60K-3P-480V HYBRID INVERTER

QUICKSTART GUIDE

Effective Date: October 29, 2026



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60K Installation QuickStart

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About this guide

This QuickStart Guide provides the essential steps for installing a Sol-Ark inverter. This guide is divided into two parts:

- The **60K Installation QuickStart** section starting on the next page lists the basic steps you need, with links to more detailed information in the second part of the guide.
- The **More Information** section starting on page 25 provides additional details that you might need.

For full information, see the *60K-3P-480V Installation Manual*.

Disclaimer

This QuickStart Guide offers a brief installation and commissioning overview for the Sol-Ark 60K-3P-480V Hybrid Inverter. It is not intended to, and should not, replace the *60K-3P-480V Installation Manual* or to address all matters referred to in the Manual.

This product may be dangerous if improperly configured, installed or operated. You are urged to read and review the full Manual, including applicable data sheets, and to visit the Sol-Ark Knowledge Hub to learn more fully about this product.

The information included in this QuickStart Guide is subject to, and qualified by, the information set forth in the Manual, including important disclaimers and warnings that limit or exclude Sol-Ark's liability.

See the Installation Manual for details, including advanced configurations, necessary to meet the requirements or needs for system performance.

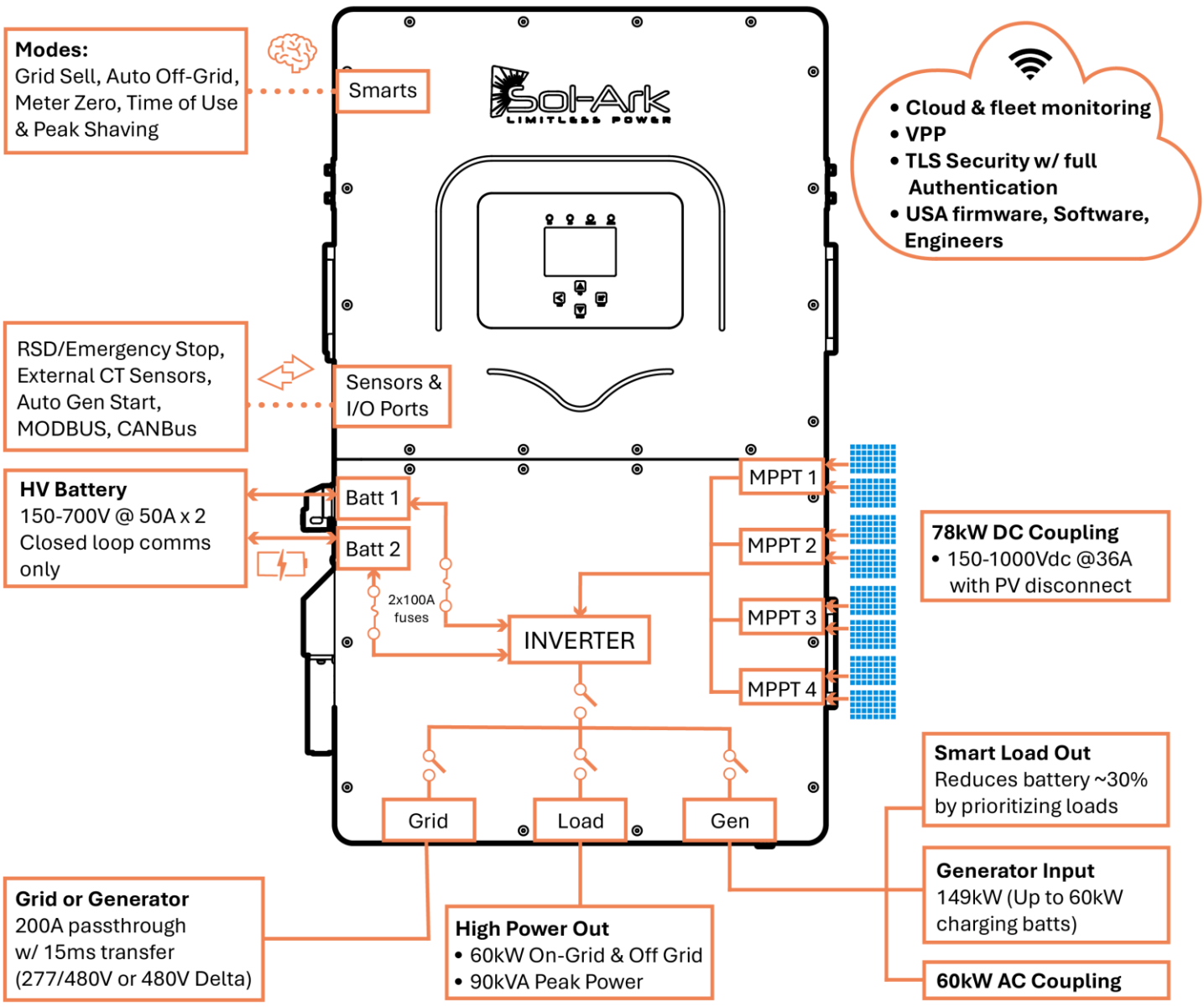
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Inverter Overview

60K-3P-480V

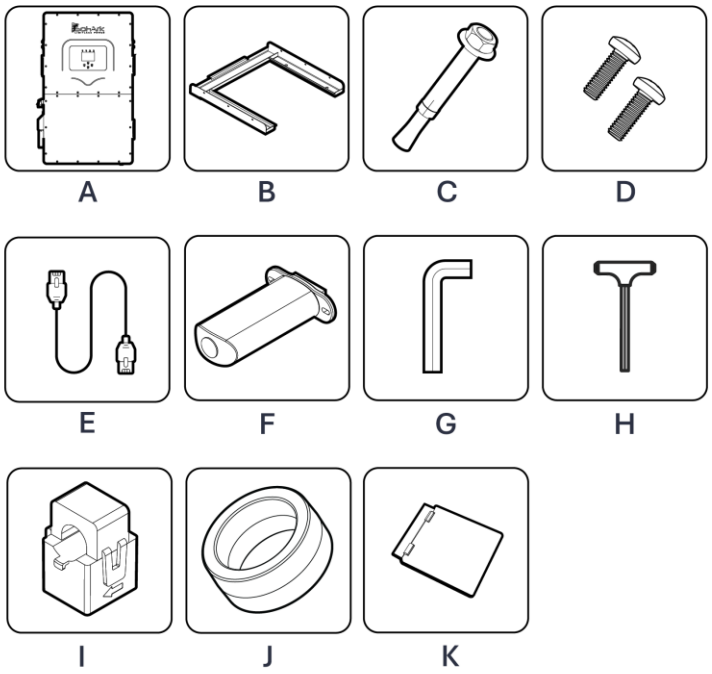
277/480V, 220/380V, 3-Phase Wye & Delta



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Before You Start

Step 1. Confirm all items are in the box.



Component	Description	Quantity
A	Sol-Ark 60K-3P-480V inverter	1
B	Wall Mounting Bracket	1
C	M12 x 60 mm expanding anchors for masonry anchoring	4
D	M4 x 12 mm screws – Set screws for mounting carrier	9
E	Inverter Parallel Cables - CAT 5E comm cables	2
F	Wi-Fi / Ethernet Gateway (dongle)	1
G	3 mm L-type hex key for front panel screws	1
H	8 mm T-type hex key for AC terminals	1
I	300 A Current transformers (CT sensors)	3
J	Filter rings	3
K	LCD Sunshade (for outside installations)	1

Other items you'll need:

- USB Stick (Battery updates) | Smartphone or computer | Phase Detection Tool

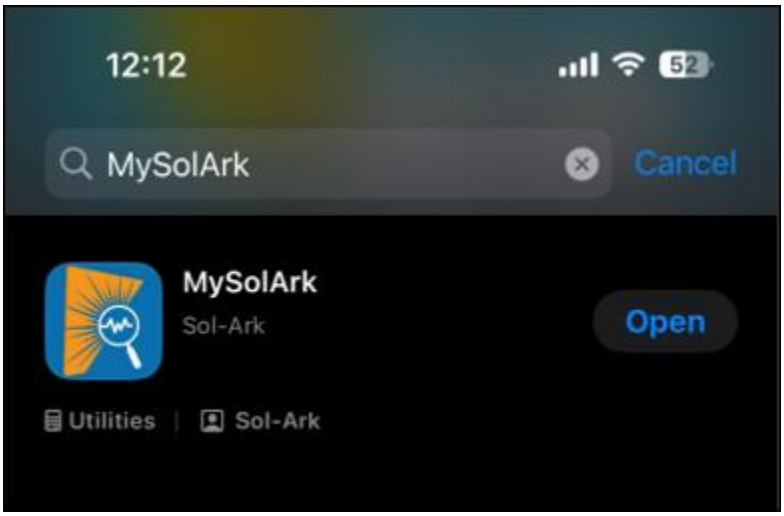
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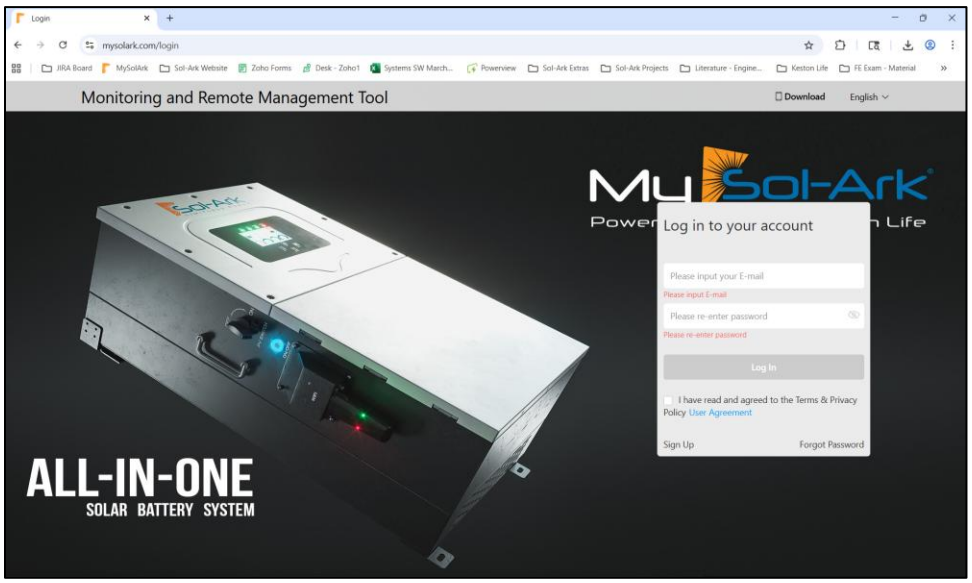
Step 2. Set up MySolArk.

Create a MySolArk Account (MSA) by downloading the app or visiting www.mysolark.com to access the desktop version.

MySolArk in the App Store



MySolArk Desktop on the Sol-Ark Website



- The email used will be the primary account for all created plants.

