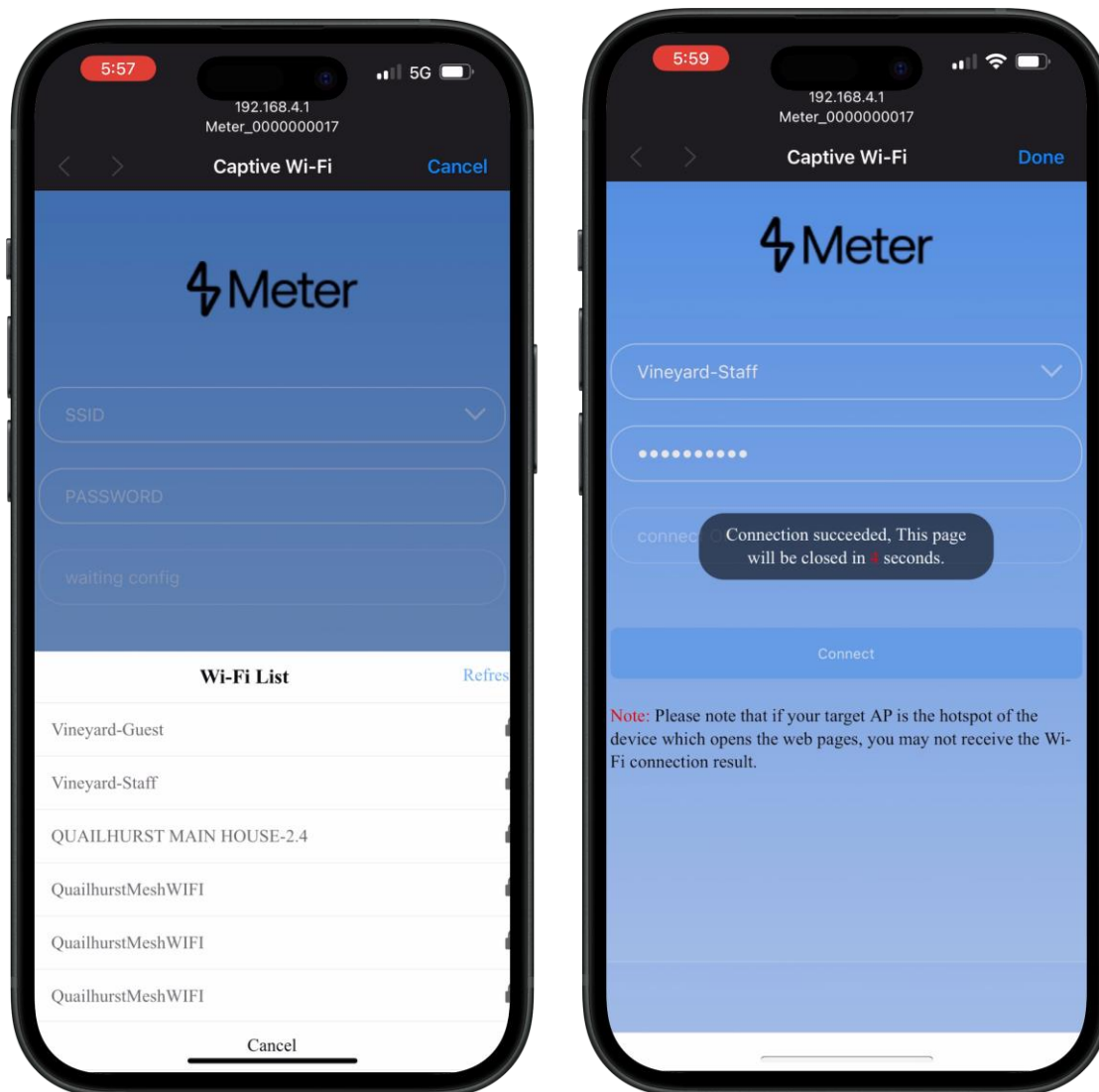


- b. Via a laptop or mobile device connect to the Wi-Fi signal that the communication board is broadcasting as shown below.



- c. On your mobile app select switch WiFi to Meter Hotspot or alternatively in your browser URL search 192.168.4.1, this will bring up the page shown below. Select your home Wi-Fi network and enter your Wi-Fi password to connect the communication board to your home Wi-Fi. Once connected it will indicate “connect ok” and automatically close the site. The three LED lights will also turn off at this point.





Select your WiFi network. Type your password and hit connect. When you see the connection successful text the unit is connected.

5. Your ESS is now ready to be used. At this point, please call the Support Line at (+1)(866) 846-7416 and report the installation and commissioning of your ESS to the after-sales service technician and the UID of the unit.
6. Once you have reported the installation and commissioning of the ESS, you may use the Meter and/or SolarHope Apps on your smartphone to set how the ESS operates. See Appendix D, ESS Inverter Working Modes, for more information on how to set the

(c) Controlling the ESS Using the Smartphone User Interface App

1 User Interface APP

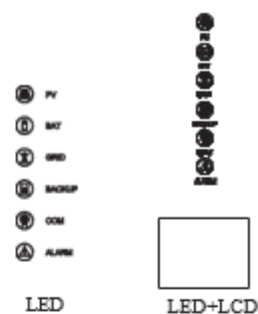
1.1 LED/LCD

1.1.1 LED Introduction

This section describes LED indicators, which include PV, BAT, GRID, BACKUP, COM, ALARM indicators.

The table below explains the status and description of all indicators.

Please read it carefully.



LED Indicator	Status	Description
PV	On	PV input is normal.
	Blink	PV input is abnormal.
	Off	PV is unavailable.
BAT	On	Battery is <u>charging</u> .
	Blink	Battery is <u>discharging</u> . Battery is abnormal.
	Off	Battery is unavailable.
GRID	On	GRID is available and normal.
	Blink	GRID is available and abnormal.
	Off	GRID is unavailable.
COM	Blink	Data <u>are</u> 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 <u>inverter</u> shuts down.
	Blink	Alarms have occurred but <u>inverter</u> doesn't shut down.
	Off	No fault.

Details	Code	PV LED	Grid LED	BAT LED	BACKUP LED	COM LED	ALARM LED
PV normal		●	⊙	⊙	⊙	⊙	○
No PV		○	⊙	⊙	⊙	⊙	○
PV over voltage	B0						
PV under voltage	B4						
PV irradiation weak	B5	★	⊙	⊙	⊙	⊙	○
PV string reverse	B7						
PV string abnormal	B3						
On grid		⊙	●	⊙	⊙	⊙	○
Bypass output							
Grid absent	A2	⊙	○	⊙	⊙	⊙	○
Grid over voltage	A0						
Grid under voltage	A1						
Grid over frequency	A3						
Grid under frequency	A4	⊙	★	⊙	⊙	⊙	○
Grid abnormal	A6						
Grid over mean voltage	A7						
Neutral live wire reversed	A8						
Battery in charge		⊙	⊙	●	⊙	⊙	○
Battery unavailable		⊙	⊙	○	⊙	⊙	○
Battery absent	D1						
Battery in discharge		⊙	⊙	★★	⊙	⊙	○
Battery under voltage	D3						
Battery over voltage	D2						
Battery discharge over current	D4	⊙	⊙	★	⊙	⊙	○
Battery over temperature	D5						
Battery under temperature	D6						
Communication loss (Inverter - BMS)	D8						
BACKUP output active		⊙	⊙	⊙	●	⊙	⊙
BACKUP output inactive		⊙	⊙	⊙	○	⊙	⊙
BACKUP short circuit	DB						
BACKUP <u>over load</u>	DC						
BACKUP output voltage abnormal	D7	⊙	⊙	⊙	★	⊙	○
BACKUP over dc-bias voltage	CP						

Details	Code	PV LED	Grid LED	BAT LED	BACKUP LED	COM LED	ALARM LED
RS485/DB9/BLE/USB		⊙	⊙	⊙	⊙	★	⊙
Inverter over temperature	C5						
Fan abnormal	C8						
Inverter in power limit state	CL						
Data logger lost	CH	⊙	⊙	⊙	⊙	⊙	★
Meter lost	CJ						
Remote off	CN						
PV insulation abnormal	B1						
Leakage current abnormal	B2						
Internal power supply abnormal	C0						
Inverter over dc-bias current	C2						
Inverter relay abnormal	C3						
GFCI abnormal	C6						
System type error	C7						
Unbalance Dc-link voltage	C9						
Dc-link over voltage	CA	⊙	⊙	⊙	⊙	⊙	●
Internal communication error	CB						
Internal communication loss(E-M)	D9						
Internal communication loss(M-D)	DA						
Software incompatibility	CC						
Internal storage error	CD						
Data inconsistency	CE						
Inverter abnormal	CF						
Boost abnormal	CG						
Dc-dc abnormal	CU						

Remark: ● Light on ○ Light off ⊙ Keep original status
 ★ Blink 1s and off 1s ★★ Blink 2s and off 2s

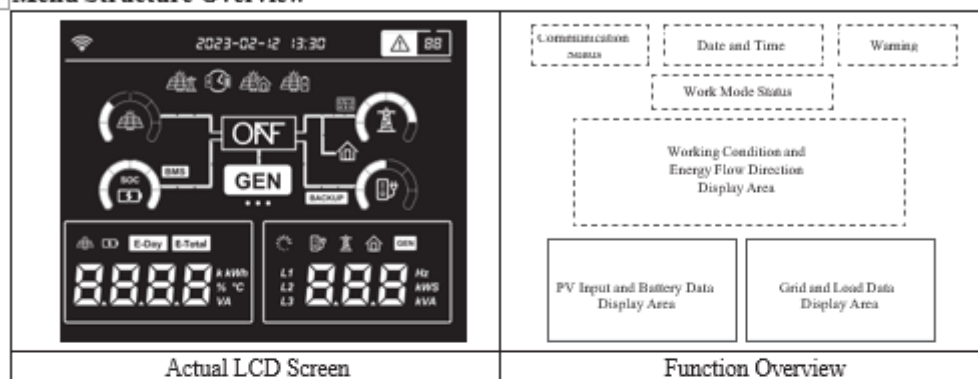
1.1.2 LCD Introduction

An LCD screen is optional for this series of inverters. If you choose the LCD screen, the following introduction will help you understand the function of each icon displayed.

Note:

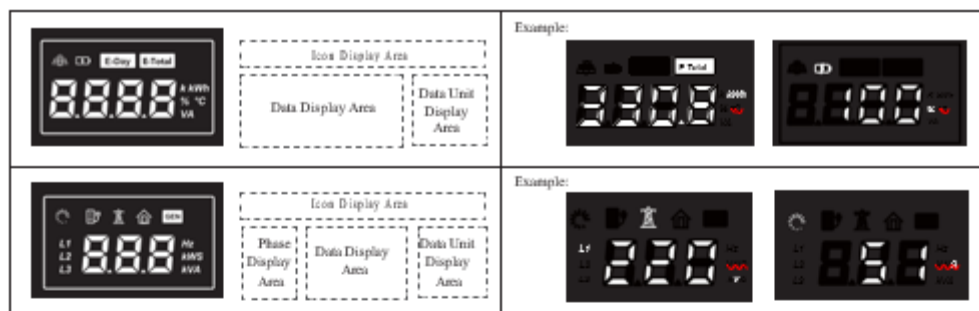
The LCD screen will be automatically turned off if there is no operation within 10 mins (which cannot be changed by default). You can tap the ON/OFF button on the side of inverter to wake up the LCD screen.

Menu Structure Overview



Icon Introduction-1

	This icon indicates WIFI connection status.
	The date and time display information of year, month, day, and hour-time. The ':' between hour and minute flashes once a second.
	Warning icon only displays when the error occurs. For specific warning code explanation, please refer to the chapter Inverter Troubleshooting.
	These four icons show different operating status . Please refer to chapter Inverter Working Mode for detailed introduction.
	This area shows the working conditions and energy flow directions . Please refer to Table Icon Status Description for detailed introduction of each icon displayed.
	The Energy Bars indicate energy flow direction. Each bar lights up one by one, then turns off when all bars light and repeats this cycle again.
	The Energy Ring indicates the battery SOC or the current power percentage. Each Energy Ring definition is as follows.
	PV Input Power
	Battery SOC
	Grid undervoltage
	On-Grid Mode: Grid Output Power
	Non-On-Grid Mode: Bypass load consumption power + Backup consumption power
	Backup
	Grid overvoltage



Icon Introduction-2

	The PV icon represents the power of PV.
	The Battery icon represents the current battery charge percentage or the voltage of <u>battery</u> .
	The E-Today icon represents the <u>electricity energy</u> generated today.
	The E-Total icon represents the <u>electricity energy</u> generated in total.
	When the Loading icon is on, it represents that the device is starting and the start timer countdown is displayed. The icon lights up a cluster of lights every second, until all <u>lights</u> are <u>on</u> , and then repeat the whole process again.
	The Back-Up icon represents the relevant power, frequency or voltage of Back-Up.
	The Grid icon represents the relevant power, frequency or voltage of the Grid.
	The Smart Load icon represents <u>the power</u> consumption.
	The GEN icon represents the voltage or power of generator.
	The L1 icon represents L1 phase of Grid/Backup/Generator. The L2 icon represents L2 phase of Grid/Backup/Generator. The L3 icon represents <u>L3</u> phase of Grid/Backup/Generator.
	These two areas will display corresponding data of each lit icon mentioned above.

Table: Icon Status Description

Icon Status Description			
Icon	Name	Light	Description
	PV	ON	Any PV voltage exists (it should be higher than the Min. PV Startup Voltage).
		OFF	PV Voltage is lower than the Min. PV Startup Voltage.
	Grid	ON	Grid Voltage and frequency are normal.
		OFF	Grid overvoltage / undervoltage / overfrequency / underfrequency occurs.
	Battery	ON	Bat. Voltage is higher than the Rated Min. Bat Voltage.
		OFF	Bat. Voltage is lower than the Rated Min. Bat Voltage.
	Back-Up Load	ON	Backup relay is on.
		OFF	Backup relay is off.
	BMS	ON	Battery is set to BMS Type and its communication is normal.
		Blink	BMS communication is abnormal.(The icon indicator on for one second, off for one second)
		OFF	1. Battery is not set to BMS Type. 2. Battery voltage is lower than Rated Min. Voltage
	BACKUP	ON/OFF	Lights up with Back-Up Load icon simultaneously
	Meter/CT	ON	Power Limit is set to CT or Meter in APP, and the CT/Meter communication is normal, the Grid side is running well.
		Blink	When Meter/CT communication is lost, Meter/CT icon on for one second, off for one second)
		OFF	1. Power Limit is not set to CT or Meter. 2. The voltage or frequency of grid side is abnormal.
	Load	ON/OFF	Lights up with Grid icon simultaneously.
	ON	ON	1. Backup relay is on. 2. The inverter works under On-Grid mode. 3. The inverter works under Off-Grid mode.
	OFF	OFF	Non-on working mode.
	Generator / Smart Load / Inverter	From left to right, when the three dots light up, each represents different meanings. When GEN communication is lost, GEN icon will go off.	
	GEN	ON	Generator relay is on.
		OFF	Generator relay is off.
	Generator dot	ON	In APP, the "Gen port" parameters set to "Generator Input" and the generator relay is powered on.
		OFF	APP parameter set to Non 'Generator Input'.
	Smart Load dot	ON	In APP, the "Gen port" parameters set to "Smart Load Output" and the generator relay is powered on.
		OFF	APP parameter set to Non 'Smart Load Output'.
	Inverter dot	ON	In APP, the "Gen port" parameters set to "Inverter Input" and the generator relay is powered on.
		OFF	APP parameter set to Non 'Inverter Input'.

1.2 App Setting Guide

1.2.1 Download App for Local Setting

- Scan the QR code on the inverter to download the App *SolarHope*.
- Download the APP from the App Store or Google Play.

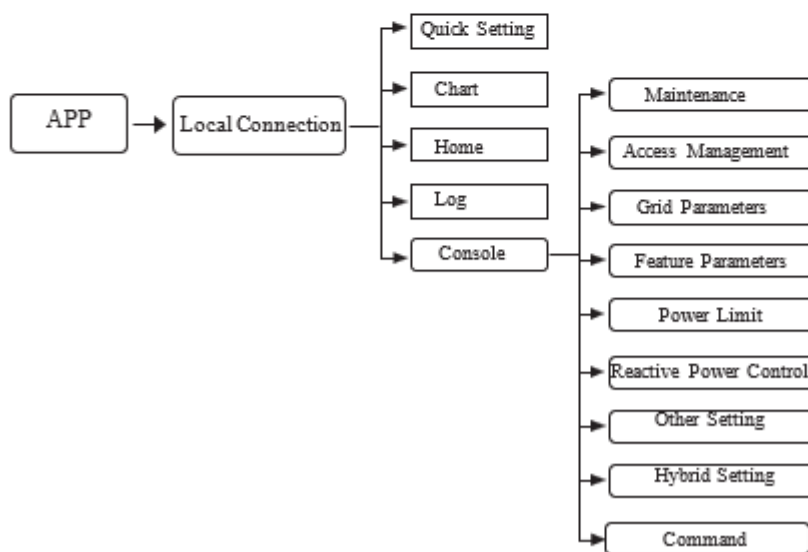


NOTE

1. The App *SolarHope* is only for local settings.
Detailed information about remote monitoring, please refer to corresponding WIFI User Manual.
2. The App should access some permissions such as the device's location. You need to grant all access rights in all pop-up windows when installing the App or setting your phone.