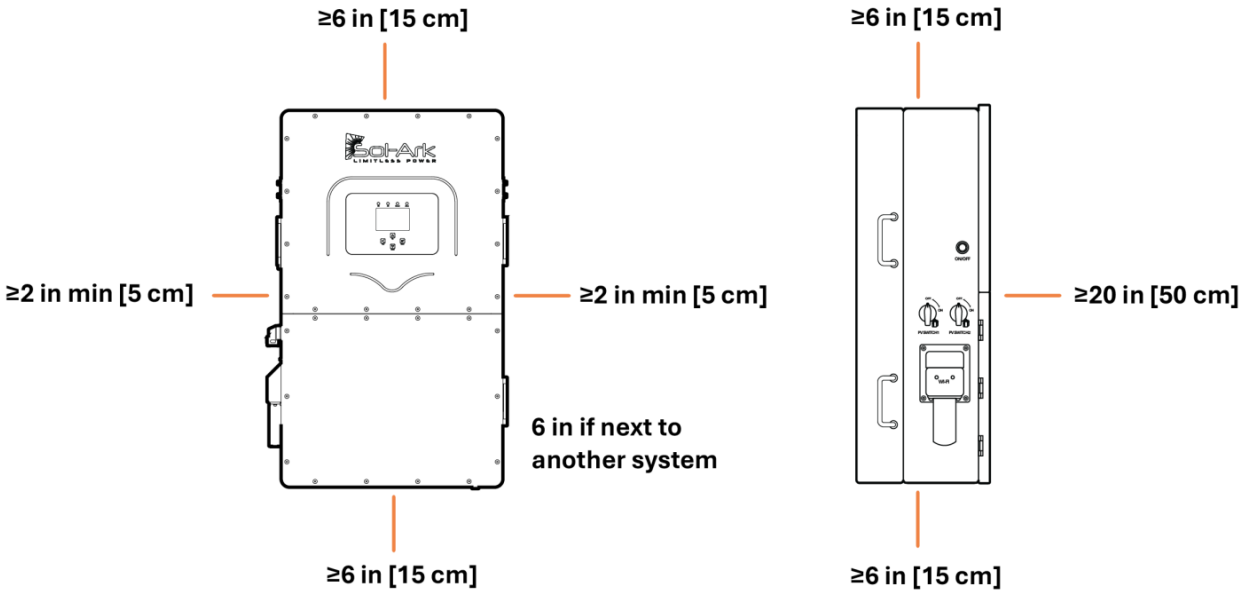
➢ See the *60K-3P-480V Installation Manual* for more information on setting up MySolArk.

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Step 3. Prepare the site.

Locate a suitable area to mount the inverter and follow requirements:

- 6 in. vertical clearance (15.2 cm)
- 2 in. side clearance (5.1 cm)
- 6 in. side clearance from another system (15.2 cm)
- Protect LCD from direct exposure to UV light
- Operating temperature of –40 °F to 140 °F (–40 °C to 60 °C)



NOTE: Under certain circumstances, NEC requires greater clearances, and the installer should abide by AHJ if mandated. See NEC 2023 paragraph 110.26 and Canadian Electrical Code CSA C22.1.

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Step 4. Mount inverter to surface with proper hardware.

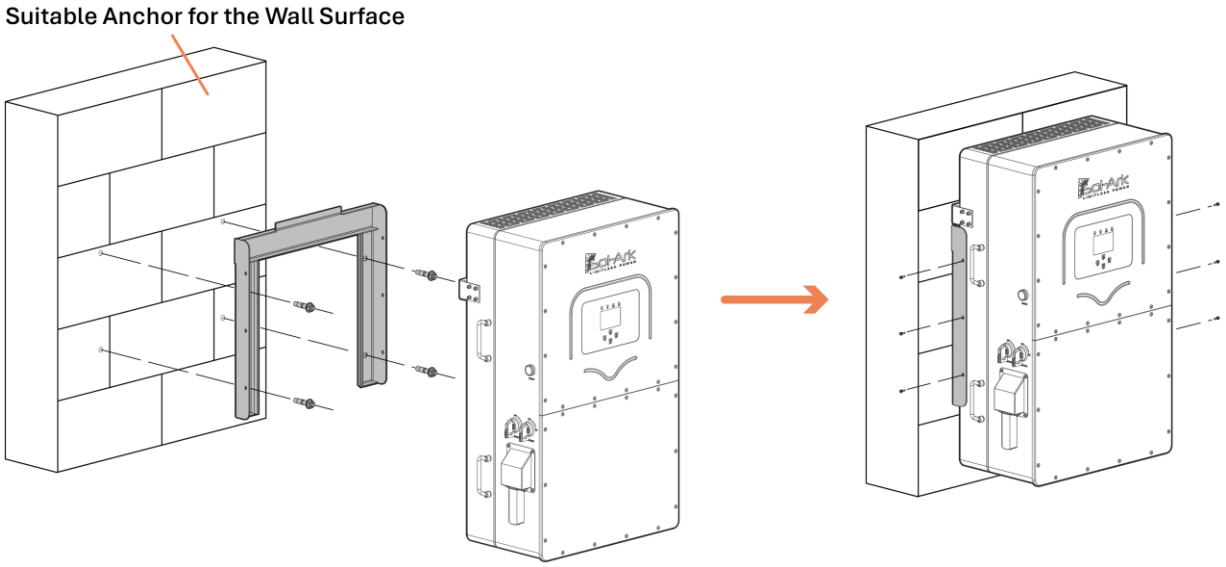
A. Use screws or anchors suitable to support inverter weight (176 lb / 80 kg):

- **Concrete or masonry:** Minimum four (4) M12 x 60 mm expanding anchors
- **Wood frame:** Minimum four (4) ½ in. lag screws with flat washers
- **Metal frame:** Minimum four (4) ¼ in. self-tapping screws with flat washers

B. Secure the inverter to the mounting cleat with six of the M4 × 12 mm socket-head screws.

C. Inverter should be in the optimal upright position as shown below.

D. Remove the plastic film from the LCD screen.

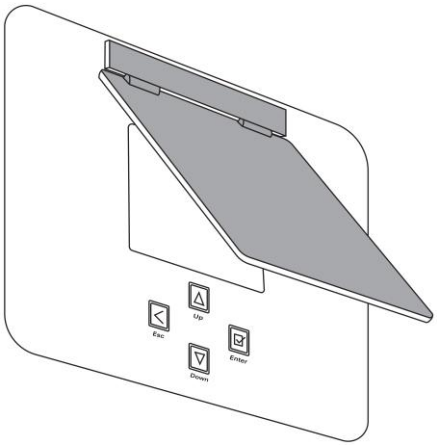


➢ See Mounting the Sol-Ark (Step 4 Details) for additional information.

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Step 4b. Install the LCD Sunshade (outside installations only).

If the Sol-Ark is installed outside, attach the LCD Sunshade. This will help prevent screen damage from UV exposure.



A. Peel off the plastic film from the inverter's display surface, if it's not already removed.
B. Make sure the surface is clean and dry before installation.
C. Assemble the Sunshade flap:
    1. Insert the flap's hinge pins into the hinge slots on the base plate.
    2. Verify that the flap opens and closes smoothly.
D. Attach the base plate:
    1. Peel the backing from the double-sided adhesive tape.
    2. Align the base plate with the display area just above the LED lights for DC, AC, Normal, and Alarm.
        - The Sunshade should cover the LED lights, LCD, and buttons.
        - **The adhesive is permanent**, so confirm the alignment before applying pressure.
    3. Press firmly to secure the Sunshade.

NOTE: Damage to the LCD screen due to direct sunlight exposure will not be covered by warranty.

Need to purchase an LCD Sunshade?

LCD Sunshades were included with Sol-Ark inverters starting on May 4, 2026. If you have an outdoor installation and did not receive an LCD Sunshade, you can purchase one by going to the Sol-Ark Online Store.

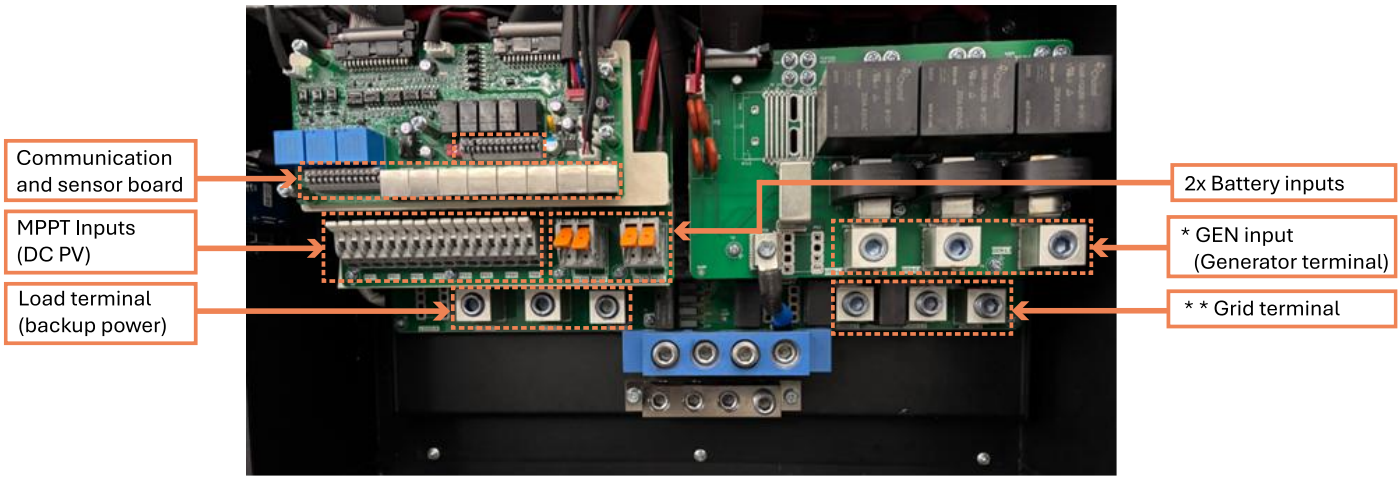
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Inverter Wiring

Step 5. Connect inputs and outputs.

Locate inputs in the user wiring area and connect all wires to the applicable inputs and outputs.



Notes

- **GEN** port can also be used for AC Coupling or Smart load output
- **GRID** port can also be used for a generator

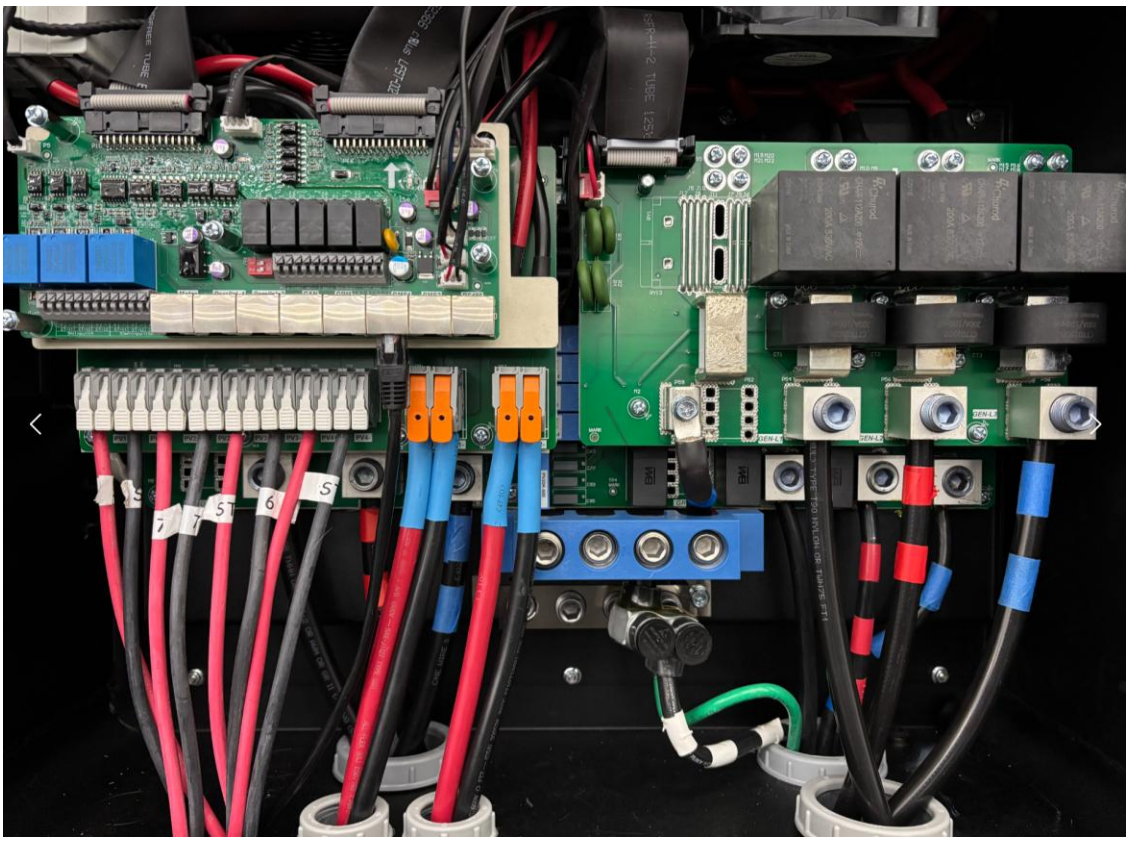
➢ See Inverter General Description for more information on inverter wiring.

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Step 6. Check wiring area.

In the inverter user wiring area, check these:

- Connections have the correct torque
- Wire is sized appropriately for the terminal rating and applicable NEC requirements



NOTE: Do NOT have inverter, PV, batteries, or grid/gen AC disconnect closed while checking wires.

➢ See Connection Requirements (Step 6 Details) for more information.

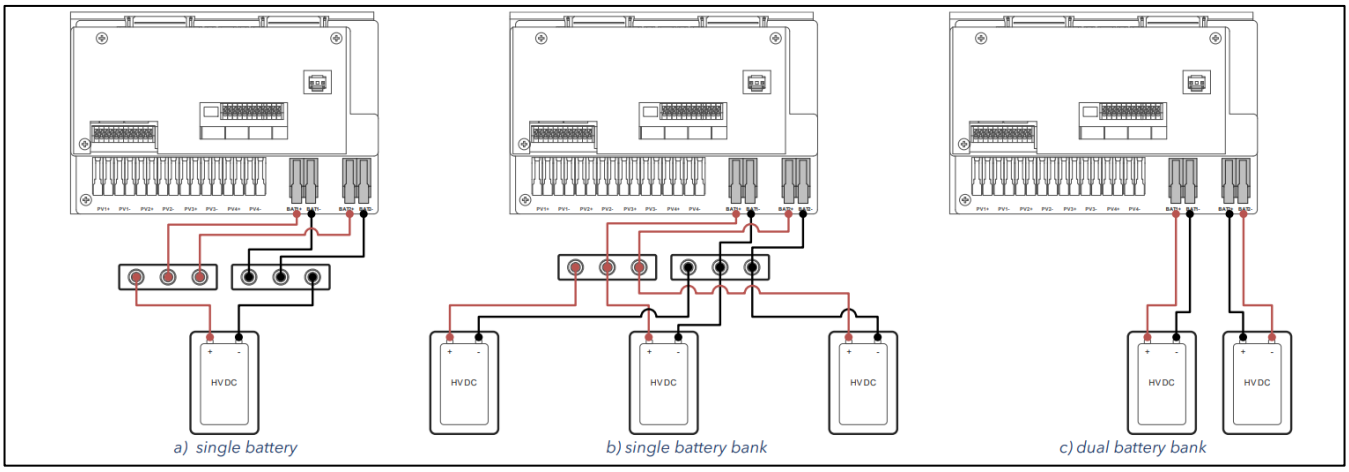
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Step 7. Confirm proper wiring for high-voltage battery integration.

Wire into both **BATT1** and **BATT2** inputs for full 60 kW output.

- Single battery
  - Parallel battery to **BATT1** and **BATT2** inputs
  - Use **BMS1** input
- Single battery bank (≥ 2 battery stacks)
  - Parallel battery to **BATT1** and **BATT2** inputs
  - Use **BMS1** input
- Dual battery bank
  - Run each battery independently to **BATT1** and **BATT2** inputs
  - Use **BMS1** for battery 1, and **BMS2** input for battery 2





➢ See **Step 10.** Set up battery communications. for detailed information on integrating batteries.

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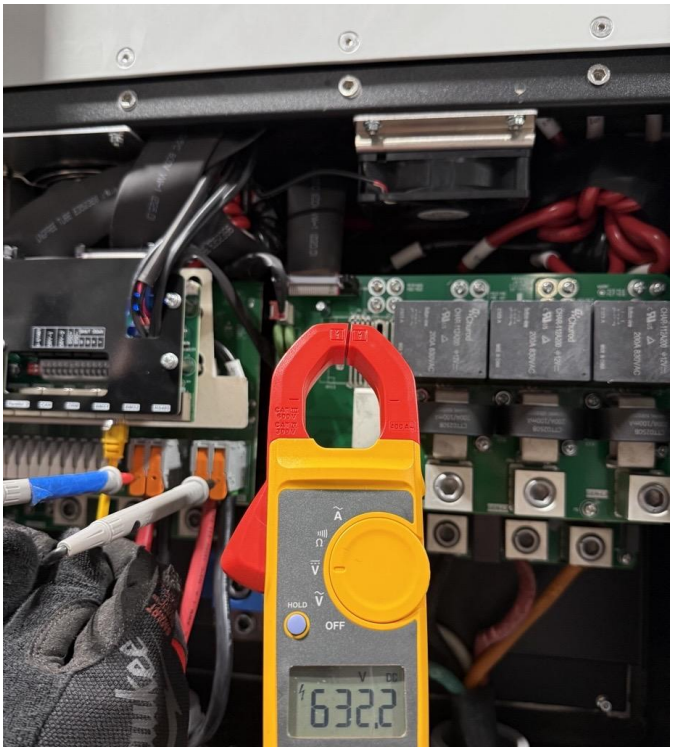
Step 8. Check polarity and voltage.

A. Turn ON all batteries

- On the battery, if it has an internal breaker and/or switch, make sure that it's closed
- See the battery manufacturer's manual for the proper battery startup sequence

B. Check wiring polarity and DC voltage on each input

- Use a multimeter to check (+) and (-) voltage to confirm correct polarity and operating voltage from the battery bank



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Step 9. Turn inverter ON.

A. Press the inverter **ON** button and wait for Normal LED to light up above the screen. This may take a few minutes.



B. If you're waiting more than 2 minutes, check the battery voltage on the terminals to make sure it's within operating voltage.

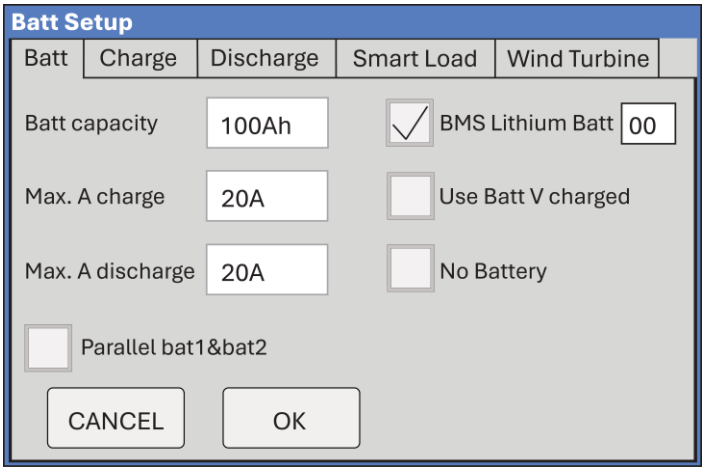
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Set Up Batteries

Step 10. Set up battery communications.

On the Inverter screen, go to **Settings > Battery Setup** to program battery communications.

A. Check the **BMS Lithium Batt** check box.
B. Set the **Protocol Number** to **00** when using Sol-Ark L3 Series batteries or any other approved battery.
C. Check **Parallel bat1&bat2** if the battery bank is parallel to both inputs.
D. Tap **OK**.



➢ See Bacations (Step 10 Details) to confirm that all battery settings are programmed appropriately according to the battery specifications.

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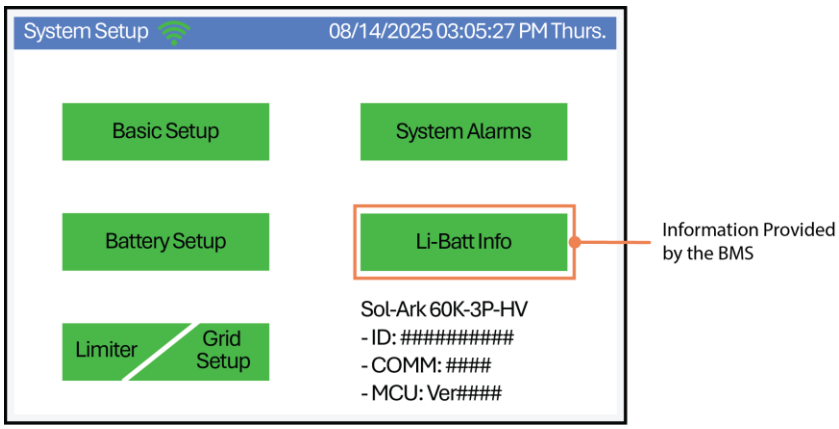
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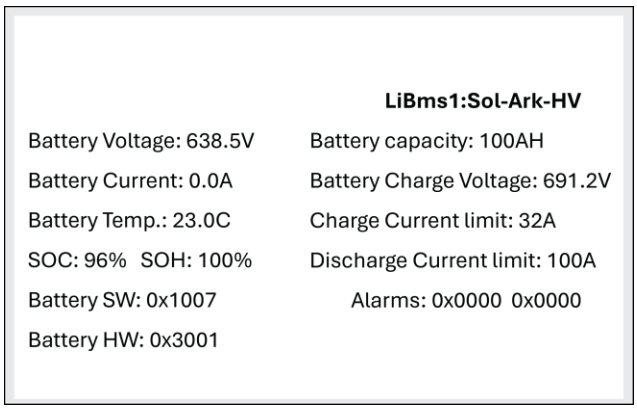
Step 11. Check battery communications.

On the Main screen, tap **Li-Batt Info** to confirm communications are established between the battery and inverter.

Check these values to make sure they are correct:

- Voltage
- SOC
- Temperature
- Charge/discharge current limit





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Check Inverter Setup

Step 12. Check PV input.

For each MPPT:

A. Check for correct polarity
B. Ensure expected open circuit voltage (Voc)
C. Turn ON PV disconnect
D. Confirm the DC LED is lit above screen



- Make sure the external DC disconnect for PV is turned on
- If using rapid shutdown device with transmitter energized by inverter **LOAD** output, the circuit must be turned on to produce PV power

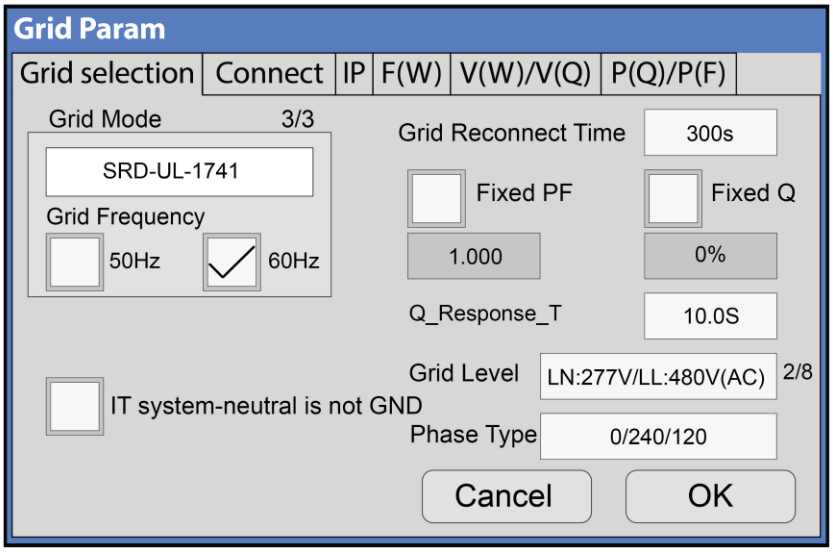
➢ See Connecting PV Modules (Step 12 Details) for more information.