1.2.2 App Architecture

The App can read data from the inverter through the local Bluetooth connection, allowing you to check real-time data and customize the inverter within the App.



1.2.3 Local Setting

■ Access Permission

Before using the local setting, the APP should access some permissions. (You can allow them when you install the APP or grant permissions in your own phone setting.) When the APP asks for permission, please click Allow.

■ Connect Inverter

Firstly, open the [Bluetooth](#) on your own phone, then open the APP.

Click [Bluetooth Connection](#) to enter scanning interface. This page will list the inverters which you can [connect](#) or you have connected. (As shown below) click the inverter's name to connect it.



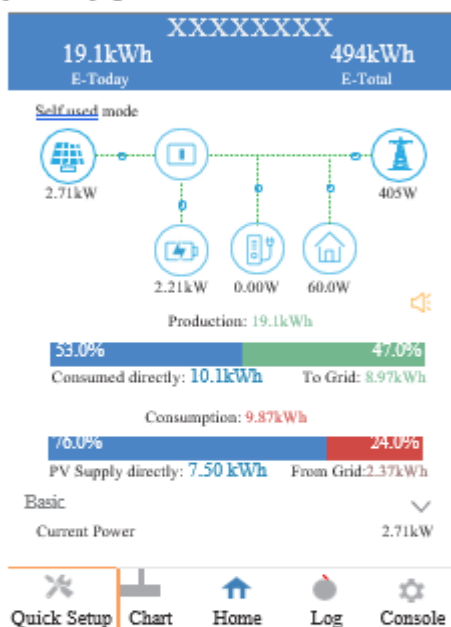
• Quick Setting

➤ Go to **Quick Setup** page.

Step 1 Set parameters for the inverter to connect to the power limit. Click each item to enter the information, then click **Next**.

Step 2 Set parameters for the inverter to connect to the workmode. Click each item to enter the information, then click **Next**. You can click **Previous** to go back to the previous page.

Step 3 Click the button below to turn on the inverter. You can click **Previous** to go back to the previous page.



Step 1 Set parameters for the inverter to connect to the power limit.

Power control

Meter location

Meter Type

Power flow direction

Digital meter address

Maximum feed in grid power(W)

Click each item to enter information.

Next

Step 2 Set parameters for the inverter to connect to the workmode.

Work mode

Battery Brand selection

Backup Output ☐

Click each item to enter information.

Previous

Next

Step 3 Please click the button below to turn on the inverter.

Previous

- **APP Power Chart**

The power chart is [showed](#) by Day, Month and Year in our APP. Data curves in the following figures are only for illustration.

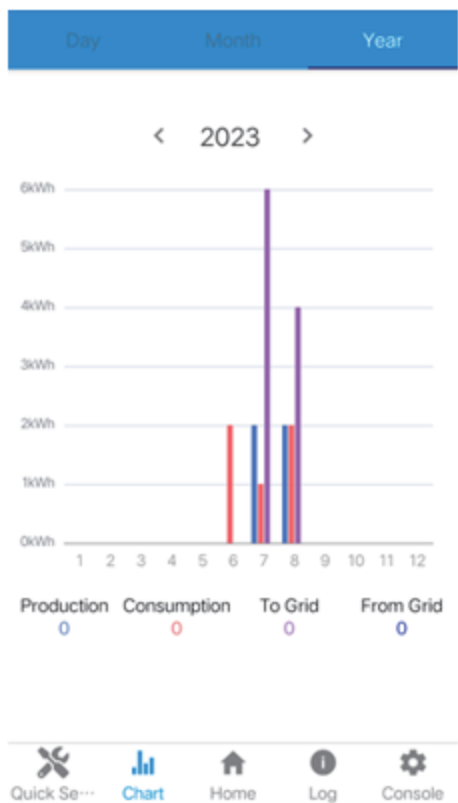
- **Day Chart**



► Month Chart

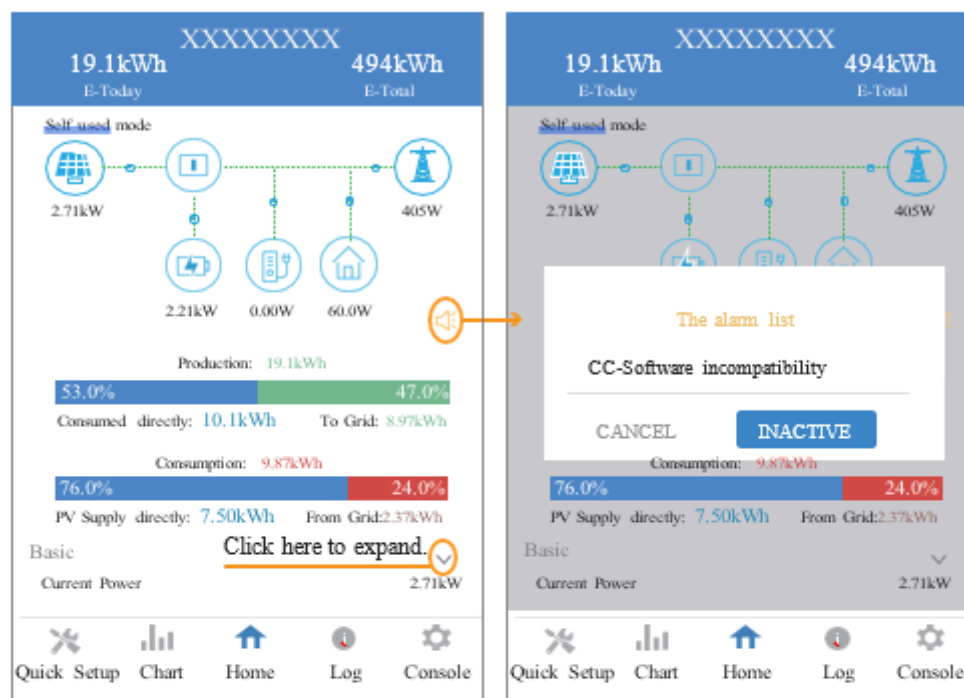


► Year Chart



• Local Setting Homepage

This page shows the basic information of inverter. Click  to display the warning message.



• History Log

Click **Log** at the bottom and then go to the history log page (as shown below). It contains all the logs for the inverter.



- **Console**

- **Maintenance**

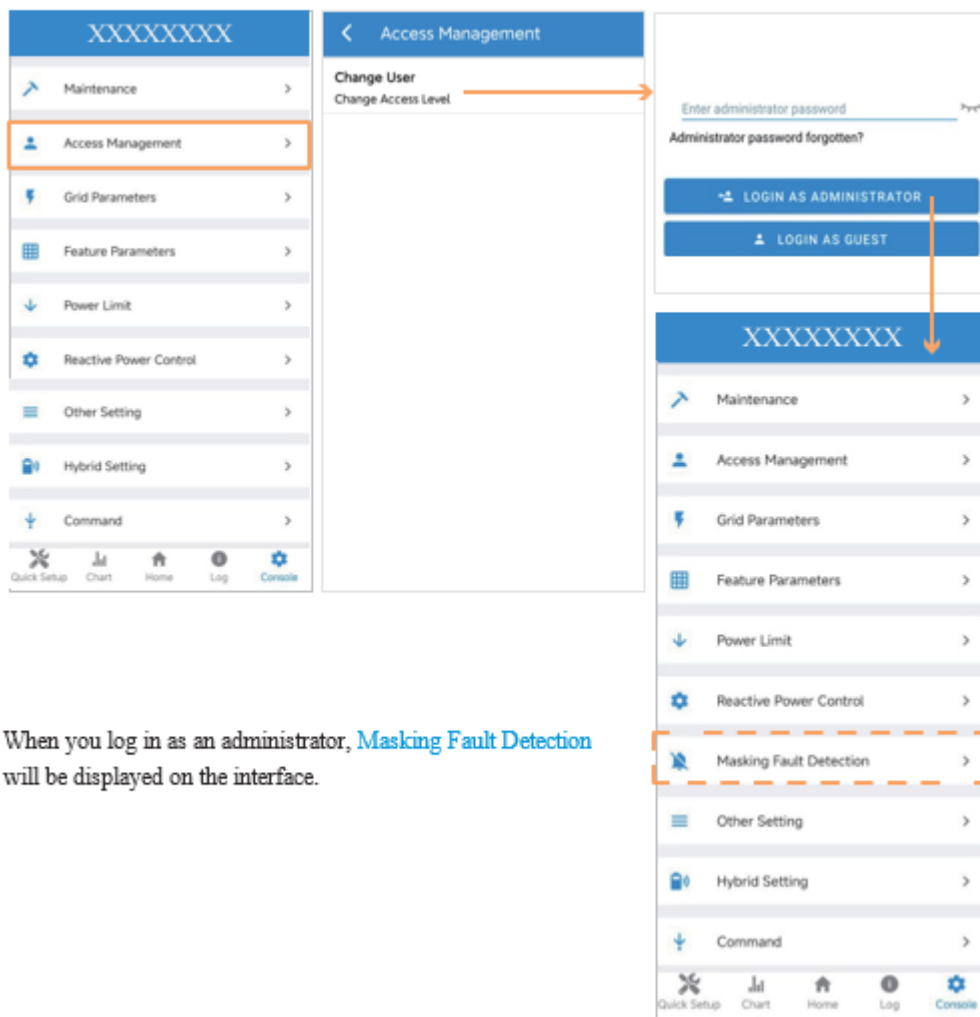
Go to **Console** page and click **Maintenance**. In this page, you can view the basic information including version information, do some maintaining operations like turn off/on the inverter and manage data.

The screenshot displays the MeterHome app interface. On the left, a summary card shows energy consumption: 'Consumed directly: 10.1kWh', 'To Grid: 8.93kWh', and 'Consumption: 9.87kWh'. It also displays 'PV Supply directly: 7.50kWh' and 'From Grid: 2.37kWh'. Below this, 'Current Power' is shown as 2.71kW. A navigation bar at the bottom includes icons for Quick Setup, Chart, Home, Log, and Console. The main screen is split into two panels. The left panel is a sidebar menu with the following items: Maintenance, Access Management, Grid Parameters, Feature Parameters, Power Limit, Reactive Power Control, Masking Fault Detection, Other Setting, Hybrid Setting, and Command. The right panel is the 'Maintenance' page, which contains sections for Basic information (Model Name, Serial number, Master DSP Version, Slave DSP Version, CSB Version, DC-DC converter Version), Maintaining (Power On, Power Off, Factory data reset, Clear historical information), Data Management (History export, Daily energy output, Monthly Energy Yield Export, Annual output), and About (App Version).

Maintenance	
Basic information	
Model Name	XXXXXXXXXX
Serial number	2307-178300000H
Master DSP Version	021201
Slave DSP Version	020000
CSB Version	021205
DC-DC converter Version	020000
Maintaining	
Power On	Turn on the inverter
Power Off	Turn off the inverter
Factory data reset	Parameters will be reset to factory data
Clear historical information	Clear historical information
Data Management	
History export	All device history will be exported to root directory
Daily energy output	The energy data will be exported to root directory
Monthly Energy Yield Export	The energy data will be exported to root directory
Annual output	The energy data will be exported to root directory
About	
App Version	6.11.0

► Access Management

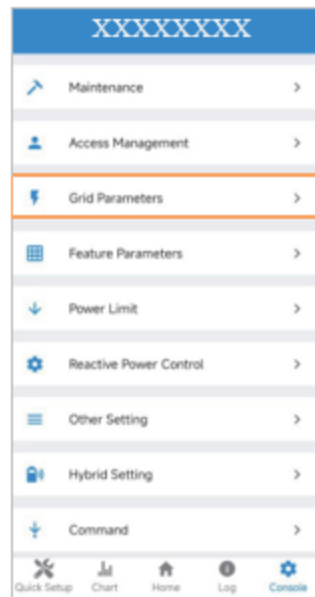
Go to [Console](#) > [Access Management](#) page. In this page, you can switch the login permission.



When you log in as an administrator, [Masking Fault Detection](#) will be displayed on the interface.

► Grid Parameters

Go to [Console](#) > [Grid Parameters](#) page. In this page, you can set or change the parameters of Grid side, as shown in the figure.



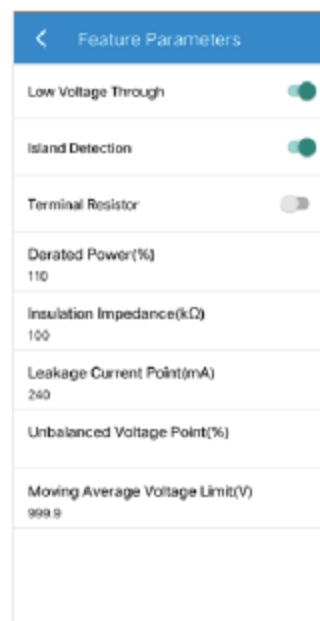
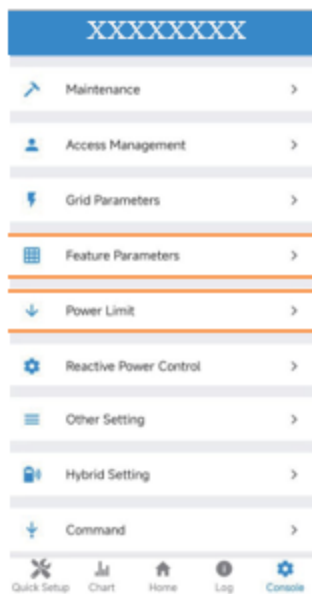
Grid Parameters	
Standard Code	IN (IEC61727)
First Connect Delay Time(s)	60
Reconnect Delay Time (s)	60
First Connect Power Gradient(%/min)	100
Reconnect Power Gradient(%/min)	100
Frequency High Loss Level_1(Hz)	51
Frequency Low loss Level_1(Hz)	49
Voltage High Loss Level_1(V)	253
Voltage Low Loss Level_1(V)	195.5
Frequency High Loss Time Level_1(ms)	100
Frequency Low loss Time Level_1(ms)	100
Voltage High Loss Time Level_1(ms)	200
Voltage Low Loss Time Level_1(ms)	200
Frequency High Loss Level_2(Hz)	99.9
Frequency Low Loss Level_2 (Hz)	10
Voltage High Loss Level_2(V)	310.5
Voltage Low Loss Level_2(V)	115
Frequency High Loss Time Level_2(ms)	65535
Frequency Low Loss Time Level_2(ms)	65535
Voltage High Loss Time Level_2(ms)	50
Voltage Low Loss Time Level_2(ms)	100
Over Frequency Derating Function	☒
Over Frequency Power Reduction Droop(%)	5
Grid Over Frequency de-rating Start Point(Hz)	50.2
Over Frequency Derating Reference Power	base on current power
Over Voltage Derating	☒

► Feature Parameters

Go to [Console](#) > [Feature Parameters](#) page. In this page, you can set or change the feature parameters, as shown in the figure.

► Power Limit

Go to [Console](#) > [Power Limit](#) page. In this page, you can set or change the parameters of power limit, as shown in the figure.

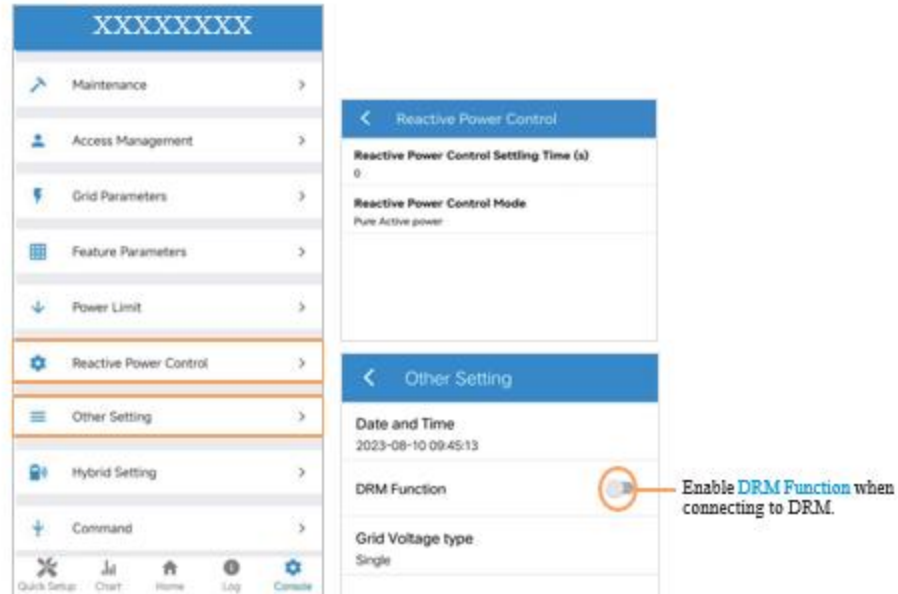


► **Reactive Power Control**

Go to [Console > Reactive Power Control](#) page. In this page, you can set or change the Reactive Power Control parameters.