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Step 13. Check Grid Parameters.

On the inverter screen, go to **Settings > Grid Param** and make sure that appropriate parameters are enabled.



- Program correct Grid Level depending on service
- Enable **IT system-neutral is not GND** if service is a no-neutral Delta configuration

➢ See Check Grid Parameters (Step 13 Details) for more information on grid settings.

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Step 14. Confirm Grid Phasing and AC Voltage.

A. Turn ON the Grid AC disconnect
B. Check the grid phasing and AC voltage levels
C. Confirm that the AC LED is lit above the screen



Voltage Check with Multimeter



Grid Phase Detection Meter

You can use a multimeter and phase tool to validate grid levels coming into terminals.

- **For off-grid configuration with a generator**, turn on the generator and follow the same steps on **GEN** or **GRID** input (depending on where it's wired)
- **For off-grid configuration with no generator**, skip steps 15 and 16 starting on the next page

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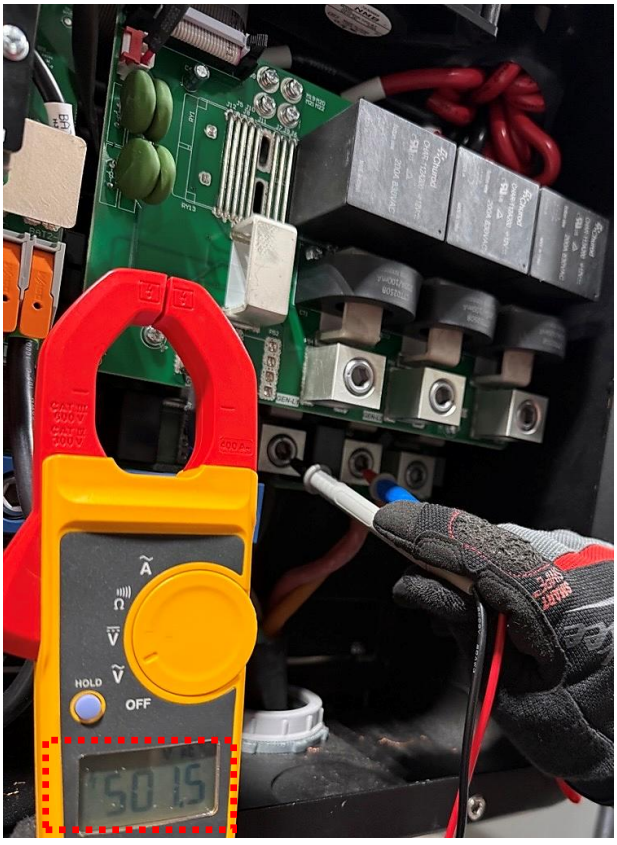
Step 15. Check Load AC voltage.

Perform phase-to-neutral and phase-to-phase measurements to ensure that voltage is present at the load terminals and matches the main voltage levels, if applicable.

A. Measure the applicable L-N and L-L voltages at the **LOAD** terminals to verify they match the **GRID** input phases:
   - **277/480 V Wye:** 277 V_{AC} (L-N) and 480 V_{AC} (L-L)
   - **480 V Delta:** 480 V_{AC} (L-L)

B. Turn ON the breaker or disconnect feeding **LOAD** panel.

C. Check to make sure circuits on the load panel are energized.

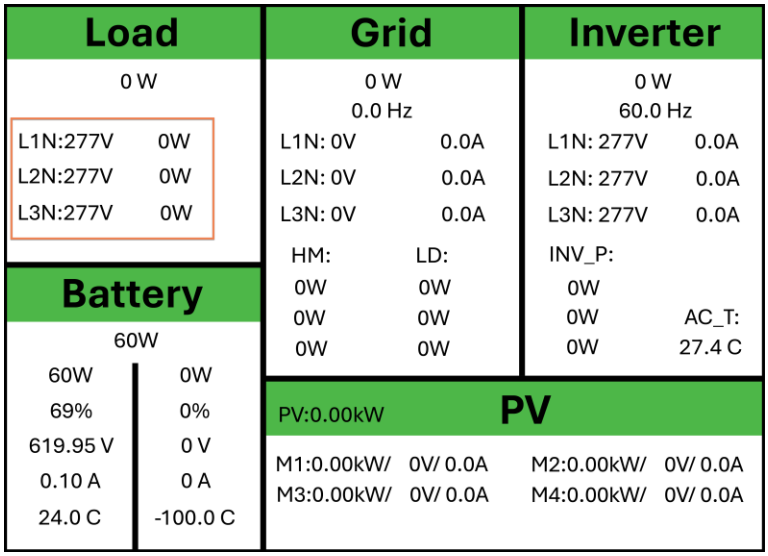


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Step 16. Test Island Mode.

A. Turn the grid AC disconnect to OFF position. With batteries, the inverter should seamlessly switch to battery backup to load output.

B. On the inverter main screen, tap the battery icon to display the detailed voltage screen:



C. **Check the Load** to make sure L1, L2, and L3 have correct voltage.

D. **Check the Battery** to make sure battery voltage is present.

➢ For more information, see Test Island Mode (Step 16 Details).

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Set Up Wi-Fi

Step 17. Connect the dongle.

Connect the dongle to the **DB-9** Wi-Fi port on the left side of the inverter.



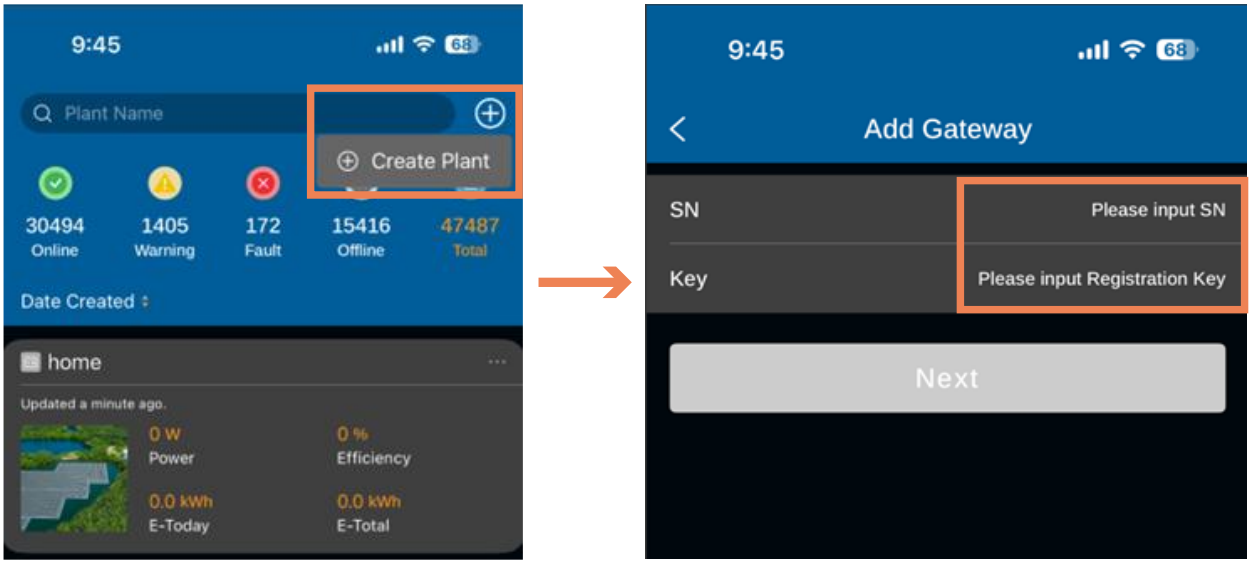
- A solid **red** LED indicates power to the device.

➢ To set up Wi-Fi using an IP address, see Alternate Method for Connecting to Wi-Fi using IP Address (Step 17 Details)

60K Installation QuickStart

Step 18. Create the plant.

Using the **MySolArk** app, create a plant by scanning the QR code and filling out the required fields.



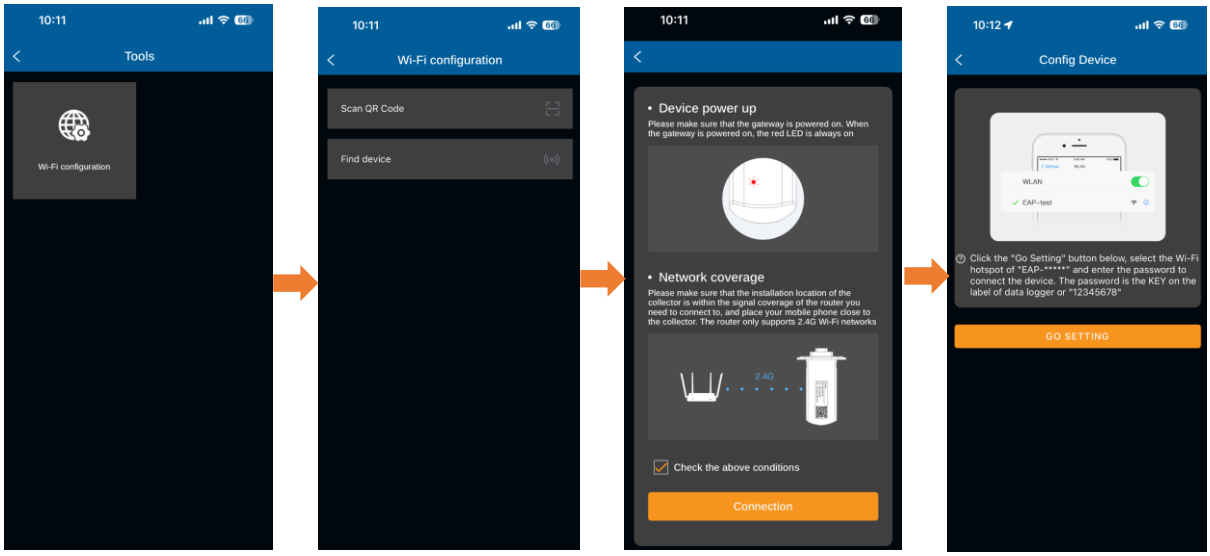
➢ For more information, see Create a Plant on MySolArk.

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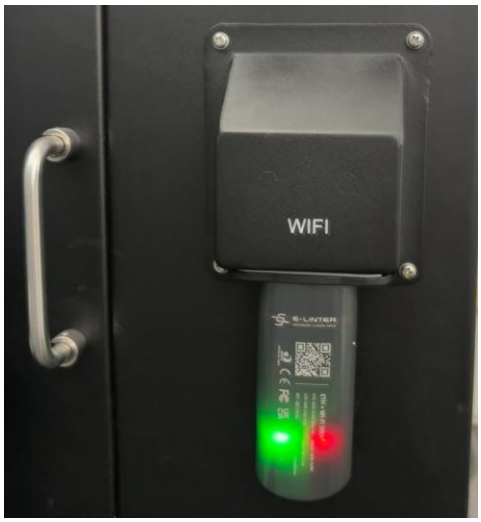
60K Installation QuickStart

Step 19. Configure the Wi-Fi network.

A. Configure the Wi-Fi network to the dongle via MSA. A green LED will light on the dongle when the network is connected.



B. Check the dongle's LED status.



➢ If unsuccessful, try Alternate Method for Connecting to Wi-Fi using IP Address (Step 17 Details).

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Step 20. Check network stability.

In **MySolArk**, review data to ensure the network is stable and power flow data is showing correctly.

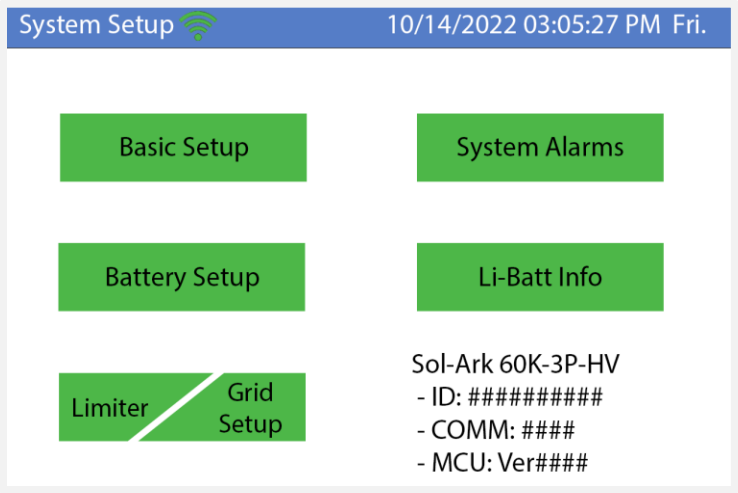


NOTE: MSA data is not real-time, as a data point will populate every 5 minutes. It's recommended to compare the Sol-Ark power flow on the GUI screen against what MSA reports for the created plant.

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Step 21. Check system performance.

If necessary, go through the rest of the settings to program the desired performance of the system.



- For information about the different system work modes, go to System Work Modes (Step 21 Details).
- For information about TOU settings, go to Time of Use (TOU).
- For information about peak shaving, go to Advanced Setting – Grid Peak Shaving.

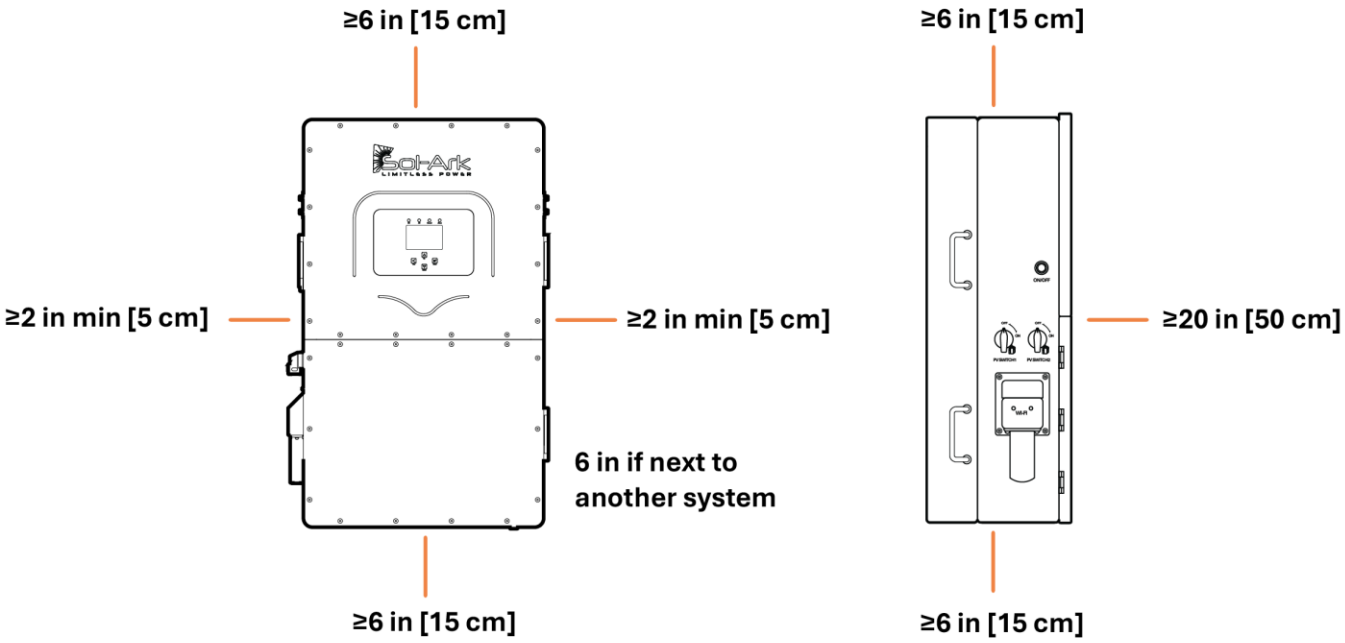
MORE INFORMATION

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More Information

Mounting the Sol-Ark (Step 4 Details)

A. Considering the dimensions of the inverter, find a suitable location for the system. There must be at least 6 in [15 cm] of vertical clearance and 2 in [5 cm] of side clearance for proper heat dissipation.



Inverter Clearances Overview

NOTE: Inverter has a Maximum Heat Dissipation of 2,100 W or 7,165 BTU/hour.

B. Under certain conditions, the National Electrical Code® specifies greater clearances. Use the clearances listed in the National Electrical Code®, paragraph 110.26 and Canadian Electrical Code® CSA C22.1.

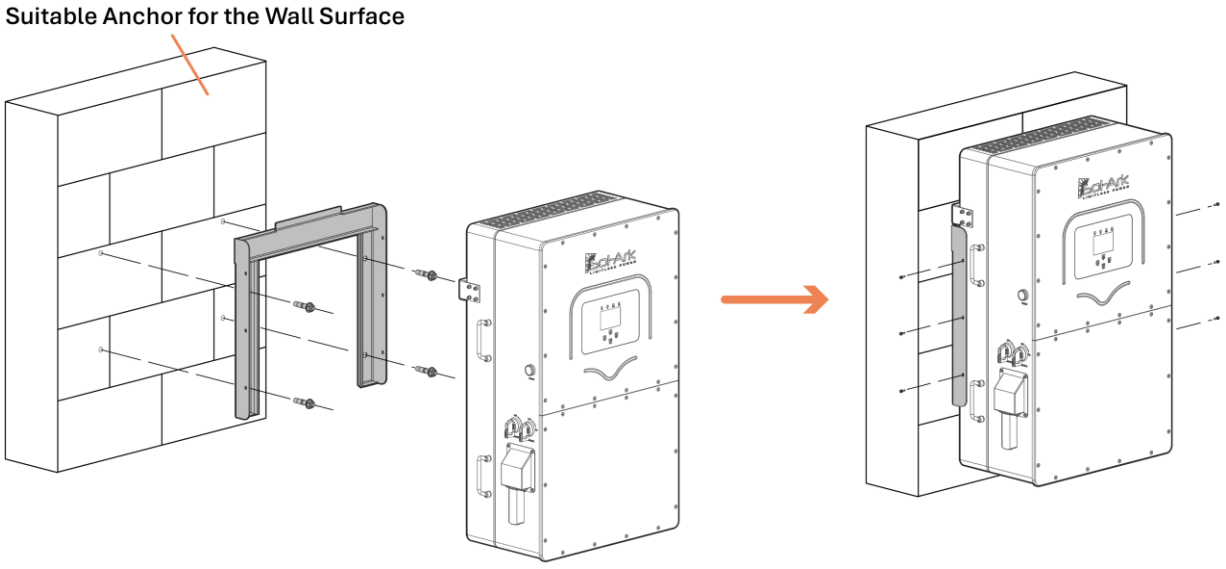
C. The Sol-Ark 60K-3P-480V is a NEMA 3R - IP65 enclosure rated for outdoor installation, but it can also be installed indoors.

More Information

Mounting the Sol-Ark (Step 4 Details Continued)

D. Use screws or anchors suitable for the support surface and capable of supporting the weight of the inverter (176 lb / 80 kg).

- ***For Concrete or Masonry Mounting***: Use a minimum of four M12 x 60 mm expanding anchors (included).
- ***For Wood Frame Mounting***: Use a minimum of four ½-in lag screws with flat washers (not included), making sure to anchor into at least two framing members.
- ***For Metal Framing Mounting***: Use a minimum of four ¼-in self-tapping metal screws with flat washers (not included).
  - If you need a different anchorage, calculate the number of anchor points needed to properly hold the weight of the equipment.
  - Secure the inverter to the mounting cleat with six of the provided M4 x 12 mm socket head screws.



Inverter Mounting Diagram

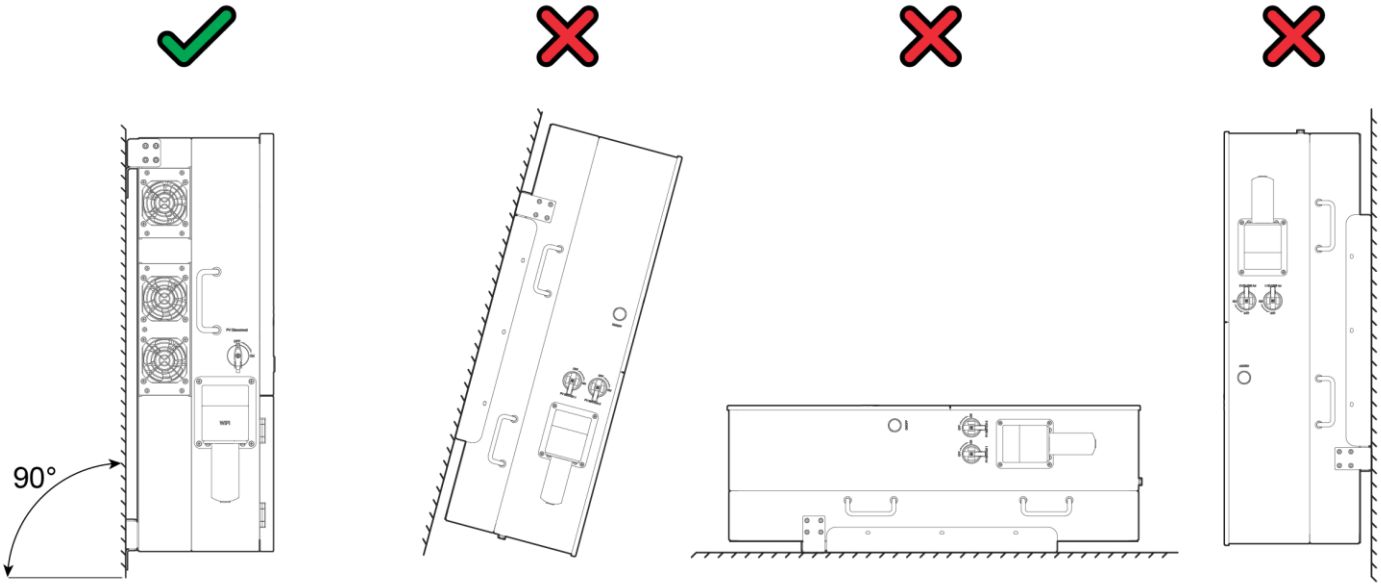
NOTE: Damage to the LCD screen due to direct sunlight exposure will not be covered by warranty.