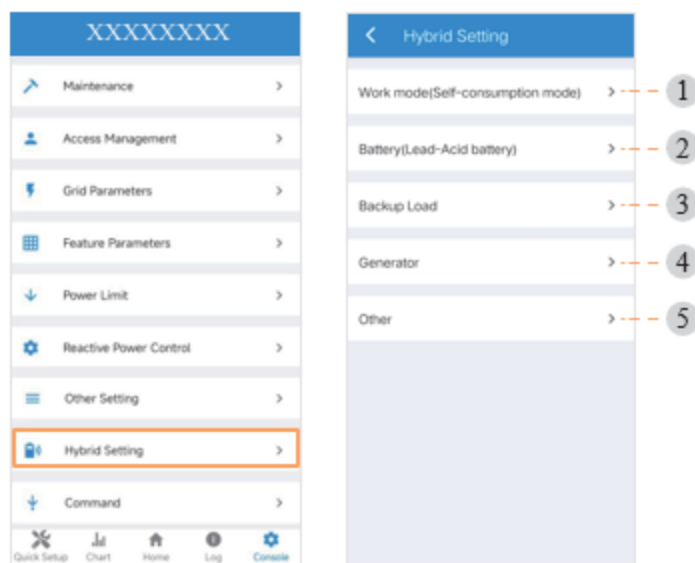
► **Other Setting**

Go to [Console > Other Setting](#) page. In this page, you can set other setting parameters.

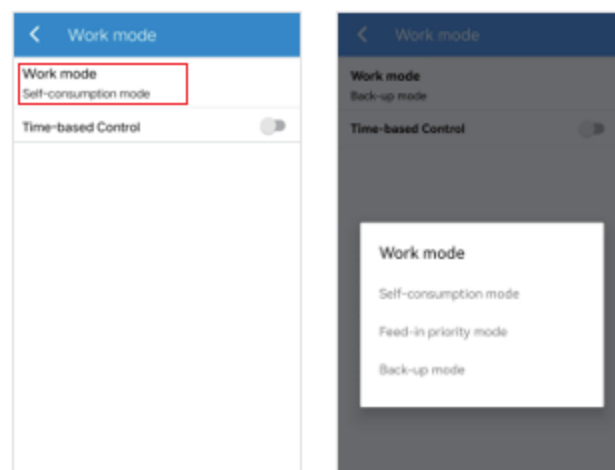


► Hybrid Setting

Go to **Console > Hybrid Setting** page. In this page, you can set contents about work mode, battery, backup Load, generator and other. The setting interfaces are listed one by one.

**1 Work mode**

In **Work mode** page, there are four work modes are available.



In [Work mode](#) page, you can also find “Time-based Control” function. This function is designed to control the time setting of charging and discharging the inverter. You can set the following parameters based on your requirements:

- Charge and discharge frequency: one time or daily
- Charging start time: 0 to 24 hours
- Charging end time: 0 to 24 hours
- Discharge start time: 0 to 24 hours
- Discharge end time: 0 to 24 hours



2 Battery

In **Battery** page, information including battery parameters, charging and discharging management and grid will be listed. Enter corresponding information if necessary.

< Battery	
Battery parameters	
Battery Brand selection	Lead-Acid battery
Battery(Ah)	260
Stop charge voltage(V)	53.2
Stop discharge voltage(V)	46
Charging and discharging management	
Maximum charge power(W)	3000
Maximum discharge power(W)	6000
Charge to(%)	100
Discharge to(%)	15
Discharge End SOC(on-grid)(%)	5
Start force charging when reaching(%)	10
Stop force charging when reaching(%)	20
Maximum Grid Forced Charge Power(W)	400
Grid	
Charge by Grid	☒
Maximum grid charge power(W)	3000
Maximum Input power from Grid(W)	9000
Charge by grid to(%)	100

Choose whether to allow the grid to charge the battery, which is prohibited by default. When the battery capacity or voltage reaches the set value, the grid will stop charging the battery.

3 Backup Load

In [Backup Load](#) page, if enabling Backup Output, you can set parameters including the range of backup output voltage and Min. initiation/startup battery capacity when off-grid.

< Backup Load	
Backup Output	☒
Minimum backup output voltage(V)	176
Maximum backup output voltage(V)	264
Rated output voltage(V)	230V
Min.initiation/startup battery capacity when off-grid(%)	30

4 Generator

To activate functions about generator of the inverter, you should first standby the inverter to connect the App, then set parameters below to enable the functions that you need, and finally power on the inverter to start.

➤ Generator Input Mode

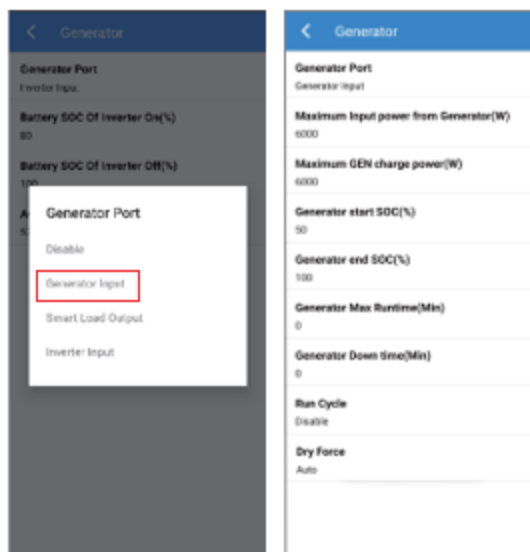
- **Generator Input Mode:** In this mode, while the generator is off the grid, the GEN port functions as an input port from the generator. The backup load or battery charging can be supplied by the generator input. The generator can be started and stopped in two ways: via the inverter's dry contact and manually. For the former, the inverter has total control over the generator's start and stop operations. In the latter case, you can apply manual control to start and stop the generator.



Note:

The nominal power of generator should be 1.3 times larger than that of the hybrid inverter.

- Go to [Hybrid Setting > Generator > Generator Port](#) page and choose [Generator Input](#) as below.



- All parameters have been set by default.

Maximum Input power from Generator (W)

Forbid the generator power larger than the setting value (W).

Maximum GEN charger power (W)

Maximum battery charge power from generator.

Generator start SOC (%)

Battery SOC below which the generator starts to charge the battery. Meanwhile, the generator's running time should not exceed the maximum runtime setting value (Min).

Generator Max Runtime (Min)

When the generator's running time reaches to the setting value, the inverter will disconnect the input from generator. But the generator will keep working for a while defined by "Generator down time(Min)".

Generator end SOC (%)

Battery SOC above which the generator stops charging the battery.

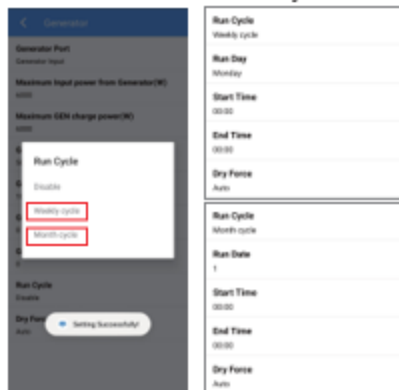
Generator Down time (Min)

When the inverter disconnects the input from generator, the generator will keep working for a while by the down time setting value (Min).

- For generator that switch on and off by dry contact, it will stop working automatically when the generator working time reaches to the down time setting value (Min).
- For generator that are manually switched on and off, it will stop working by manual regardless of the down time setting value (Min).

Run Cycle

Generator Cycle run mode. You can set as Weekly or Month cycle.



Dry force

When the Grid power is abnormal, the generator is forced to be turned on.

Generator start Bat. Volt(V)

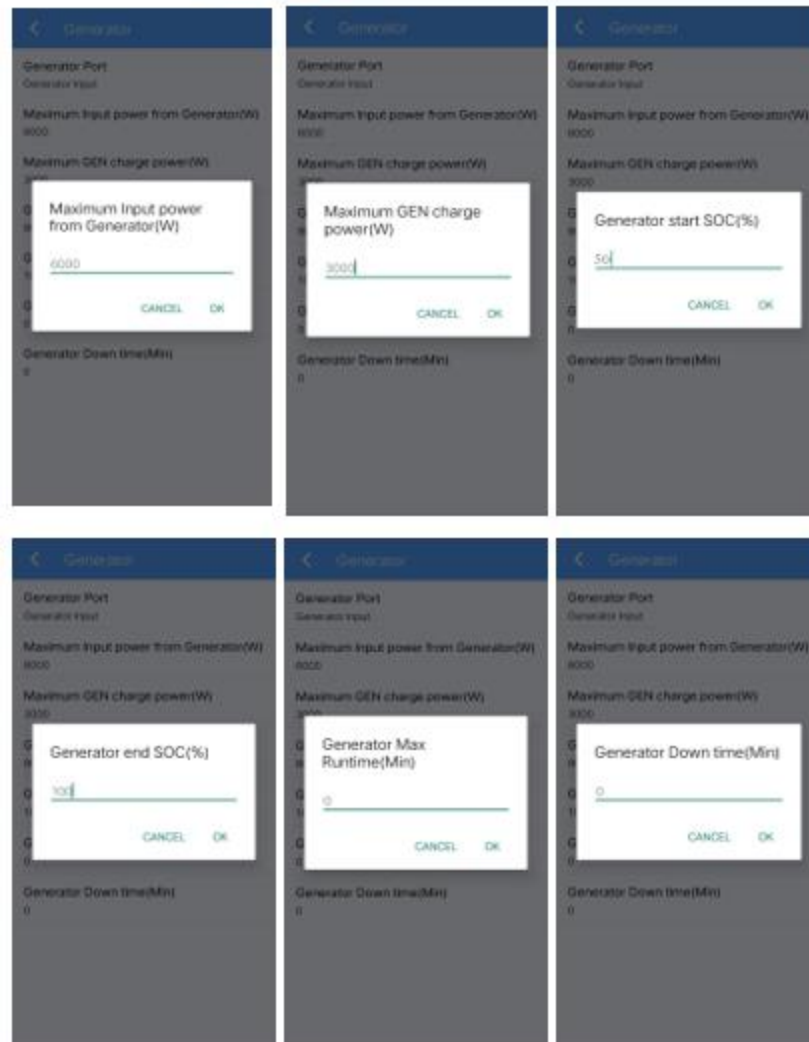
Battery voltage below which the generator starts to charge the battery.

Meanwhile, the generator running time should not exceed the maximum runtime setting value (Min).

Generator end Bat. Volt(V)

Battery voltage above which the generator stops charging the battery.

The default values of **Generator Input** are as below:



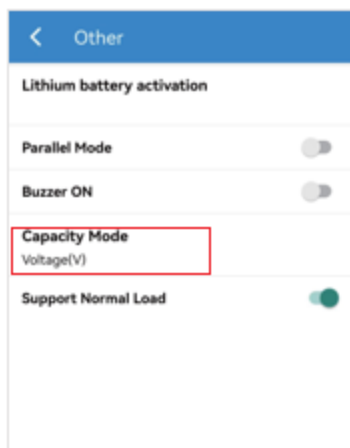
Note:

1. If 'Generator Max Runtime (Min)' sets to 0, it means the generator can run all the time.
2. The default value of **Generator start Bat. Volt(V)** is 48V.
3. The default value of **Generator end Bat. Volt(V)** is 65V.

- If the values are set as described above, and Capacity Mode is set to SOC (%), the situations are as follows:
 - In off-grid mode, the Generator Input function being ON or OFF depends on the set values of the battery SOC and the Generator Max Runtime.
 - When the value of battery SOC is lower than 50% and the runtime is less than the set value of Generator Max Runtime (Min), the GEN Port function will be enabled and the Generator Input will be turned on.
 - When the battery SOC is $\geq 100\%$ or the run time is longer than the set Generator Max Runtime (Min), the GEN port function will be disabled and the Generator Input will be turned to OFF.
 - In on-grid mode, the GEN Port function will be disabled and the Generator Input will ~~be turned off~~.

 Note:

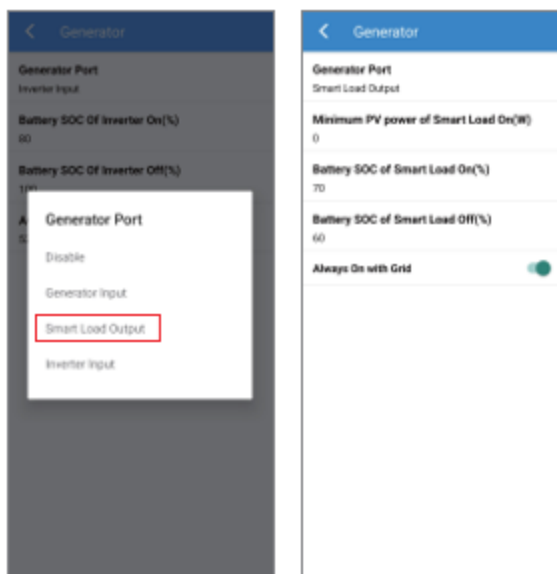
1. The total generator running time is equal to "Generator Max Runtime (Min)" plus "Generator down time (Min)".
2. Go to **Hybrid setting > Other > Capacity Mode**, you can switch Capacity Mode to voltage (V), as shown in below figure, so that parameter settings about **Generator start SOC (%)** will be changed to **Generator start Bat. Volt(V)**. Also, parameter settings about **Generator end SOC (%)** will be changed to **Generator start Bat. Volt(V)**. Yet, under this mode the Generator Input function still follows the running logic you set above.



3. If the generator and the grid run normally, the load and battery charging will be powered by the grid in priority.

➤ **Smart Load Output Mode Introduction**

- **Smart Load Output Mode:** In this mode, the GEN Port works as an output port for the Smart Load connected to the GEN terminal.
- Go to **Hybrid Setting > Generator > Generator Port** page and choose **Smart Load Output** as below.



- All parameters have been set by default.

Minimum PV power of Smart Load On (W) & Battery SOC of Smart Load On (%)

If the PV input power is higher than the setting value(Power), and the battery SOC exceeds the setting value simultaneously, the Smart Load will be switched on.

Battery SOC of Smart Load Off (%)

If the battery SOC is lower than the setting value, the Smart Load will be switched off

Always On with Grid

When the grid is present, click “Always On with Grid”, and the Smart Load will be switched on.

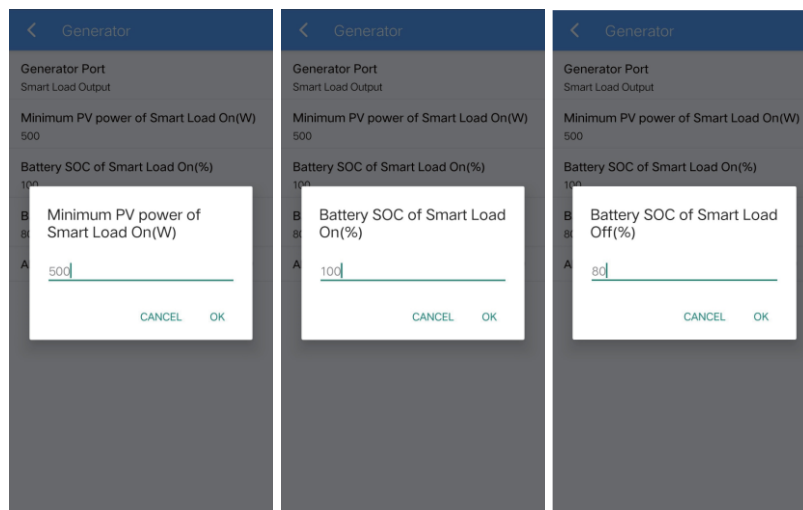
Battery voltage of Smart Load On (V)

If the battery voltage is higher than the setting value, and the PV input power exceeds the setting power simultaneously, the Smart Load will be switched on.