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More Information

Mounting the Sol-Ark (Step 4 Details Continued)

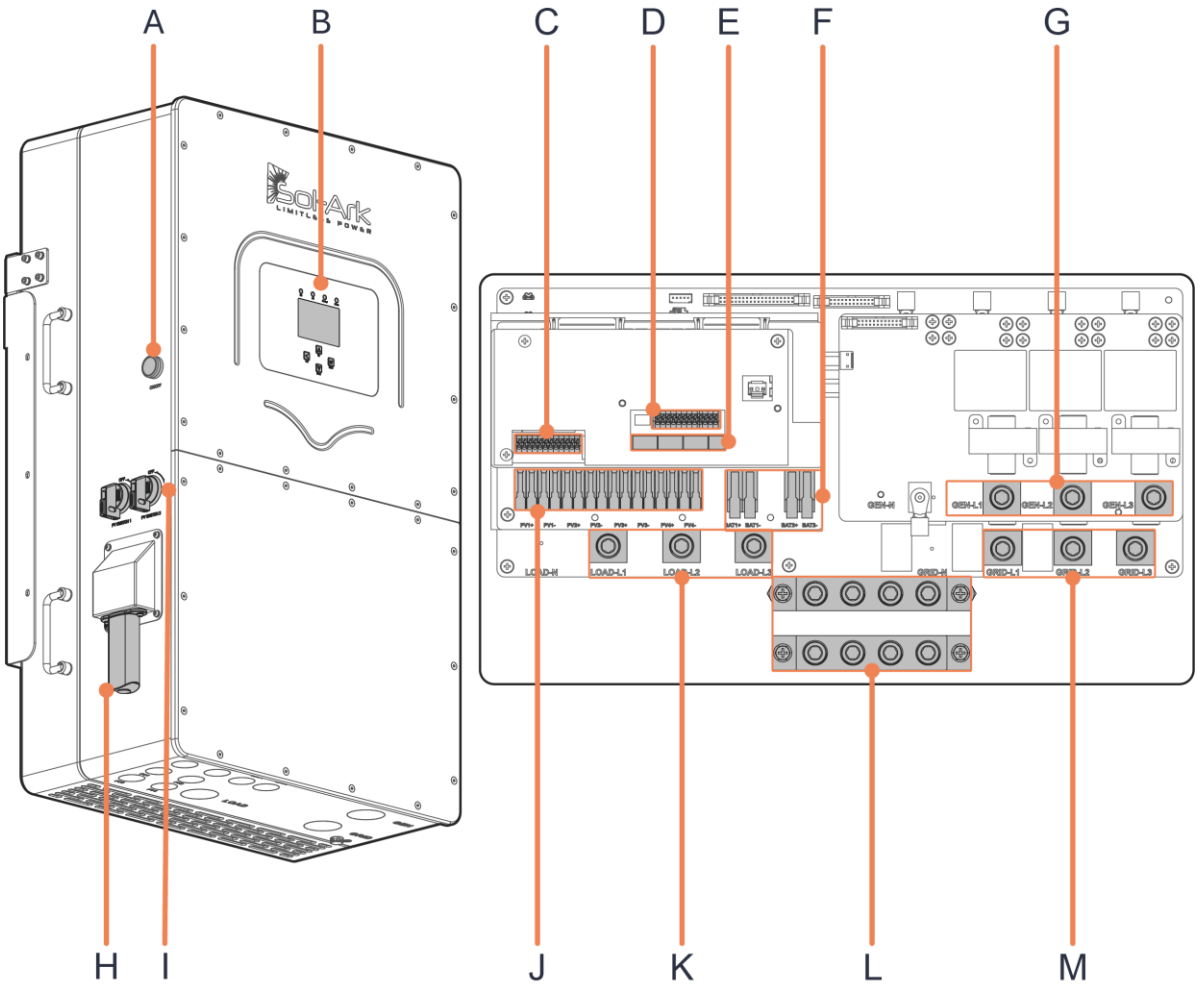
Mount the inverter in the optimal orientation as shown below.



➢ Return to **Step 4.** Mount inverter to surface with proper hardware.

More Information

Inverter General Description (Step 5 Details)



Component	Name	Component	Name
A	ON / OFF Button	H	Wi-Fi / Ethernet Gateway
B	LCD touch screen	I	2 x PV DC disconnects
C	CN1 - Terminal block for sensors and accessories	J	4 x MPPT inputs terminals
D	CN2 - Terminal block for sensors and accessories	K	(200 A) **LOAD** terminal
E	Communication Ports	L	NEUTRAL / GROUND Busbars
F	2 x (50 A) Battery port	M	(200 A) **GRID** terminal
G	(200 A) **GEN** terminal		

➢ Return to Inverter Wiring.

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More Information

External CT Sensors (Step 5 Details Continued)

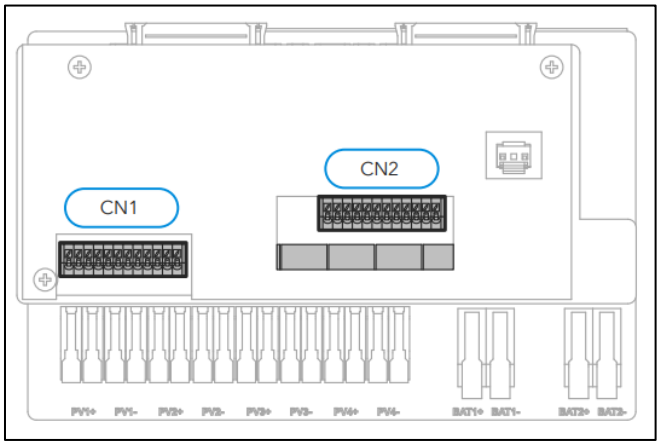
CN1 Board

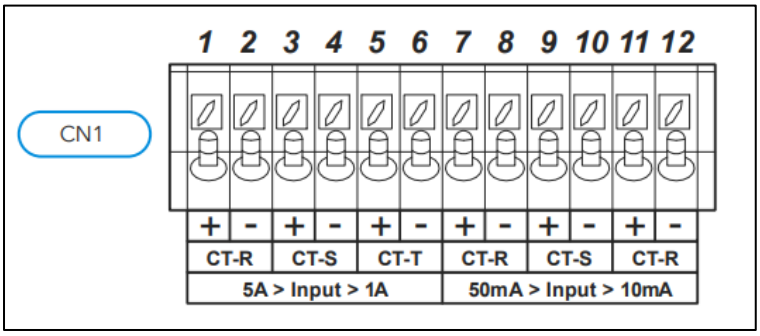
A. Determine whether CT sensors are needed for your installation:

- Use if the system has non-backed loads upstream
- Use if **Peak Shaving** will be enabled
- Use for multi-inverter installation
- Not necessary for whole-system backup
- Not necessary for off-grid systems unless peak shaving is used with a backup generator connected to the **GRID** port.

B. Pins 1 – 6 for CTs with 5 A > Input > 1 A from specifications

C. Pins 7 – 12 for CTs with 50 mA > Input > 10 mA from specifications





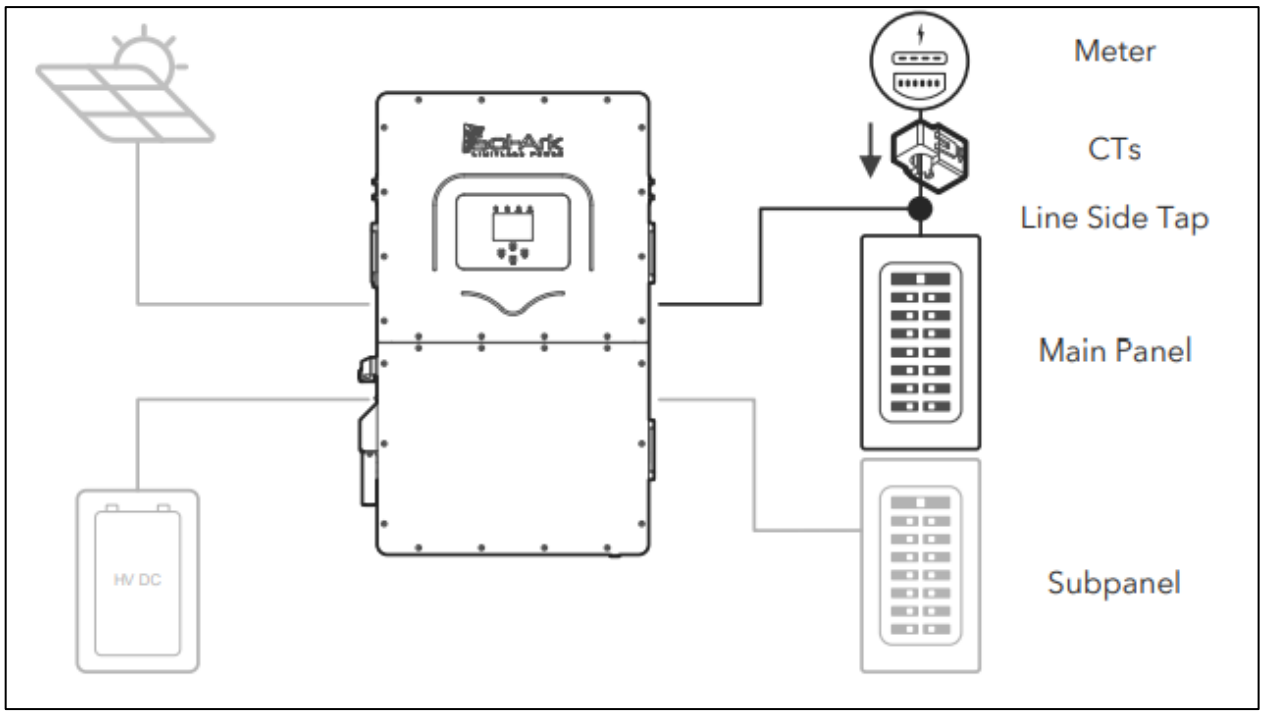
➢ Follow the steps in the *60K Installation Manual* to install the CT sensors board.

More Information

External CT Sensors (Step 5 Details Continued)

CN1 Board (Continued)

A. Confirm the CTs are sized appropriately for amperage of service used
B. Determine the distance from CT placement to CN1 sensor board input in case an extension is needed
C. Install the CTs between meter and line side tap
D. If using a generator, install the CTs between the generator and Sol-Ark inverter AC input
E. Verify correct A, B, and C phase from the AC power source before clamping the CTs
F. Make sure the CTs are oriented correctly, with the arrow facing away from the meter or generator
G. Check HM values on the detailed volt screen to ensure correct power readings



➢ See the *60K Installation Manual* for more information on external CTs.

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More Information

External CT Sensors (Step 5 Details Continued)

Wiring the CT Sensor

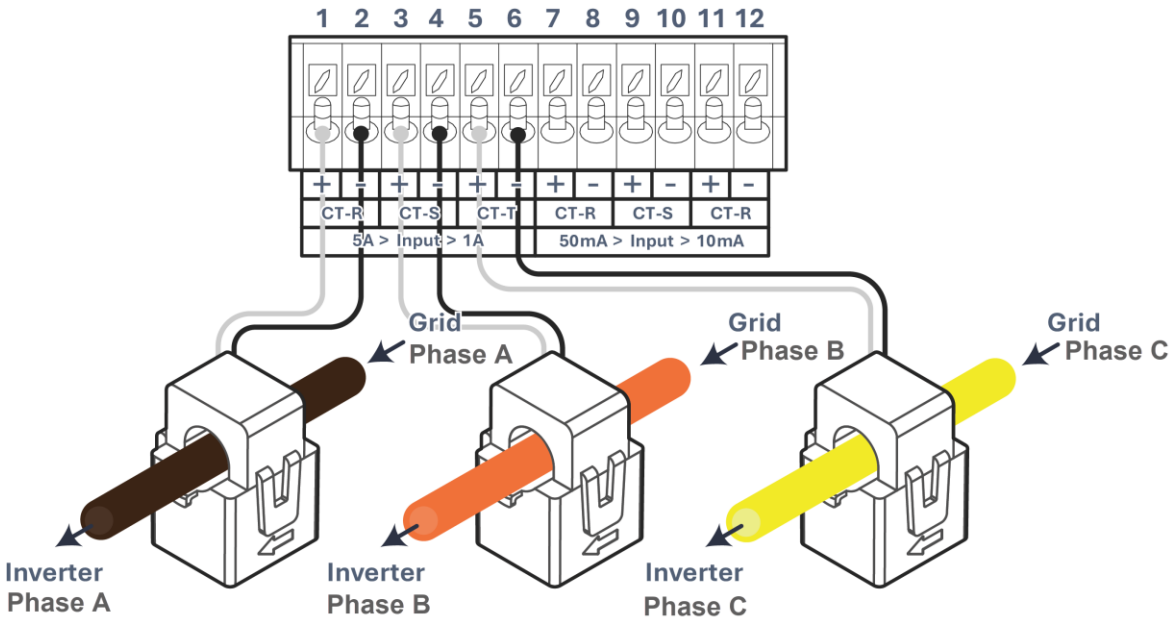
Be sure to use the correct pinout for external CT wiring.

A. On the detailed voltage screen, confirm that power flow is correct by reviewing the HM values for each phase:
   - Positive (+) values indicate that power is being imported
   - Negative (-) indicates power is being exported.

B. Connect CT1 of line L1 to pins 1 (white) and 2 (black) of CN1 pin board.

C. Connect CT2 of line L2 to pins 3 (white) and 4 (black) of CN1 pin board.

D. Connect CT3 of line L3 to pins 5 (white) and 6 (black) of CN1 pin board.
   - Keep the wires twisted (white-black) throughout the connection.
   - If the wires need to be extended, use a minimum of 16 AWG twisted pair shielded cable to make the extension. The maximum CT extension length is 50 ft (approx. 15.2 m) using 14 AWG twisted pair cable. If you use 14 AWG, you need to downsize to 16 AWG in order to connect to the pinouts. For longer runs, contact Sol-Ark for design assistance.



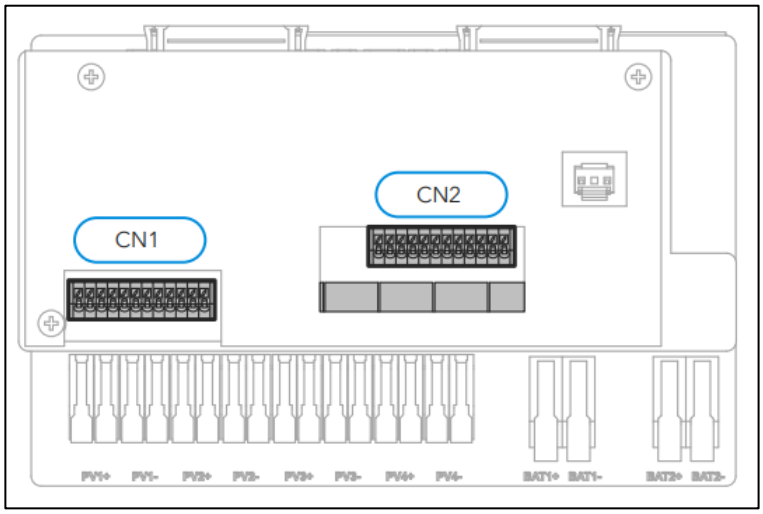
More Information

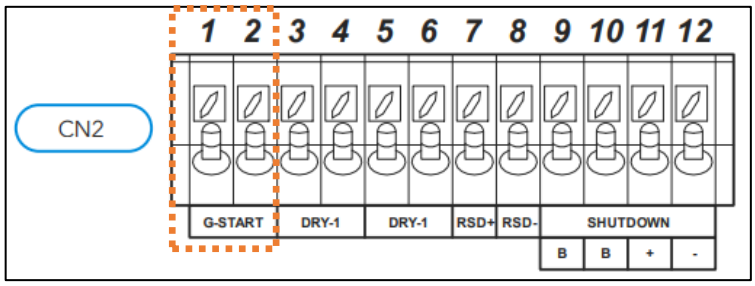
Automatic Generator Start (Step 5 Details Continued)

CN2 Board

If applicable, use pins 1 and 2 for generator auto-start:

- Dry contact relay is Normally Open (NO)
- **Start V or Start %** is the condition that must be met to automatically turn on the generator
- Optional battery setting **Gen Force** is recommended to test the generator's 2-wire start functionality
- Do NOT induce power through these pins or non-warranty damage may occur





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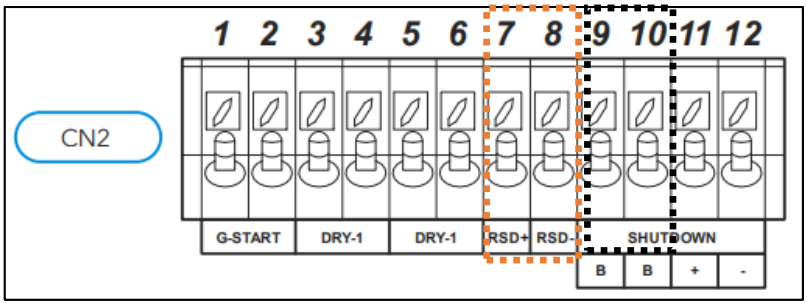
More Information

Rapid Shutdown (Step 5 Details Continued)

External CT Sensors – CN2 Board (Continued)

A. **Pins 9 and 10**: Emergency stop input (required for rapid shutdown compliance).

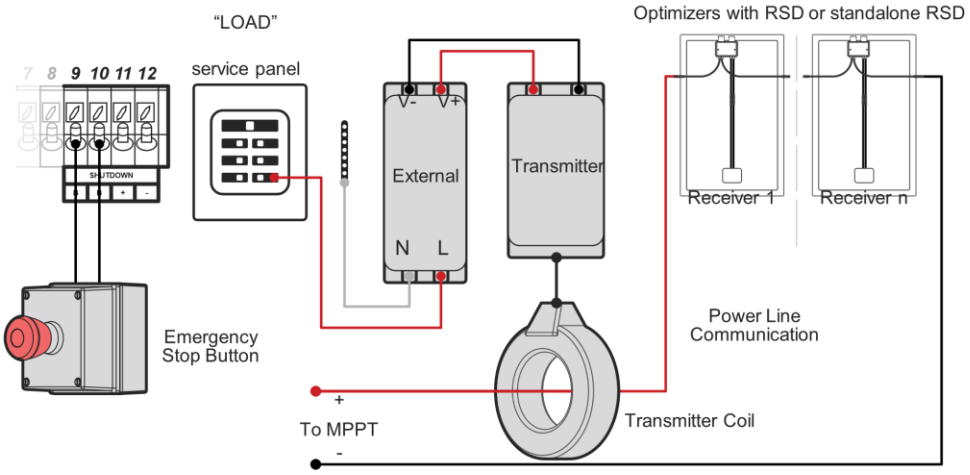
Normally Open (**NO**) dry contact circuit: continuity across the pins — via push button — triggers shutdown and de-energizes three outputs simultaneously:



- **LOAD** output
- Pins 7 and 8 (V_{DC} supply)

  The 12V_{DC} power supply on Pins 7 and 8 is not rated to power Rapid Shutdown Transmitters. DO NOT CONNECT any device to these terminals.
- PV voltage

Third-party rapid shutdown transmitters should be powered by the 60K-3P-480V through an external power supply connected to the **LOAD** output, as shown in the figure below. Pressing the e-stop button will disconnect all AC outputs, cutting power to the **LOAD-connected** service panel. This initiates rapid shutdown.



More Information

Installing Filter Rings (Step 5 Details Continued)

If your 60K Sol-Ark inverter came with a set of filter rings (toroids), follow these steps to install them. The filter rings include:

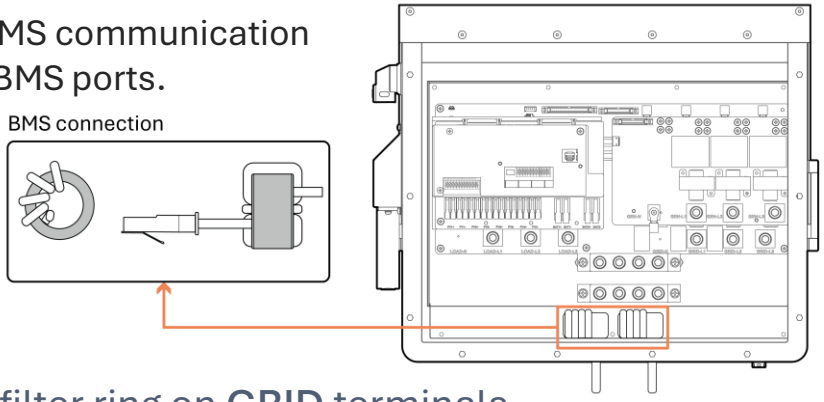
- **2 small white filter rings** for BMS1 and BMS2 communication cables (outside diameter 33 mm, inside diameter 20 mm)
- **1 large black filter ring** for AC wires (outside diam. 92 mm, inside 55 mm)

Make sure that both (+) and (-) wires pass through both filter rings simultaneously. When there are 4 wires, all conductors must go through the filter rings as described below.

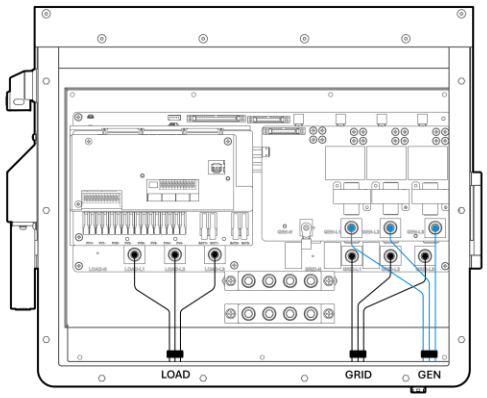
Step 1: Install small white filter rings on BMS1 and BMS2

A. Thread the end of the BMS communication cables through one filter ring, then wrap the wires around the ring four times. Place the filter ring near the wiring terminals.

B. Repeat this for the other BMS communication cable if you are using two BMS ports.



Step 2: Install large black filter ring on **GRID** terminals



C. Thread the wires through the filter ring and THEN connect the wires to the **GRID** port.

➢ Return to **Step 5.** Connect inputs and outputs.

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More Information

Connection Requirements (Step 6 Details)

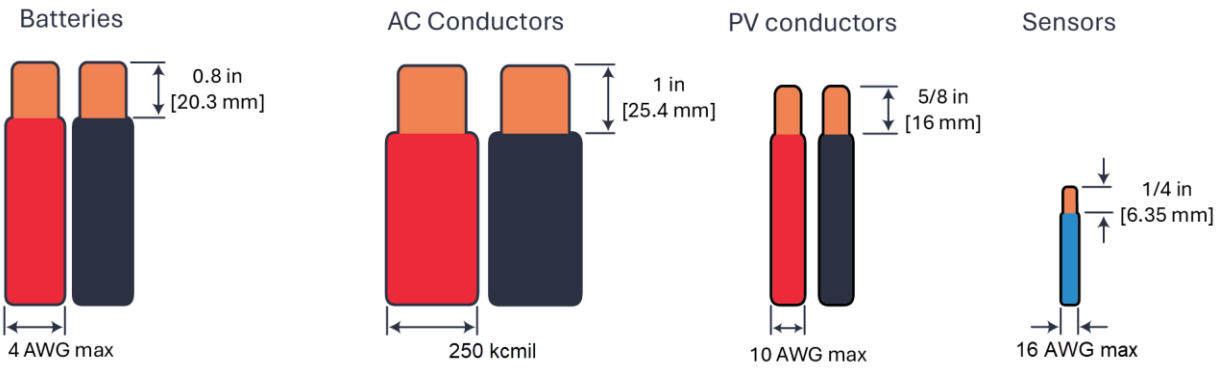
AC/DC Connection Requirements

- The table below lists ratings for copper; if you use aluminum, consult the NEC table to calculate the capacity required.
- All wire runs should be sized to be at or below a 2.5% voltage drop at full load. Equipment wire sizing must comply with the NEC or local electrical code.
- The table shows connection point ampacity ratings in the field wiring area.