Battery voltage of Smart Load Off (V)

If the battery voltage is lower than the setting value, the Smart Load will switch off

The default values of **Smart Load Output** are as below:



Note:

1. Go to **Hybrid setting > other > Capacity Mode**, when you set Capacity Mode to Voltage (V), parameter settings about **Battery SOC of Smart Load On (%)** will be changed to **Battery voltage of Smart Load On (V)**. Also, parameter settings about **Battery SOC of Smart Load Off (%)** will be changed to **Battery voltage of Smart Load Off (V)**. Yet, under this mode the Smart Load Output function still follows the running logic you set.
 2. The default value of **Battery Voltage of Smart Load On(V)** is 60V;
 3. The default value of **Battery Voltage of Smart Load Off(V)** is 40V.
- If the values are set as described above, and Capacity Mode is set to SOC (%), the situations are as follows:
 - When **Always On with Grid** is turned to ON:

If the grid is present, the Smart Load Output will be on all the time without effect from the change of parameters mentioned above. If the grid is absent, the Smart Load Output being ON or OFF depends on the PV power and the battery SOC.

If the PV power is $\geq 500\text{W}$ and the battery SOC $\geq 100\%$, the Smart Load Output will be on. If the battery SOC is $< 80\%$, the Smart Load Output will be off. If the PV power is $< 500\text{W}$ or the battery SOC $< 80\%$, the Smart Load Output will be off.
 - When **Always On with Grid** is turned to OFF:

If the PV power is $\geq 500\text{W}$ and the battery SOC $\geq 100\%$, the GEN Port function will be enabled and the Smart Load Output will be ON. In the state of Smart Load ON, if the battery SOC is $< 80\%$, the Smart Load will be OFF.

If the PV power is $< 500\text{W}$ or the battery SOC $< 80\%$, the GEN Port function will be disabled and the Smart Load will be OFF.

➤ **Inverter Input Mode Introduction**

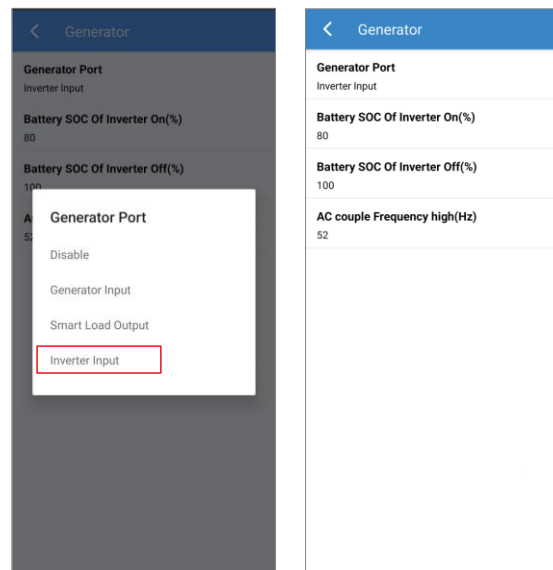
- **Inverter Input Mode:** Under this mode, the GEN Port works as an input port from other grid-tied inverter whose rated power should be less than the hybrid inverter. The grid-tied inverter should also support derating output power according to the output frequency.



Note:

The capacity of grid-tied inverter should be less than that of hybrid inverter.

Go to [Hybrid Setting](#)



- All parameters have been set by default.

Battery SOC of Inverter On (%)

If the battery SOC is lower than the default value, the inverter powers on and starts to charge the battery.

Battery SOC of Inverter Off (%)

If the battery SOC is higher than the default value, the inverter powers off and stops charging the battery.

AC couple Frequency high (Hz)

This parameter is used to limit the output power of grid-tied inverter when the hybrid inverter works under off-grid mode. As the battery SOC gradually reaches to the setting value (Off), during the process, the grid-tied inverter output power will decrease linear. When the battery SOC equal to the setting value (Off), the system frequency will become the setting value (AC Couple Frequency high) and the grid-tied inverter will stop working.

Battery Voltage of Inverter On (V)

If battery voltage lower than the setting value, the inverter powers on and starts charging the battery.

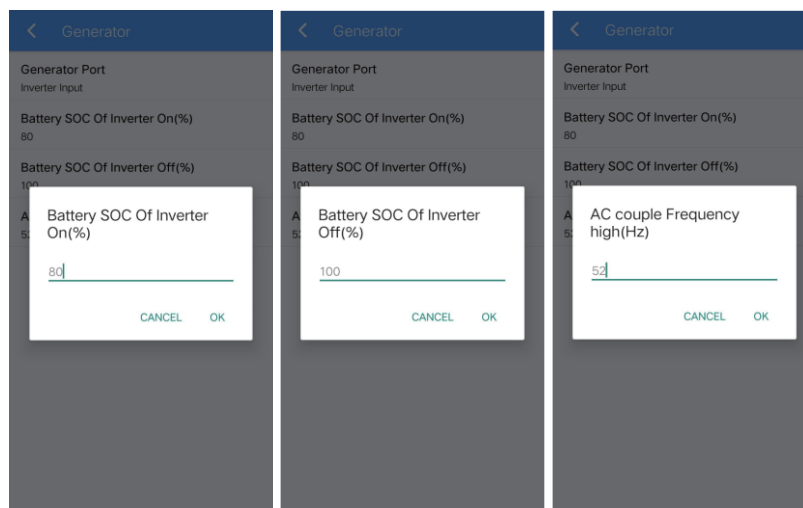
Battery Voltage of Inverter Off (V)

If battery voltage higher than the setting value, the inverter powers off and stops charging the battery.

 Note:

Go to [Hybrid setting](#) > [Other](#) > [Capacity Mode](#), when you set Capacity Mode to voltage (V), parameter settings about **Battery SOC of Inverter On (%)** will be changed to **Battery voltage of Inverter On (V)**. Also, parameter settings about **Battery SOC of Inverter Off (%)** will be changed to **Battery voltage of Inverter Off (V)**. Yet, under this mode the Inverter Input function still follows the running logic you set.

The default values of **Inverter Input** are as below:

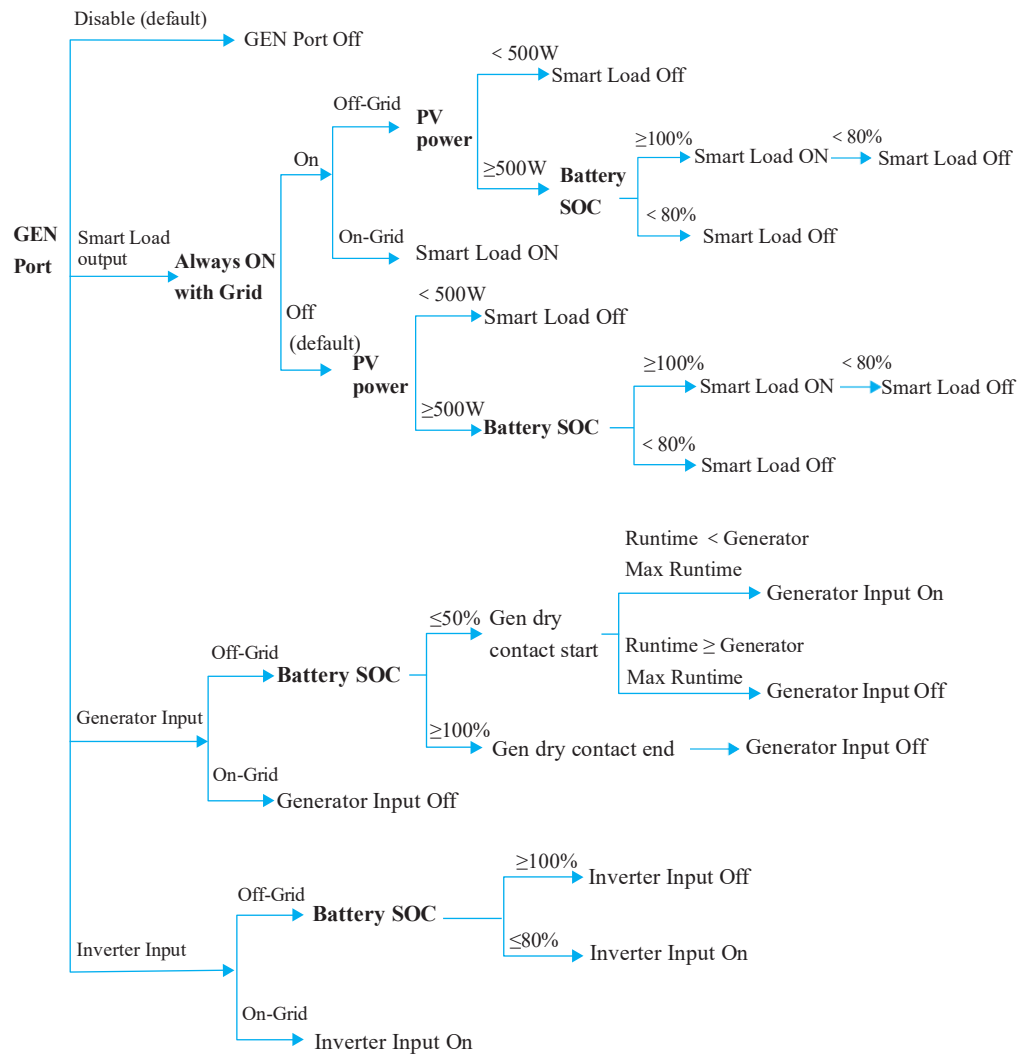


Note:

The default value of **Battery Voltage of Inverter On(V)** is 40V;
The default value of **Battery Voltage of Inverter Off(V)** is 60V.

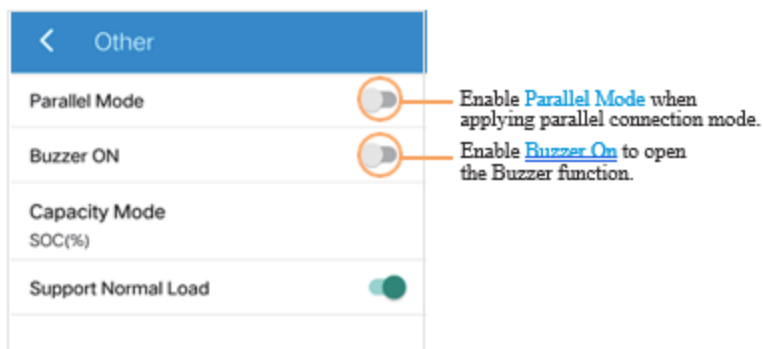
- If the values are set as described above, and Capacity Mode is set to SOC (%), the situations are as follows:
 - In off-grid mode, the Inverter Input being on or off depends on the battery SOC.
 - When the Battery SOC $\leq 80\%$, the GEN port function will be enabled and Inverter Input will be ON.
 - When the battery charge power lower than the grid-tied inverter output power, the hybrid inverter will increase the output frequency to maximum 52Hz. Then the grid-tied inverter will work in limited power mode.
 - When the Battery SOC $\geq 100\%$, the GEN port function will be disabled and Inverter Input will be OFF.
 - Under on-grid mode, the grid-tied inverter works as normal regardless of battery capacity.

Logic Diagram of Enable/Disable GEN Port Function



5 Other

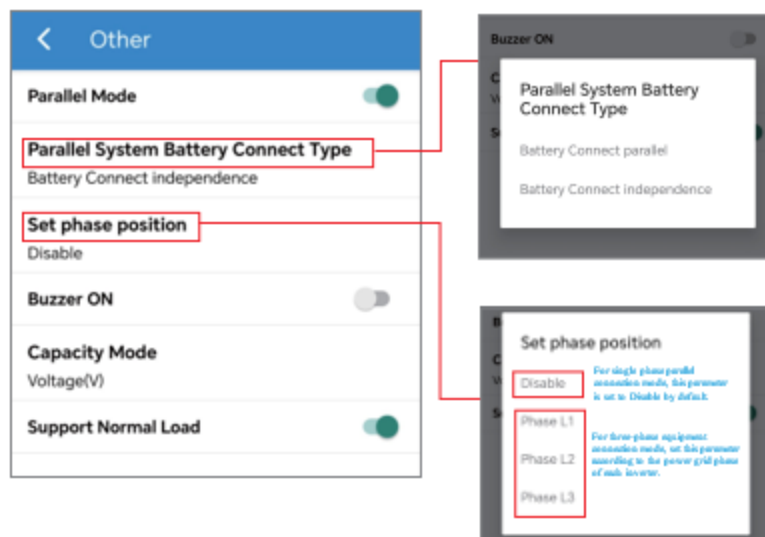
In **Other** page, options including Parallel mode, Buzzer ON, Support Normal Load are listed. Enable them when necessary.



> Parallel mode

In **Other** page, if enabling **Parallel Mode**, you can set the following parameters:

- **Parallel System Battery Connect Type**
- **Set phase position** (for more details, please refer to [Chart](#))



12. Decommissioning and Disposal

(a) Decommissioning

ESS system decommissioning and uninstallation should only be performed by qualified personnel.

(b) Disposal

MeterHome™ ESS products and any ESS scrapped parts (including their internal chemicals and electrical materials) should not be disposed of with household waste. Please refer to your local laws and regulations regarding disposal.

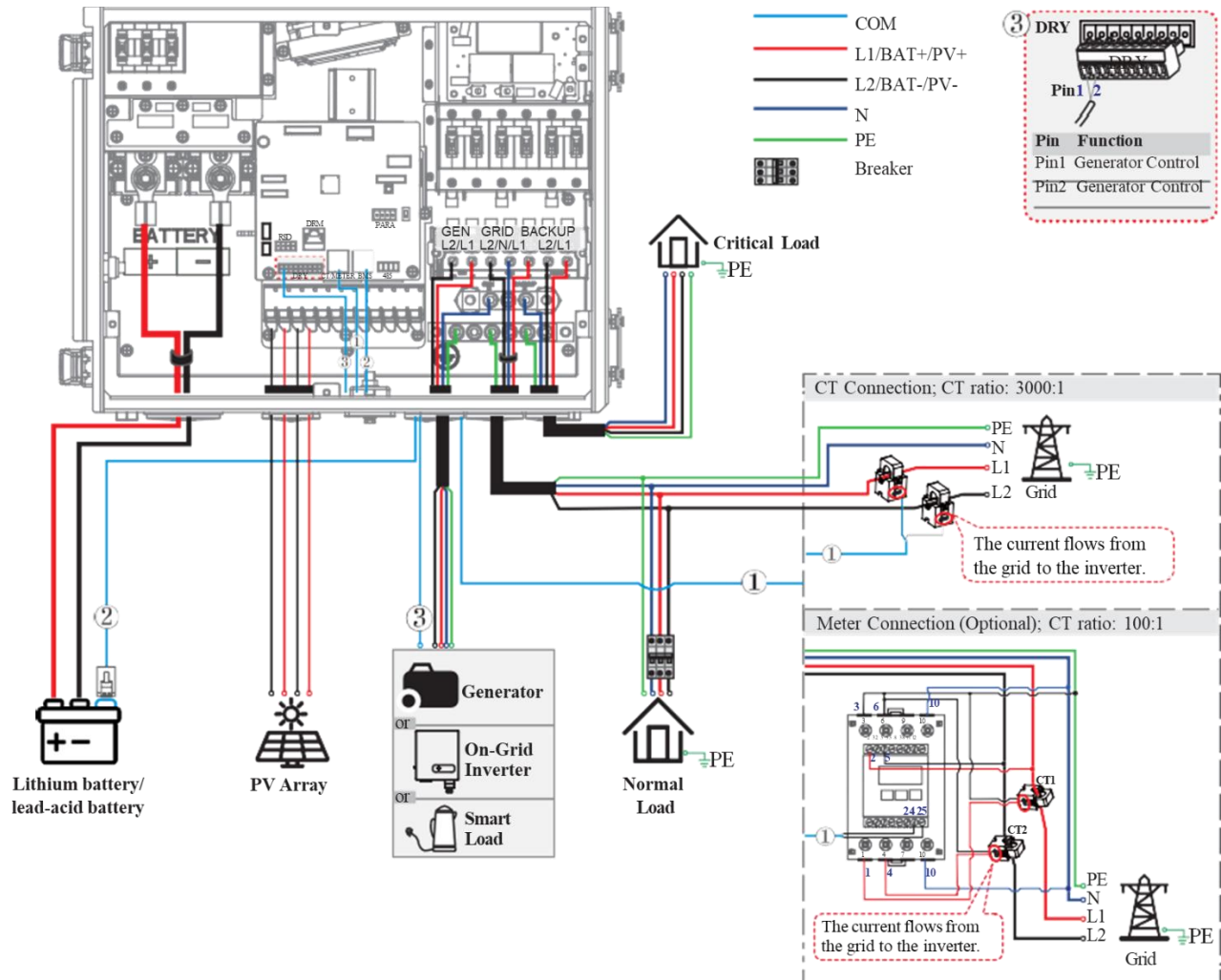
	Product should not be disposed of as household waste.
---	---

Appendix A – 120/240 Vac Wiring Diagram

Standard Non-Parallel Wiring Diagram

Diagram 01

120/240Vac Split Phase



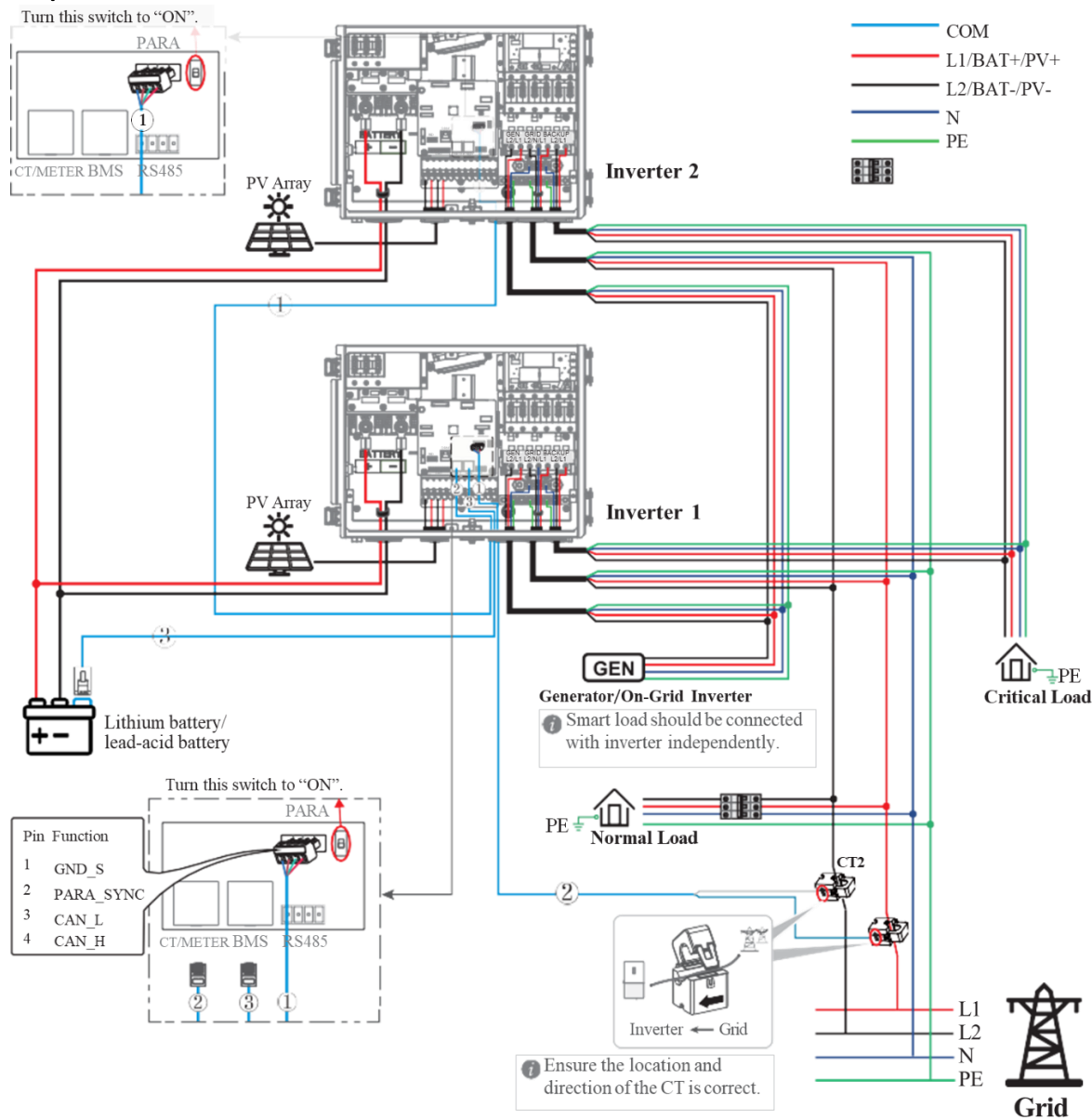
1. CT/Meter communication connection (meter is optional)
2. BMS communication connection (only for lithium battery)
3. DRY communication connection

Appendix B – 120/208 Vac Wiring Diagram

3 Phase Parallel Connection Wiring Diagram (N=2)

Diagram 02

120/208Vac 3 Phase



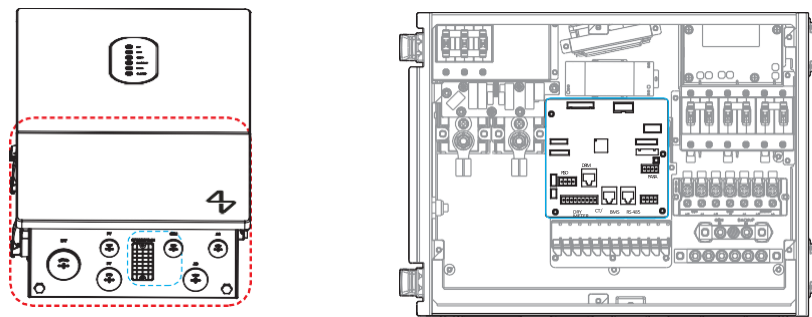
1. Parallel Communication Connection
2. CT Communication Connection
3. BMS communication connection

*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.

*Refer to Note for Parallel Wiring Diagrams (Appendix IV) to learn more information about this parallel diagram

APPENDIX C – ESS Communications

This Appendix describes the ESS communications protocol and connections. There are communication interfaces in the communication port on the bottom of the inverter as show below :



Interface		Descriptions
PARA		4-Pin interface for parallel communication
		A matched resistance switch for parallel communication
RS485		4-Pin interface for RS485 communication
DRM		Demand response mode for Australia application
CT/METER		For CT/Meter communication or Grid current sense
BMS		Lithium battery communication interface
9-Pin	GEN	Generator control
	NTC	Temperature sensor terminal of lead-acid battery
	RMO	Remote off control
	DRY	DI/DO control
RSD		RSD control interface
GPRS/WIFI/LAN		For GPRS/WIFI/LAN communication

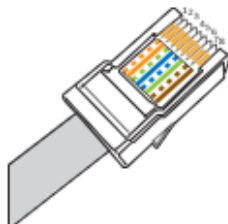
(a) BMS Connection (Only for Lithium Battery)

NOTE



This manual ONLY illustrates the pinout sequence of BMS at INVERTER SIDE. For details about the pinout sequence at battery side, see the user manual of the battery you use, and the following pinout diagram of battery side is only for illustration.

• Standard RJ45 Pinout




RJ45 Pin Configuration	
Pin	Color
1	White-Orange
2	Orange
3	White-Green
4	Blue
5	White-Blue
6	Green
7	White-Brown
8	Brown

Always face the flat side of the terminal and count the pin slots from left to right from 1 to 8. Read the pin definitions of both the battery and inverter carefully.

• Pin definition of terminal

Taking one battery's pin configuration as an example.

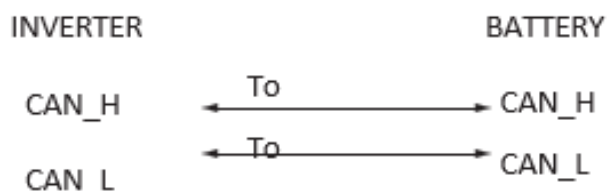
INVERTER:

Inverter	
Pin	Definition
1	RS485_A
2	RS485_B
3	NC
4	CAN_H
5	CAN_L
6	NC
7	NC
8	NC

BATTERY:

Battery Example	
Pin	Definition
1	NC
2	NC
3	NC
4	CAN_H
5	CAN_L
6	GND
7	NC

• CAN BUS connection principle



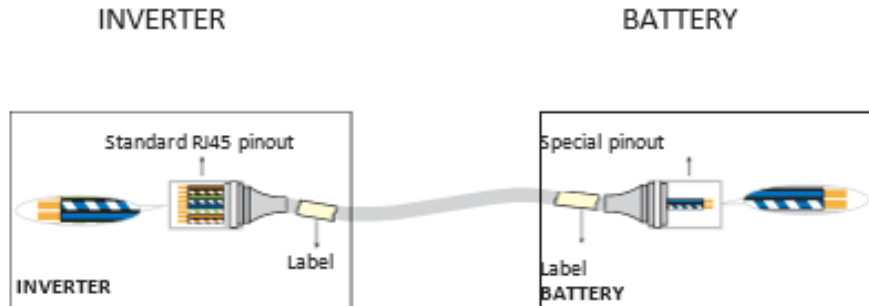
(b) BMS communication cable preparation:

- ① Prepare RJ45 terminals and strip appropriate length of COM cables.
- ② According to pin definitions and cable order, assemble the RJ45 terminals and crimp communication wires.

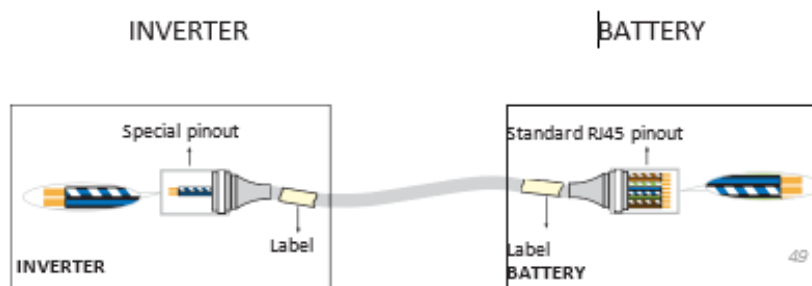
There are two methods to assemble the RJ45 terminals.

- ③ Then label the RJ45 terminals (BAT or INV) to avoid confusion.
- ④ After finishing wire-making, use a multimeter or other specific tool to check if your cable is good, bad, or wired incorrectly.

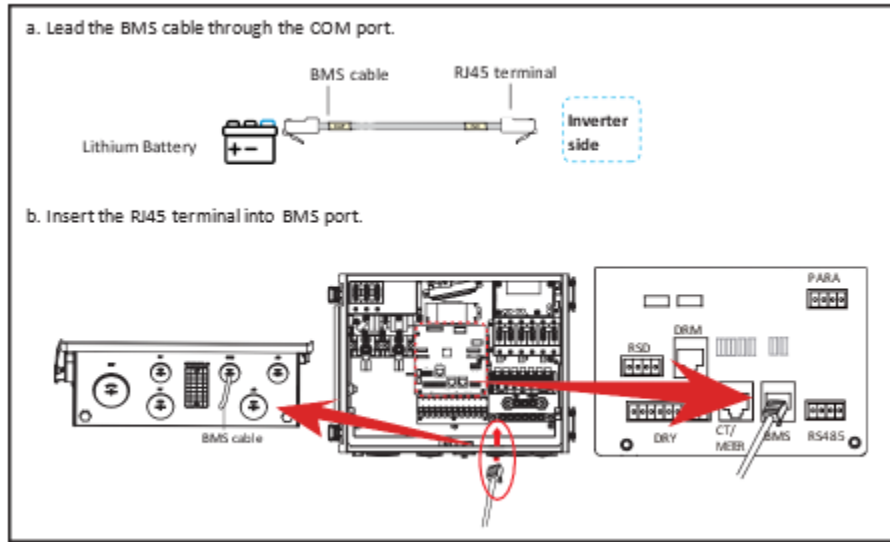
Method 1: Use the INVERTER RJ45 pinout as the standard pinout to crimp wires, then the battery side will be a non-standard one (special pinout). Cut off the other no-used wires (1/2/3/6/7/8) for the battery RJ45 terminal.



Method 2: Use the BATTERY RJ45 pinout as the standard pinout to crimp wires, then the inverter side will be a non-standard one (special pinout). Cut off the other no-used wires (1/2/3/6/7/8) for the inverter RJ45 terminal.



(c) BMS communication cable connection steps:

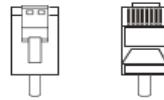


(d) CT/Meter Connection

A CT/Meter is applied to monitor electricity usage of all loads.

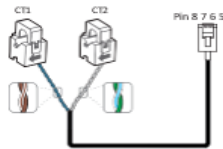
• RJ45 Terminal Configuration for CT and Meter Communication

PIN	1	2	3	4	5	6	7	8
Function Description	/	/	RS485_A	RS485_B	CT2-	CT2+	CT1+	CT1-



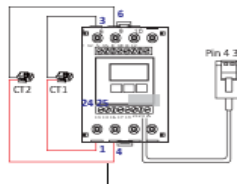
Note: The Standard RJ45 Pinout Color in BMS Connection section is also applicable to this part .

• Cable connection overview CT:

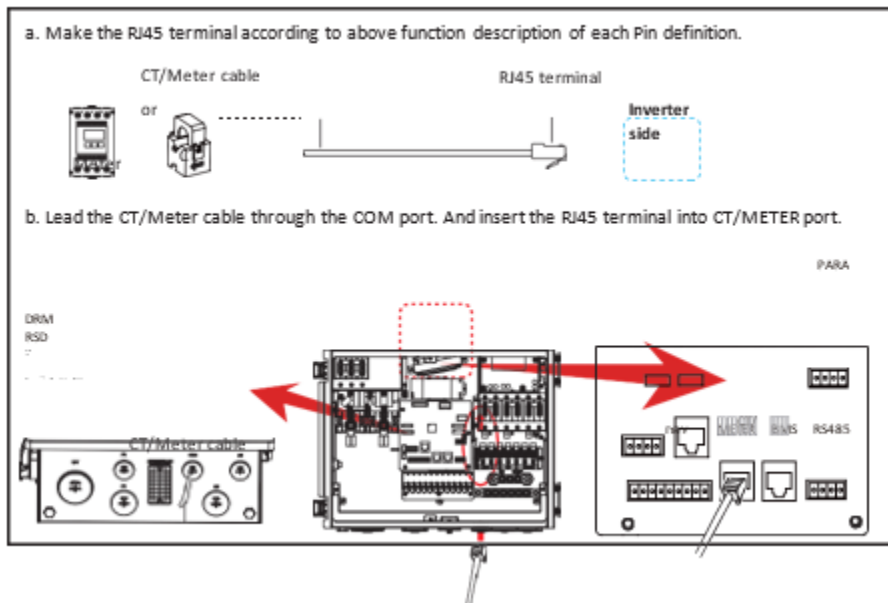


RJ45	RJ45 Pinout Color	CT Cable Color
Pin5 (CT2-)	White-Blue	White
Pin6 (CT2+)	Green	White
Pin7 (CT1+)	White-Brown	Blue
Pin8 (CT1-)	Brown	Blue

Meter+CT:



RJ45	Meter
Pin3 (RS485_A)	Pin24
Pin4 (RS485_B)	Pin25

(e) CT/Meter communication cable connection steps:

(f) RS485 Connection

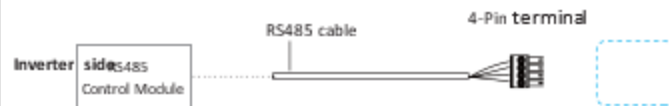
• 4-Pin Terminal Configuration of RS485 Communication



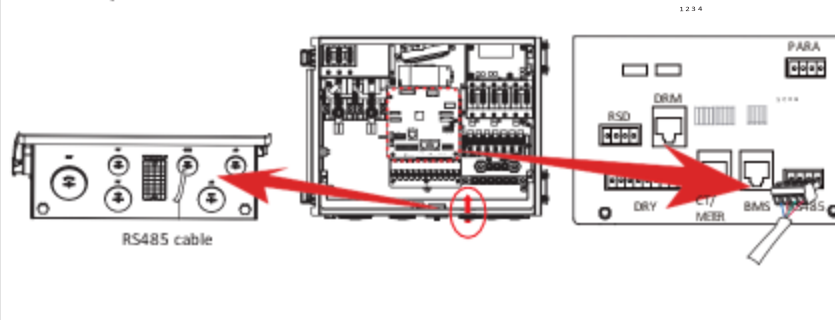
PIN	1	2	3	4
Function Description	RS485_A	RS485_B	PE	PE

• RS485 communication cable connection steps:

a. Make the 4-Pin terminal according to above function description of each Pin



b. Lead the RS485 cable through one COM port. And insert the 4-Pin terminal into RS485 port on inverter panel.



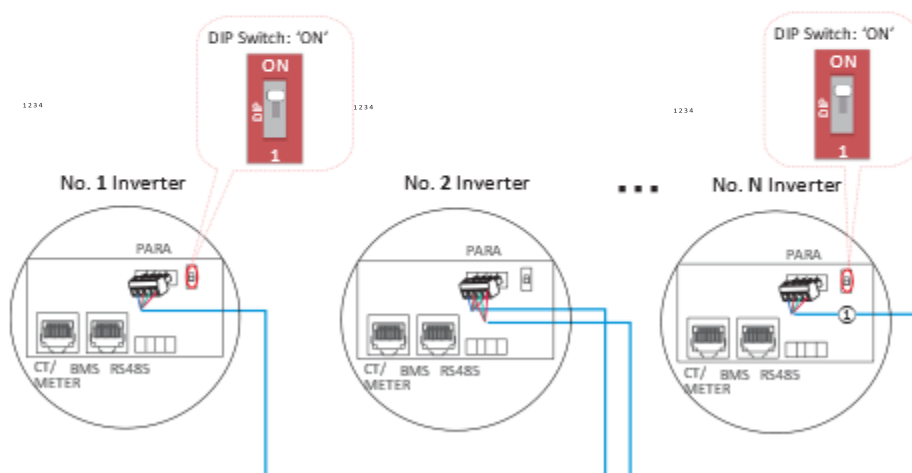
(g) Parallel Communication Connection

• 4-Pin Terminal Configuration of parallel Communication



PIN	1	2	3	4
Function Description	GND_S	PARA_SYNC	CAN_L	CAN_H

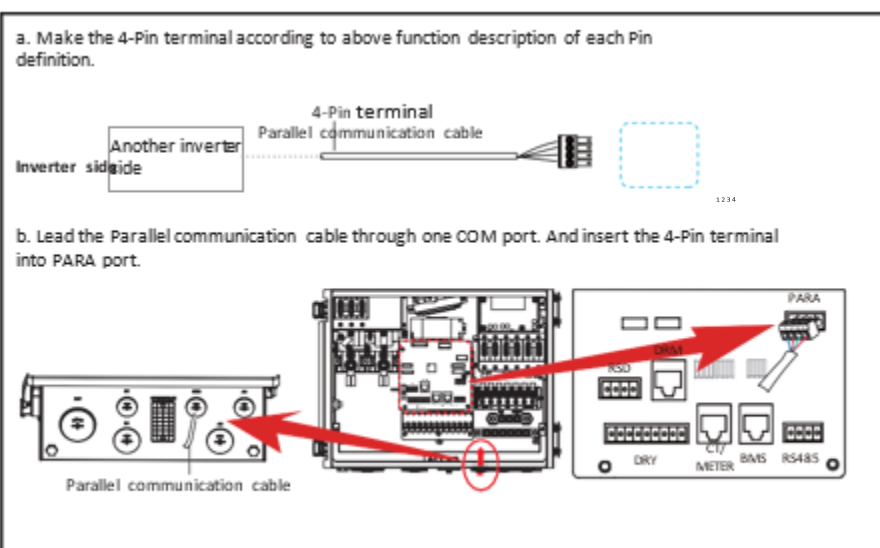
• Parallel communication cable connection overview



It is necessary to turn the matched resistance switch of No. 1 inverter and No. N inverter to “ON” in parallel connection mode.

No. 1 Inverter	No. 2 Inverter	... No. N Inverter
Pin4 (CAN_H)	Pin4 (CAN_H)	Pin4 (CAN_H)
Pin3 (CAN_L)	Pin3 (CAN_L)	Pin3 (CAN_L)
Pin2 (PARA_SYNC)	Pin2 (PARA_SYNC)	Pin2 (PARA_SYNC)
Pin1 (GND_S)	Pin1 (GND_S)	Pin1 (GND_S)

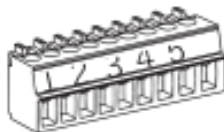
- **Parallel communication cable connection steps:**



(h) NTC/RMO/DRY Connection(s)

• 9-Pin Terminal Configuration of Auxiliary Communication

Pin 123456789



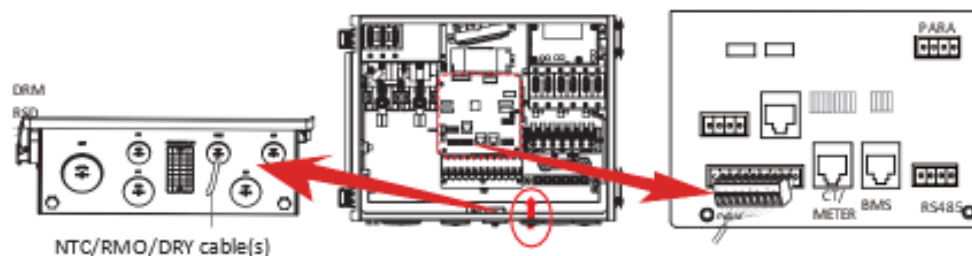
PIN	Function Description
1	GEN Control
2	GEN Control
3	NC1 (Normal Close)
4	NO2 (Normal Open)
5	N2
6	NC2 (Normal Close)
7	REMO OFF
8	GND S (NTC BAT)
9	NTC BAT+

• NTC/RMO/DRY communication cable connection steps:

a. Make the 9-Pin terminal according to above function description of each Pin definition for the auxiliary port you want to use.



b. Lead the NTC/RMO/DRY cable(s) through one COM port. And insert the 9-Pin terminal into DRY port.



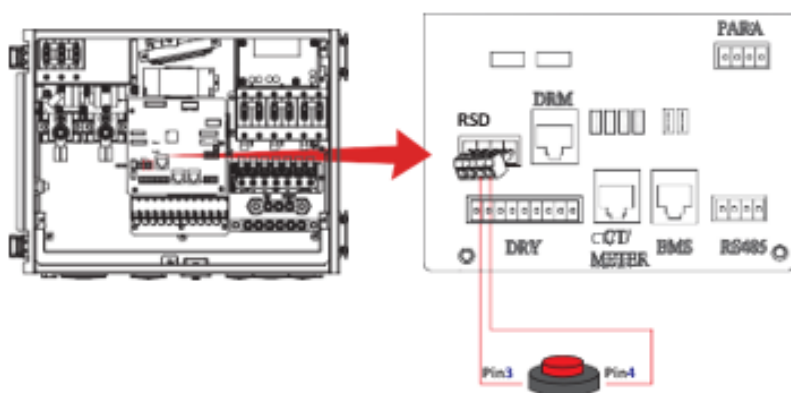
(i) RSD Connection(s)

• 4-Pin Terminal Configuration of RSD



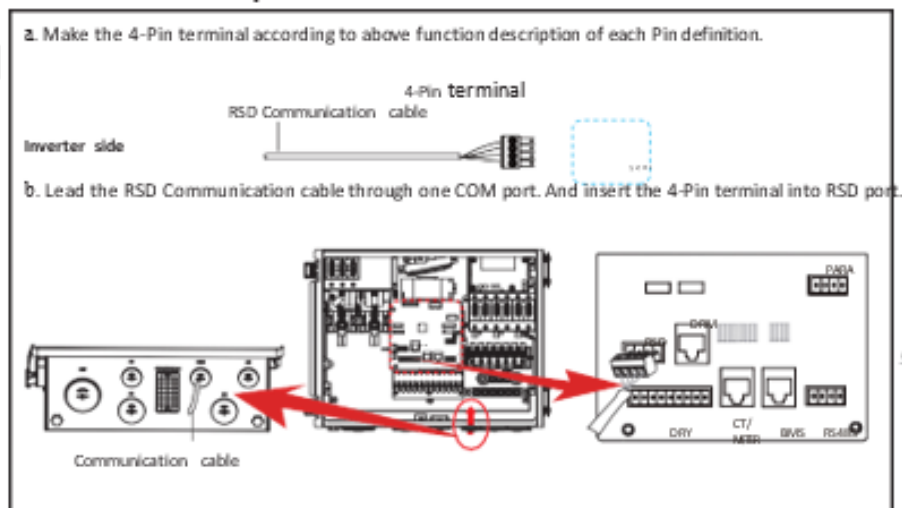
PIN	3	4
Function Description	Emergency Stop Signal Button	

• Emergency Stop Signal:



Normally Open Rapid
Shutdown Signal
Button

• RSD connection steps:

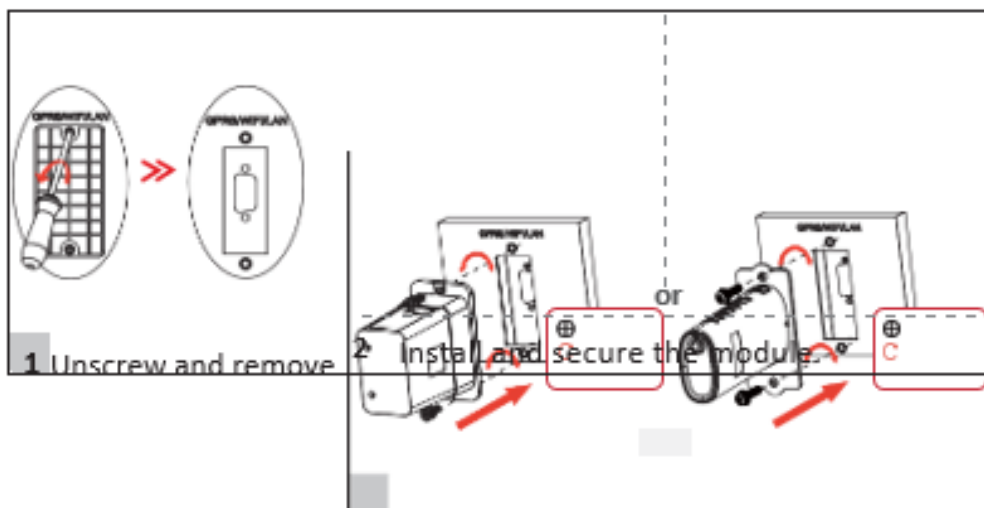


56

(j) GPRS/WIFI/LAN Module Connection (Optional)

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

The appearance of module may be slightly different. The figure shown here is only for illustration.



APPENDIX D – Inverter Working Modes

The inverter supports several different working modes.

(a) Self-consumption Mode

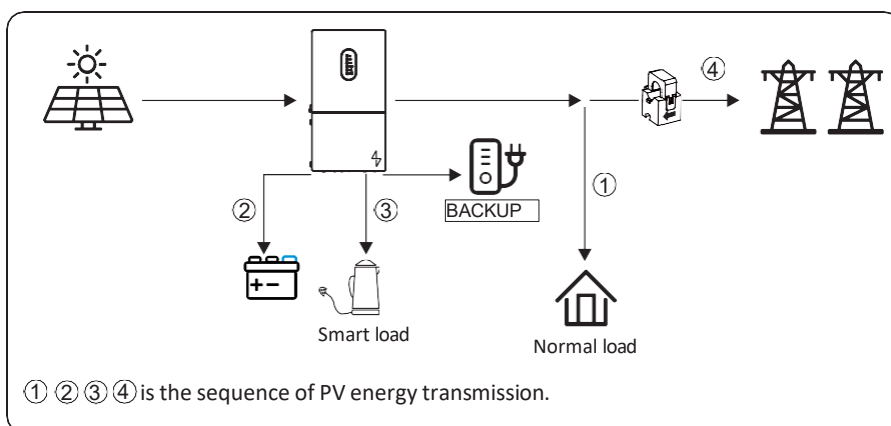
Go to the "Hybrid Setting" menu and select the "Self-consumption mode".

Under Self-consumption mode, the priority of PV energy consumption will be Load > Battery > Grid, which means the energy produced by PV gives priority to powering local loads, the excess energy is used to charge the battery, and the remaining energy is fed into the grid.

This is the default mode to increase self-consumption rate. There are several situations of self-consumption working mode based on PV energy.

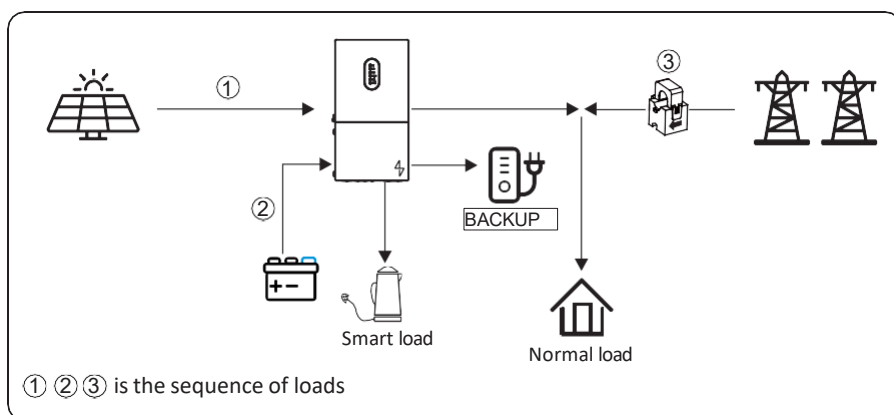
1. Wealthy PV Energy

When PV energy is wealthy, the PV energy will be first consumed by loads, the excess energy will be used to charge the battery and then the remaining energy will be fed into the grid.



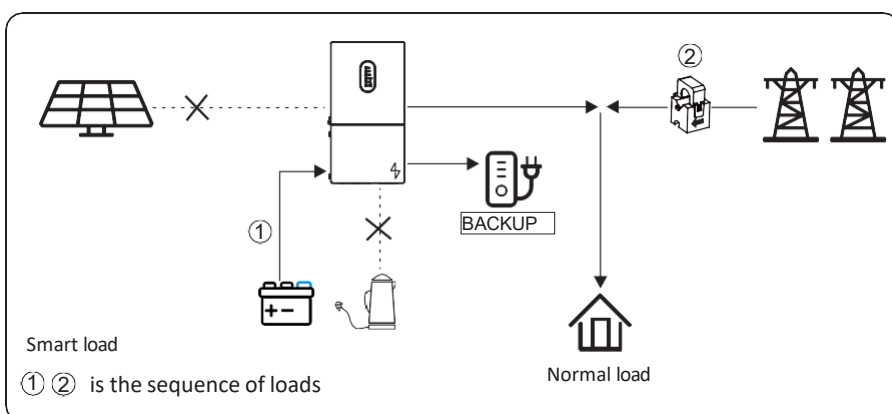
2. Limited PV Energy

When the PV energy is not enough to cover all consumption, the PV energy will be entirely used by loads, and the insufficient part will be supplied by battery. Then still insufficient parts will be supplied by grid.



3 No PV Input

The inverter will first discharge the battery energy for home load consuming when no PV input (such as in the evening or some cloudy or rainy days). If the demand is not met, the loads will consume grid energy.



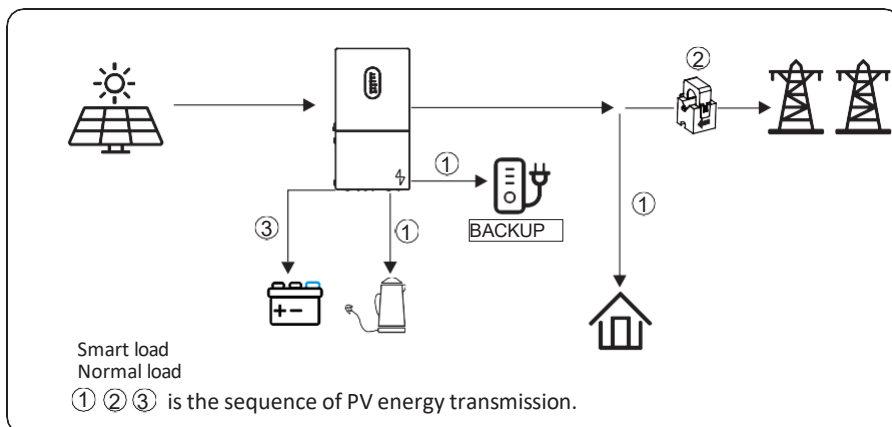
(b) Feed-in Priority Mode

Go to the "Hybrid Setting" menu and select the "Feed-in priority mode".

Under this mode, the priority of PV energy consumption will be Load > Grid > Battery, which means the energy produced by PV gives priority to powering local loads, the excess energy is fed into the grid, and the remaining energy is used to charge the battery.

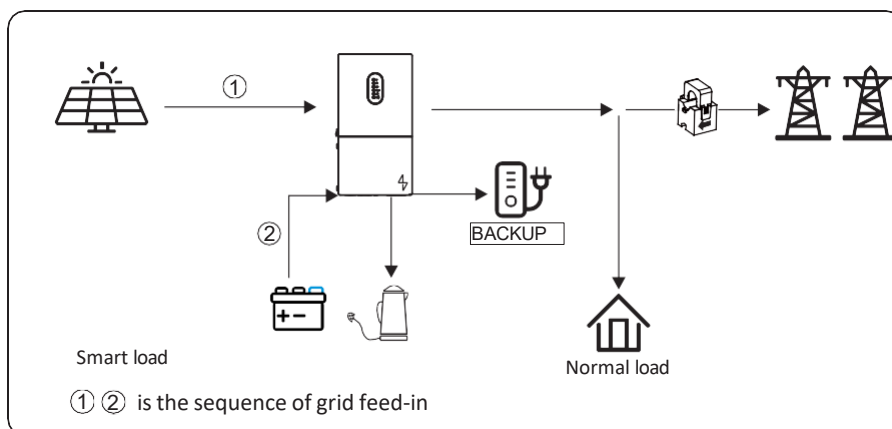
1 Wealthy PV Energy

When PV energy is wealthy, the PV energy will be first consumed by loads. If there is excess PV power, the power will be fed into grid. If there is still PV energy left after load consuming and grid feeding, then the remaining PV power will be used to charge the battery.



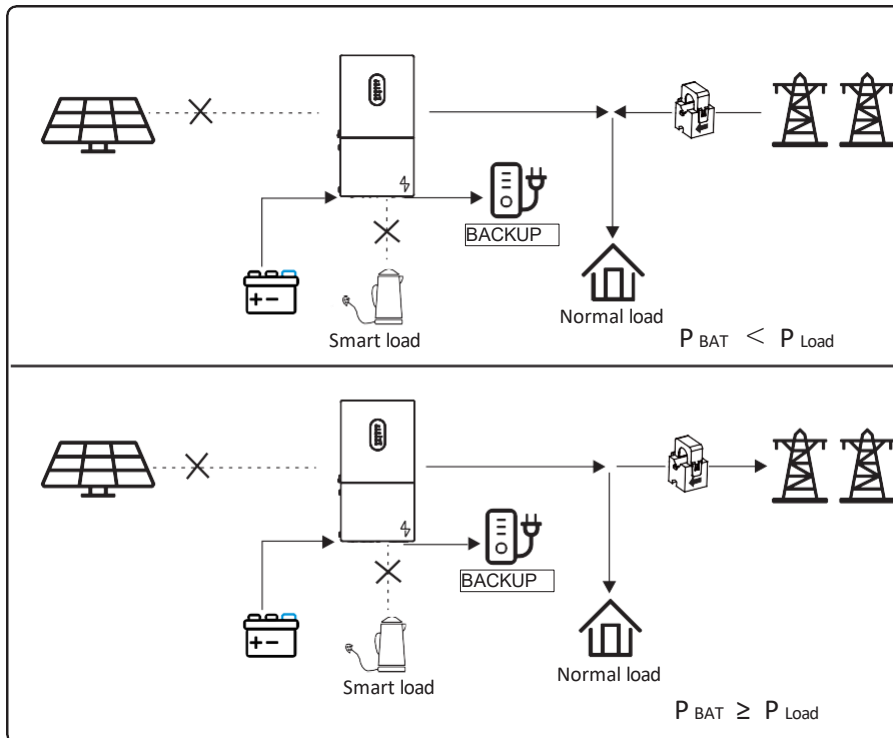
2 Limited PV Energy

When PV energy is limited and cannot meet the feed-in grid power, the battery will discharge to meet it.



3 No PV Input

The inverter will first discharge the battery energy for home load consuming when no PV input (such as in the evening or some cloudy or rainy days). If the demand is not met, the loads will consume the grid energy.



(c) Back-up Mode

Go to the "Hybrid Setting" menu and select the "Back-up Mode".

Under this mode, the priority of PV energy consumption will be Battery > Load > Grid.

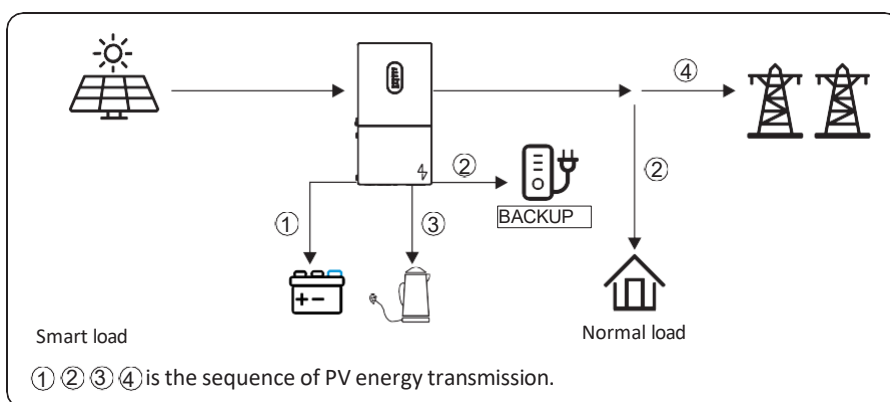
This mode aims at charging the battery quickly, and at the same time, you can choose whether to allow AC to charge the battery.

Forbid AC charging

In this mode, the battery can be charged only with PV power, and the charging power varies with PV power.

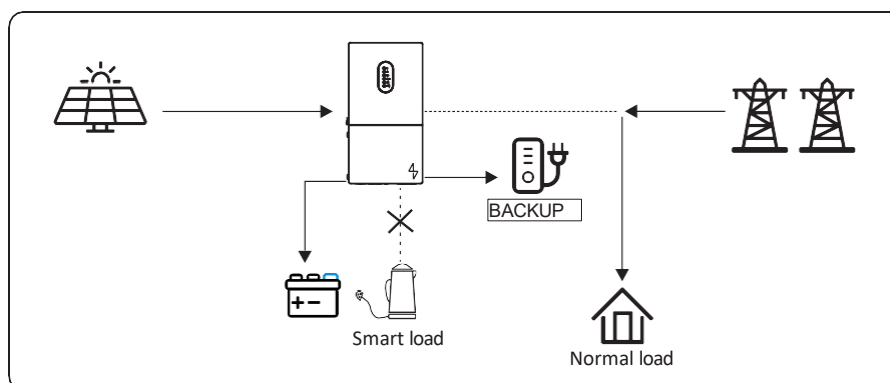
1. Wealthy PV power

When PV energy is wealthy, PV charges the battery first, then meets the load, and the rest is fed into the grid.



2. Limited PV power

When PV energy is limited, PV gives priority to charging the battery, and the grid directly meets the load demand.

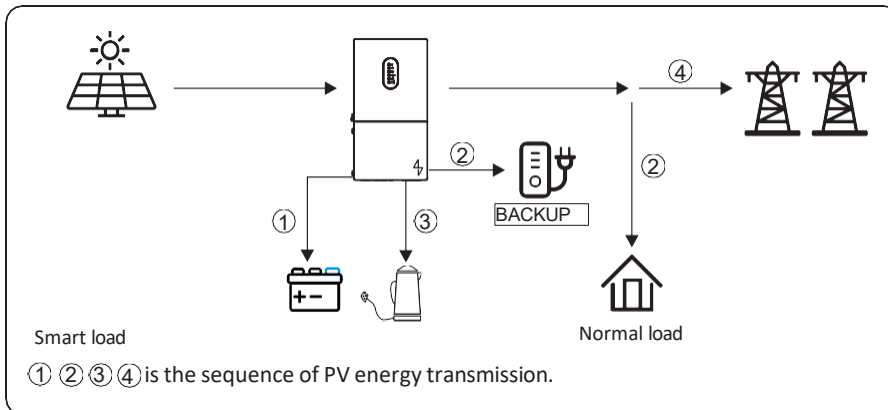


Allow AC charging

In this situation, the battery can be charged both with PV and AC.

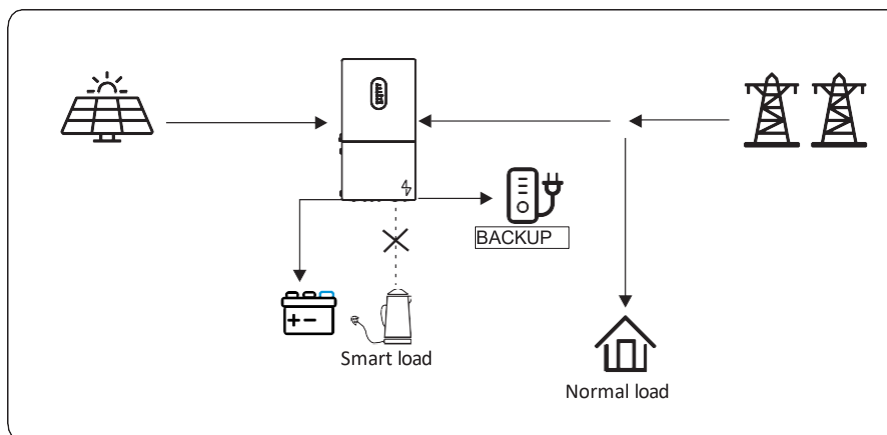
1. Wealthy PV power

When PV energy is wealthy, PV charges the battery first, then meets the loads, and the rest is fed into the grid.



2. Limited PV power

When the PV energy is not enough to charge the battery, the grid energy will charge the battery as a supplement. Meanwhile, the grid energy is consumed by loads.



(d) Forced Charge/Discharge Function

According to the demands of application, the user can set the inverter to work on forced charge/discharge the battery in any working mode.

There are three time periods in which you can set this function. Outside of the set periods, the inverter returns to its original working mode. The forced charge/discharge function has the highest priority.

The relationship between the forced charge/discharge function and working mode shown as below.



M : Self-consumption Mode/Feed-in Priority Mode/Back-up Mode T1: Time period 1 for forced charge/discharge parameter setting T2: Time period 2 for forced charge/discharge parameter setting T3: Time period 3 for forced charge/discharge parameter setting T1, T2, and T3 priority to M.

For the detail settings, please go to [Console > Hybrid Setting](#) to enable [Time-based Control](#) on APP.

(e) Off Grid Mode

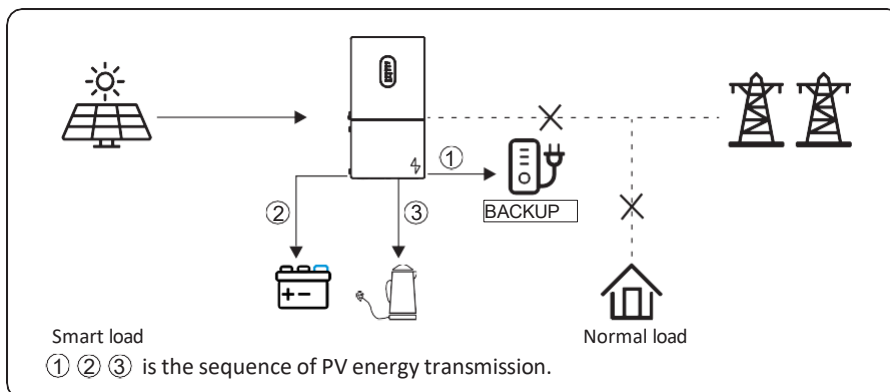
When the power grid is cut off, the system automatically switches to Off Grid mode.

Under off-grid mode, only critical loads are supplied to ensure that important loads continue to work without power failure.

Under this mode, the inverter can't work without the battery.

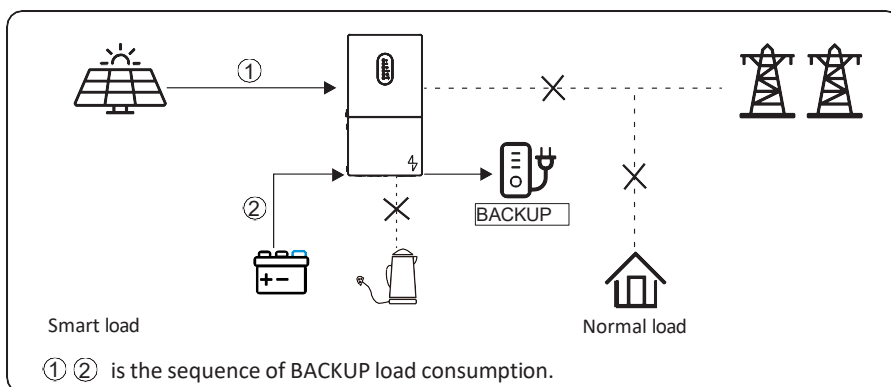
1. Wealthy PV power

When PV energy is wealthy, the PV power will be first consumed by critical load, then charge the battery.



2. Limited PV power

When PV energy is limited, BACKUP loads are first powered by PV and then supplemented by battery.



NOTICE

- Under this mode, please complete the output voltage and frequency settings.
- It is better to choose the battery capacity greater than 100Ah to ensure BACKUP function works normally.
- If BACKUP output loads are inductive or capacitive loads, to make sure the stability and reliability of system, it is recommended to configure the power of these loads to be within 50% of BACKUP output power range.

(f) Startup/Shutdown Procedures

Startup Procedure:

Before starting up, check whether the installation is secure and strong enough, and whether the system has been well grounded. Then make sure the connections of AC, battery, PV etc. are correct, and confirm the parameters and configurations conform to relevant requirements

AC Frequency	50/60Hz	PV Voltage	70~540V
Battery Voltage	40~64V	Grid AC Voltage	120/240V(Split phase) /208V(2/3 phase)

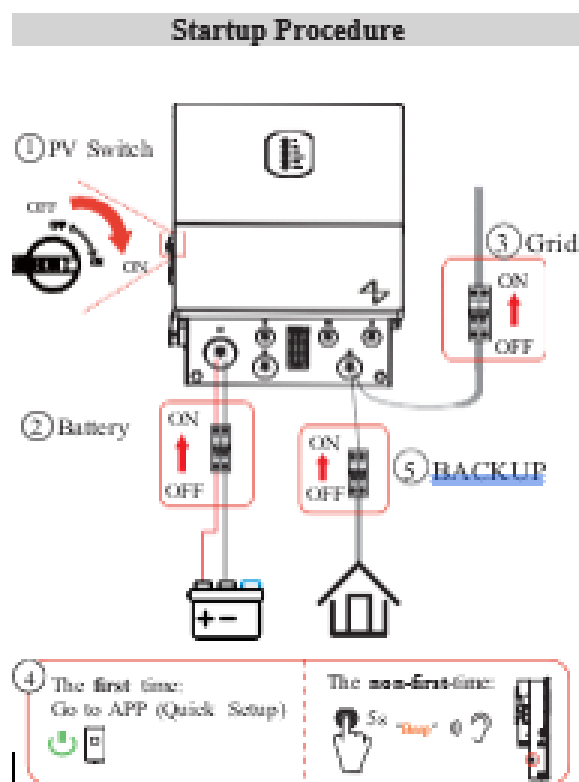
Make sure all the above aspects are right, then follow the procedures below to start up the inverter.

- 1) Power on the PV Switch.
- 2) Power on the DC breaker at BATTERY side.
- 3) Power on the AC breaker at GRID side.
- 4) Connect the cell phone App via Bluetooth. And click the Power ON in the App for the first time.

Refer to Section 7.2 for details.

Or you can hold the ON/OFF button on the side of the inverter for 5s in this step when performing subsequent startup.

- 5) Power on the AC breaker at BACKUP side.



Shutdown Procedure:

When it is necessary to shut down the running system, please follow the procedures below:

1) Connect the cell phone App via Bluetooth. And click the Power OFF on the App.

Refer to Section 7.2 for details. Or you can hold the ON/OFF button on the side of the inverter for 5 seconds in this step when performing subsequent shutdown.

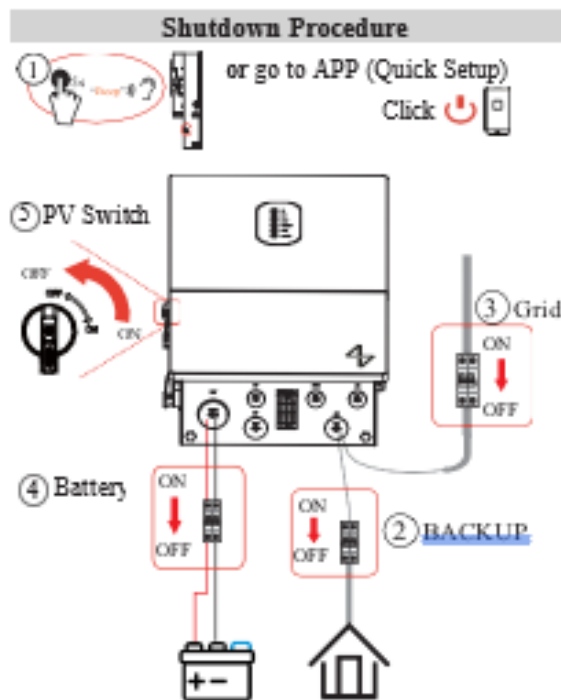
Power off the AC breaker at BACKUP side.

Power off the AC breaker at GRID side.

Power off the DC breaker at BATTERY side.

Power off the PV Switch.

To disconnect the inverter cables, please wait at least 5 minutes before touching them.



APPENDIX E – Maintenance

WARNING: Never work on the ESS Inverter or the ESS battery when the ESS Inverter is energized. When working on the ESS Battery, the B4 battery power cable must be disconnected from the two battery modules.

	DANGER	The following section involves working with high current electrical connections. Failure to properly follow these steps could result in shock, injury, or death; extreme damage to the equipment may also occur. Never touch a positive wire or terminal at the same time as a negative wire or terminal or allow positive and negative wires/terminals to come in contact.
---	---------------	---

	CAUTION	<u>DO NOT</u> work on the ESS Inverter or the ESS battery when the ESS Inverter is energized. When working on the ESS Battery, battery power cable B4 should be disconnected from the battery modules. When connecting or disconnecting the battery power cables, always use an Insulated “L” shaped 10mm Allen wrench as shown below. 
---	----------------	---

	CAUTION	The ESS Battery short circuit current and duration are 4,312A/185μS, and the incident energy due to a potential arc flash is calculated to be less than 0.7 cal/cm ² at 18 inches. While the required PPE for the incident energy is Category 0 PPE, it is recommended that persons working on or performing maintenance on the ESS Battery wear Category 1 PPE and use insulated tool when working on or performing maintenance on the ESS Battery.
---	----------------	---

 WARNING	
ARC FLASH AND SHOCK HAZARD	
FLASH PROTECTION ≤1.2 cal/cm² Flash Hazard at 18 Inches Flash Protection Boundary 18 inches Available Fault Current 4312A / 185μs (WHEN ESS BATTERY DOOR OPEN)	SHOCK PROTECTION ≤58.4 VDC Glove Class 0 Limited Aprch. Boundary 42 inches Restricted Aprch. Boundary 12 inches (WHEN ESS BATTERY DOOR OPEN)
Recommended PPE for Flash and Shock: Nonmelting Materials with Weight ≥ 4.5 oz/sq yd (long sleeve) Safety Glasses or Goggles, Hard Hat, Hearing protection, Rubber Insulating Gloves as Required, Leather Gloves (as needed), Leather Work Shoes (EH)	
MeterHome Multi-Part AC ESS Model: MH-1010143E	

(a) De-Energizing and Isolating the ESS Prior to Performing Any Maintenance

Before working on or performing any maintenance on the ESS, the ESS Inverter must be isolated and deenergized. To isolate and deenergize the ESS Inverter, follow the steps below. The PV switch and circuit breakers used to isolate the ESS are controlled manually and cannot be overridden by remote control.

1. Turn-off the PV switch on the left side of the ESS Inverter as shown below.



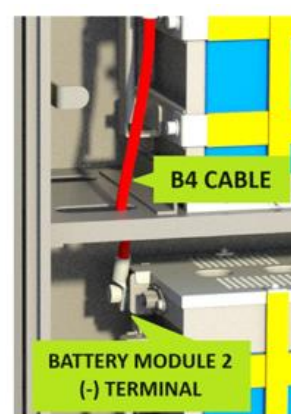
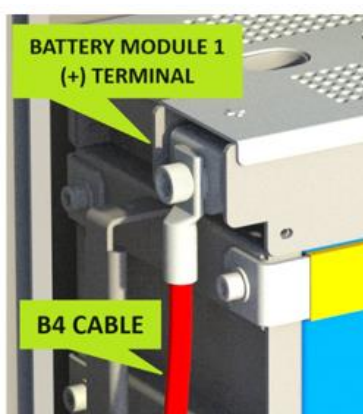
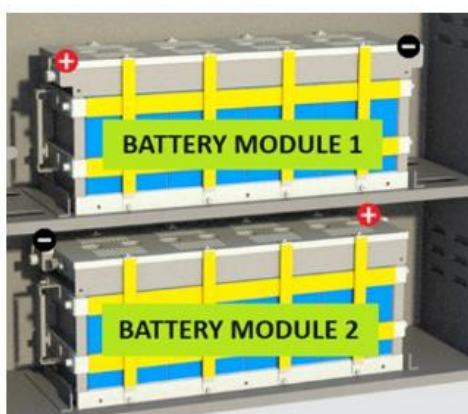
2. Open the bottom compartment of the ESS Inverter, and turn-off the ESS Battery Circuit Breaker (BATTERY +/BATTERY -), the Generator (GEN) Circuit Breaker, the GRID Circuit Breaker, and the Backup Panel (BACKUP) Circuit Breaker.



- Wait at least 10 minutes after turning off the last circuit breaker before starting any work or performing any maintenance to allow any energy stored in the ESS Inverter to dissipate.

 CAUTION	Before maintaining and commissioning inverter and its peripheral distribution unit, switch off all the charged terminals of the inverter and wait at least 10 minutes after the inverter is powered off.
--	---

- Before performing any work or maintenance inside the ESS Battery enclosure, the B4 battery power cable connecting the two battery modules must be disconnected from the battery modules. When removing the B4 battery cable, use an insulated 10mm Allen wrench.



(b) Routine Maintenance

Item s	Check Content	Maintain Content	Maintenance Interval
Inverter cleaning	Check periodically that the heat sink is free from dust and blockage.	Clean periodically the heat sink.	Yearly
Inverter running status	Check that the inverter is not damaged or deformed. Check for normal sound emitted during inverter operation. Check and ensure that all inverter communications are running well.	If there is any abnormal phenomenon, replace the relevant parts.	Monthly
Inverter electrical connections	Check that all AC, DC and communication cables are securely connected; Check that PGND cables are securely connected; Check that all cables are intact and free from aging.	If there is any abnormal phenomenon, replace the cable or re-connect it.	Semiannually

(c) Inverter Troubleshooting

When the inverter has an exception, its basic common warning and handling methods are shown below.

Code	Alarm Information	Suggestions
A☒	Grid over voltage	☒ . If the alarm occurs occasionally, possibly the power grid voltage is abnormal temporarily, and no action is required. ☒ . If the alarm occurs repeatedly, contact the local power station. After receiving approval of the local power bureau, revise the electrical protection parameter settings on the inverter through the App. ☒ . If the alarm persists for a long time, check whether the AC circuit breaker /AC terminals are disconnected, or if the grid has a power outage.
A☒	Grid under voltage	
A☒	Grid over frequency	
A☒	Grid under frequency	
A☒	Grid absent	Wait till power is restored.
B☒	PV over voltage	Check whether the maximum input voltage of a single PV string exceeds the MPPT working voltage. If yes, modify the number of PV module connection strings.
B☒	PV insulation abnormal	☒ . Check the insulation resistance against the ground for the PV strings. If a short circuit has occurred, rectify the fault. ☒ . If the insulation resistance against the ground is less than the default value in a rainy environment, set insulation resistance protection on the App.
B☒	Leakage current abnormal	☒ . If the alarm occurs occasionally, the inverter can automatically recover to the normal operating status after the fault is rectified. ☒ . If the alarm occurs repeatedly, contact your dealer for technical support.
B☒	PV under voltage	☒ . If the alarm occurs occasionally, possibly the external circuits are abnormal accidentally. The inverter automatically recovers to the normal operating status after the fault is rectified. ☒ . If the alarm occurs repeatedly or last a long time, check whether the insulation resistance against the ground of PV strings is too low.
C☒	Internal power supply abnormal	☒ . If the alarm occurs occasionally, the inverter can be automatically restored, and no action is required. ☒ . If the alarm occurs repeatedly, please contact customer service.

C☑	Inverter over dc-bias current	☑. If the alarm occurs occasionally, possibly the power grid voltage is abnormal temporarily, and no action is required. ☑. If the alarm occurs repeatedly, and the inverter fails to generate power, contact customer service.
C☑	Inverter relay abnormal	☑. If the alarm occurs occasionally, possibly the power grid voltage is abnormal temporarily, and no action is required. ☑. If the alarm occurs repeatedly, pls. refer to the suggestions or measures of Grid over voltage. If the inverter fails to generate power, contact the customer service center. If there is no abnormality on the grid side, the machine fault can be determined. (If you open the cover and find traces of damage to the relay, it can be concluded that the machine is faulty.) And pls. contact customer service.
CN	Remote off	☑. Local manual shutdown is performed in APP. ☑. The monitor executed the remote shutdown instruction. ☑. Remove the communication module and confirm whether the alarm disappears. If yes, replace the communication module. Otherwise, please contact customer service.
C☑	Inverter over temperature	☑. If the alarm occurs occasionally, the inverter can automatically recover. No action is required. ☑. If the alarm occurs repeatedly, please check whether the installation site has direct sunlight, bad ventilation, or high ambient temperature (such as installed on the parapet). Yet, if the ambient temperature is lower than ☑° C and the heat dissipation and ventilation is good, please contact customer service.
C☑	GFCI abnormal	☑. If the alarm occurs occasionally, it could have been an occasional exception to the external wiring. The inverter can automatically recover. No action is required. ☑. If it occurs repeatedly or cannot be recovered for a long time, please contact customer service.
B☑	PV string reverse	Check and modify the positive and negative polarity of the input string.
C☑	Fan abnormal	☑. If the alarm occurs occasionally, please restart the inverter. ☑. If it occurs repeatedly or cannot be recovered for a long time, check whether the external fan is blocked by other objects. Otherwise, Please contact customer service.
C☑	Unbalance Dc-link voltage	☑. If the alarm occurs occasionally, the inverter can automatically recover. No action is required. ☑. If the alarm occurs repeatedly, the inverter cannot work properly. Please contact customer service.
CA	Dc-link over voltage	

CB	Internal communication error	☒ . If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☒ . If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CC	Software incompatibility	☒ . If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☒ . If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CD	Internal storage error	☒ . If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☒ . If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CE	Data inconsistency	☒ . If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☒ . If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CF	Inverter abnormal	☒ . If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☒ . If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CG	Boost abnormal	☒ . If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☒ . If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
CJ	Meter lost	☒ . Check the meter parameter Settings ☒ . Local APP checks that the communication address of the inverter is consistent with that of the electricity meter ☒ . The communication line is connected incorrectly or in bad contact ☒ . Electricity meter failure. ☒ . Excluding the above, if the alarm continues to occur, please contact customer service center.
P ☒	Parallel ID warning	It is Parallel ID Alarm. Pls. check the parallel communication cable, and check whether any inverter joins or exits online. All inverters are powered off completely, check the line, and then power on the inverters again to ensure that the alarm is cleared.
P ☒	Parallel SYN signal warning	Parallel synchronization signal is abnormal. Check whether the parallel communication cable is properly connected.
P ☒	Parallel BAT abnormal	The parallel battery is abnormal. Whether the battery of the inverter is reported to have low voltage or the battery is not connected.
P ☒	Parallel GRID abnormal	The parallel grid is abnormal. Whether the grid of the inverter is abnormal.

P	Phase Sequence abnormal	Ensure that Set phase position on APP is consistent with the power grid phase. There are two ways to clear this alarm : ☑. Power off each inverter, change the phase sequence for each inverter and then power on inverter. ☑. Standby each inverter, change the phase sequence for each inverter on APP, power off inverter, and then power on inverter. If excluding the above, the alarm continues to occur, please contact the customer service center.
D	Battery over voltage	☑. If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☑. Check that the battery overvoltage protection value is improperly set. ☑. The battery is abnormal. ☑. If excluding the above, the alarm continues to occur, please contact the customer service center.
D	Battery under voltage	☑. If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☑. Check the communication line connection between BMS and inverter (lithium battery). ☑. The battery is empty or the battery voltage is lower than the SOC cut-off voltage. ☑. The battery undervoltage protection value is improperly set. ☑. The battery is abnormal. ☑. If exclude the above, the alarm continues to occur, please contact the customer service center.
D	Battery discharger over current	☑. Check whether the battery parameters are correctly set. ☑. Battery undervoltage. ☑. Check whether a separate battery is loaded and the discharge current exceeds the battery specifications. ☑. The battery is abnormal. ☑. If exclude the above, the alarm continues to occur, please contact the customer service center.
D	Battery over temperature	☑. If the alarm occurs repeatedly, please check whether the installation site is in direct sunlight and whether the ambient temperature is too high (such as in a closed room). ☑. If the battery is abnormal, replace it with a new one. ☑. If exclude the above, the alarm continues to occur, please contact the customer service center.
D	Battery under temperature	
D	BACKUP output voltage abnormal	☑. Check whether the BACKUP voltage and frequency Settings are within the specified range. ☑. Check whether the BACKUP port is overloaded. ☑. When not connected to the power grid, check whether BACKUP output is normal. ☑. If exclude the above, the alarm continues to occur, please contact the customer service center.

D	Communication error (Inverter-BMS)	☑. Check whether the battery is disconnected. ☑. Check whether the battery is well connected with the inverter. ☑. Confirm that the battery is compatible with the inverter. It is recommended to use CAN communication. ☑. Check whether the communication cable or port between the battery and the inverter is faulty. ☑. If exclude the above, the alarm continues to occur, please contact the customer service center.
D	Internal communication loss(E-M)	☑. Check whether the communication cables between BACKUP, electricity meter and inverter are well connected and whether the wiring is correct ☑. Check whether the communication distance is within the specification range ☑. Disconnect the external communication and restart the electricity meter and inverter. ☑. If exclude the above, the alarm continues to occur, please contact the customer service center.
DA	Internal communication loss(M-D)	
CU	Dcdc abnormal	☑. If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☑. If the alarm occurs repeatedly, please check: ☑) Check whether the MC terminal on the PV side is securely connected. ☑) Check whether the voltage at the PV side is open circuit, ground to ground, etc. If exclude the above, the alarm continues to occur, please contact the customer service center.
CP	BACKUP over dc-bias voltage	☑. If the alarm occurs occasionally, the inverter can automatically recover and no action is required. ☑. If the alarm occurs repeatedly, the inverter cannot work properly. Pls. contact the customer service center.
DB	BACKUP short circuit	☑. Check whether the live line and null line of BACKUP output are short-circuited. ☑. If it is confirmed that the output is not short-circuited or an alarm, please contact customer service to report for repair. (After the troubleshooting of alarm problems, BACKUP switch needs to be manually turned on during normal use.)
DC	BACKUP over load	☑. Disconnect the BACKUP load and check whether the alarm is cleared. ☑. If the load is disconnected and the alarm is generated, please contact the customer service. (After the alarm is cleared, the BACKUP switch needs to be manually turned on for normal use.)

APPENDIX F – UL 9540A Unit Level Test Results

The MeterHome™ Multi-Part AC Energy Storage System, Model No. MH-1010143E, has been tested and evaluated at the unit level in accordance with UL 9540A and found to conform to the acceptance criteria of the test standard. The results of the testing and evaluation are documented in Intertek Test Report No.: 105933855CRT-002, dated January 31, 2025.

The composition and volumes of the released gases as well as the released smoke rate are summarized in the tables below.

Illustration A1: Gas Composition Excluding the Constituents with Boiling Points Higher Than 60°C			
Gas		Measured %	Component LFL
Carbon Monoxide	CO	10.680	10.9
Carbon Dioxide	CO ₂	23.743	N/A
Hydrogen	H ₂	51.194	4.0
Methane	CH ₄	5.878	4.4
Acetylene	C ₂ H ₂	0.148	2.3
Ethylene	C ₂ H ₄	3.828	2.4
Ethane	C ₂ H ₆	1.205	2.4
Propadiene (Allene)	C ₃ H ₄	N.D.*	1.9
Propene	C ₃ H ₆	0.933	1.8
Propane	C ₃ H ₈	0.395	1.7
-	C ₄ (Total)	1.075	N/A
-	C ₅ (Total)	0.303	N/A
-	C ₆ (Total)	0.179	N/A
1-Heptene	C ₇ H ₁₄	0.026	N/A
Styrene	C ₈ H ₈	N.D.*	1.1
Benzene	C ₆ H ₆	0.064	1.2
Toluene	C ₇ H ₈	0.010	1.0
Dimethyl Carbonate	C ₃ H ₆ O ₃	0.007	N/A
Ethyl Methyl Carbonate	C ₄ H ₈ O ₃	0.332	N/A
Total	-	100	-

*N.D. – Non Detectable

Table 1: Smoke Release Rate

Smoke Release Rate (SRR)	
Max SRR (m ² /s)	0.72
Total Smoke Released (m ²)	272.45
Max smoke release rate observed 9 Jan 2025 at 12:58:38. Total smoke released totaled for the duration of the test (9 Jan 2025 at 11:39:42 to 10 Jan 2025 at 06:35:45).	

Table 2: Gas Details

Gas	Volume Measured (L)
Carbon Monoxide	0.07
Carbon Dioxide	0.35
Hydrogen (Gold, Silicon Oxy-Nitride)	0.54
Unburned Hydrocarbons	0.55

APPENDIX G - Manual Revision Table

Revision Date	Version	Description	Approved by
3.11.2025	1.0.0	Initial Release	Virgil Beaston
3.11.2025	1.0.1	Updated UL 9540 Labels; Added Additional Maintenance Safety Instructions	Virgil Beaston
3.16.2025	1.0.2	Added UL 9540A Test Results; Added Additional Maintenance Instructions	Virgil Beaston
4.1.2025	1.0.3	Added New Warning and Product Labels	Virgil Beaston
4.24.2025	1.0.4	Added FS Reference	Virgil Beaston
4.25.2025	1.0.5	Added Reference to BMS Passing UL60730 Testing	Virgil Beaston