Port	Terminal Rating	Temp. Rating	Terminal Wire Size Range (min-max)
GRID	**200 A_{AC}**	105 °C	**2 AWG – 250 kcmil**
LOAD	**200 A_{AC}**	105 °C	**2 AWG – 250 kcmil**
GEN	**200 A_{AC}**	105 °C	**2 AWG – 250 kcmil**
MPPT	**55 AlSc**	105 °C	**12 – 10 AWG**
Battery Port A	**50 A_{DC}**	105 °C	**6 – 4 AWG**
Battery Port B	**50 A_{DC}**	105 °C	**6 – 4 AWG**

Sensors and Communications Requirements

Component	Wire Size Range	Maximum Distance
CT Sensor	16 - 24 AWG	0 ft. – 10 ft. (0 - 3 m): 16 AWG included 10 – 50 ft. (3.1 - 15.3 m): 14AWG twisted pair extension
Communications	16 - 24 AWG	0 ft. – 100 ft. (0 - 30 m): 24 AWG 100 – 400 ft. (30 - 122 m): 23 AWG
RJ45 Parallel Communication	CAT 5E or better	0 ft. – 7 ft. (0 - 2.1 m): Included 7 ft. – 20 ft.(2.1 – 6.1 m): Extendable



More Information

Connection Requirements (Step 6 Details Continued)

Fastener Torque Table

NOTE: Do not use impact drivers to tighten any fasteners on the inverter.

Terminal / Breaker	Torque [ft-lb]	Torque [Nm]
LOAD	18.75 ft-lb	25.5 Nm
GRID	18.75 ft-lb	25.5 Nm
GEN	18.75 ft-lb	25.5 Nm
Neutral / Ground (Busbar)	18.75 ft-lb	25.5 Nm
Cover Screws	15.5 in-lb	1.75 Nm
Battery Terminals	Push-in Cage Clamp	Push-in Cage Clamp

➢ Return to **Step 6.** Check wiring area.

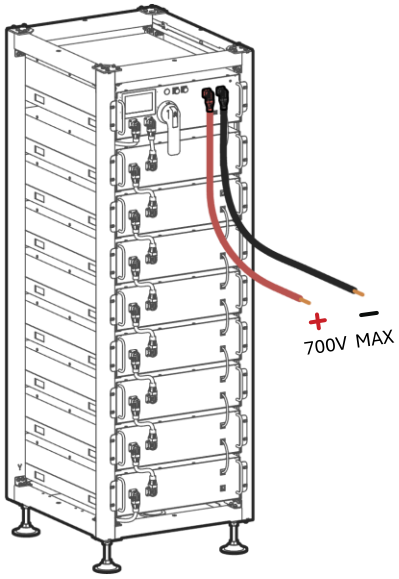
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More Information

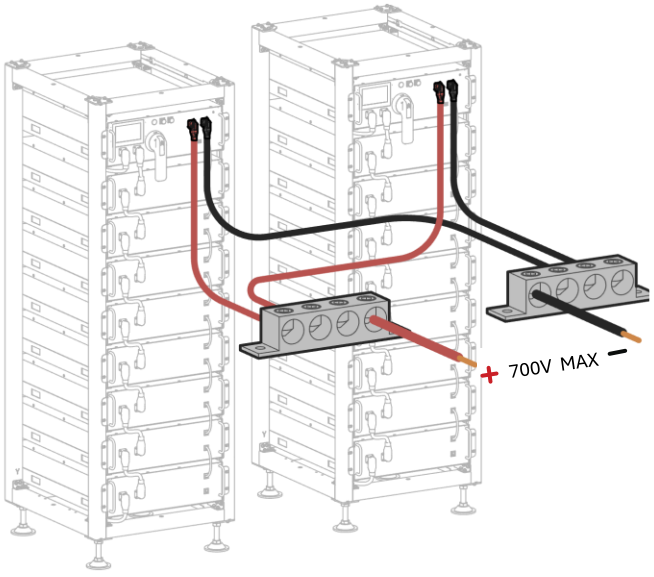
Bacations (Step 10 Details)

- The inverter must be OFF while you connect the batteries.
- Be sure that the external battery disconnect is OFF or arcing may occur. If your battery bank does not have a built-in disconnect, maintain the necessary safety measures when handling the connections.
- The 60K-3P-480V reaches a maximum battery charge/discharge of 50 A per terminal for a total maximum of 100 A if using both sets of battery terminals. If only one set of terminals is used, the battery charge/discharge will be limited to 50 A.

NOTE: The 60K-3P-480V is a HIGH VOLTAGE BATTERY system. You MUST NOT exceed 700 V_{DC} as shown below. The HV battery must stay within the 160 V_{DC} -700V_{DC} operating voltage range. DO NOT connect to any battery whose maximum voltage exceeds this limit.



Single HV battery



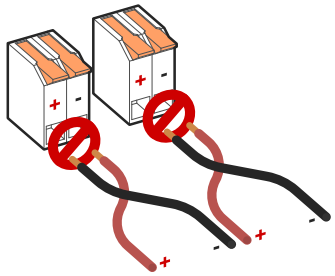
Bank of multiple HV batteries

Battery Wiring Output

More Information

Battery Communications (Step 10 Details Continued)

The Sol-Ark inverter has two input battery terminals for single or dual battery connections. To wire a battery to the inverter, lift the actuation levers and insert the 6-4 AWG battery conductor fully into the terminal. DO NOT force open the battery actuation levers more than 90°.

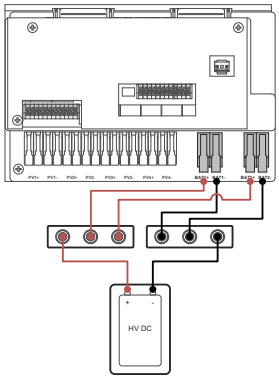


DANGER: Reverse Polarity

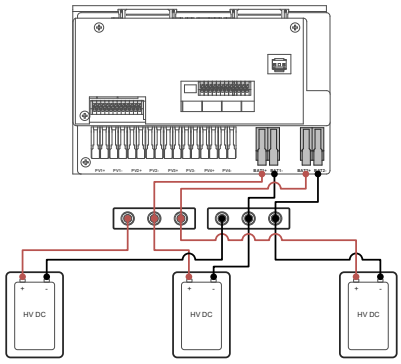
DO NOT reverse the battery input wires: the system will be damaged, and the warranty voided.

Multi-Terminal Installation

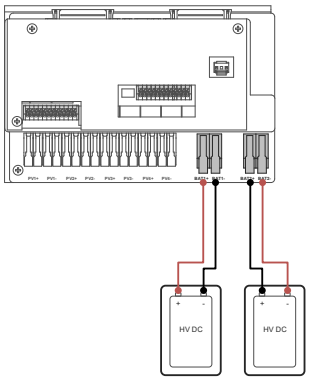
The two battery input terminals of the 60K can be configured for parallel battery stacks in settings screens. If the charge/discharge rate of 100 A is needed, the battery must be connected to both input terminals. If connecting more than one battery to a single inverter input terminal, you must use an external busbar or combiner to combine batteries' positive and negative outputs before connecting to the inverter terminals.



Single battery



Parallel battery bank



Dual battery bank

NOTE: If a single battery is capable of charge/discharge currents above 50 A, connect the battery to both input terminals. Otherwise, the charge and discharge rate will be limited to maximum 50 A. Only connect batteries of the same model to the terminals.

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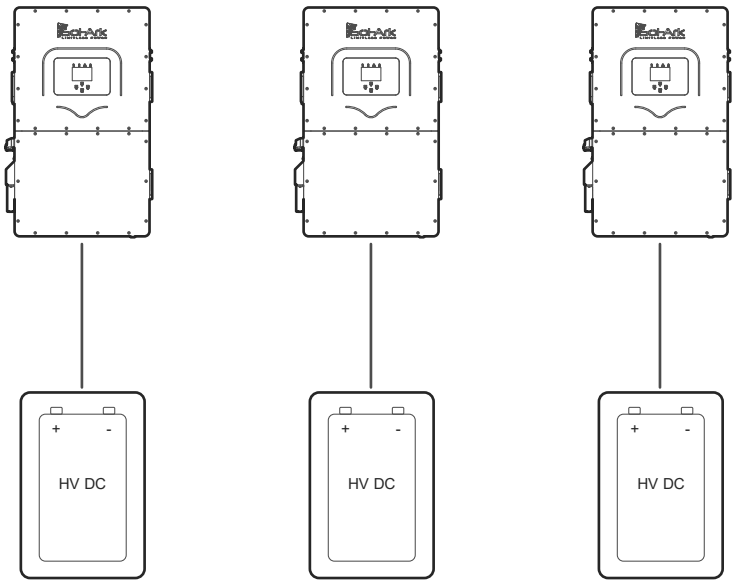
More Information

Battery Communications (Step 10 Details Continued)

Parallel Battery Installations

NOTE: Multi-Inverter Installations
Contact Sol-Ark Technical Support at +1 (972) 575-8875, ext. 2 for help with commissioning multiple parallel inverters.

- ALL systems MUST be connected to their own battery bank, and the battery banks must be the same size.
- **DO NOT parallel batteries between inverters.**



Inverter to Battery Ratio

The 60K inverter can establish closed-loop battery communication through one or two separate RJ45 ports labeled **BMS1** and **BMS2**. Communication with the battery BMS will depend on the wiring of the battery bank and the wiring to the Sol-Ark inverter.

The following two methods show how communications can be established.

More Information

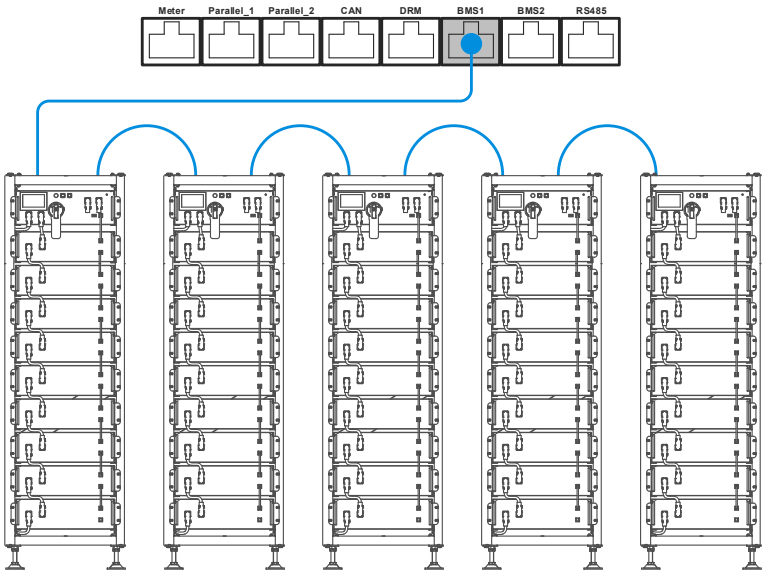
Battery Communications (Step 10 Details Continued)

Single Battery Bank Communication

A. Configure and wire the HV batteries so that there is one battery bank with a single communication source

B. Establish closed-loop communication by connecting the com cable to the BMS1 port of the Sol-Ark inverter

- **Parallel bat1&bat2** setting on the **Batt Setup** menu MUST be enabled when using both battery inputs for the same battery bank. When this check box is selected, the inverter will expect a single battery communication source.



Single battery bank communication

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More Information

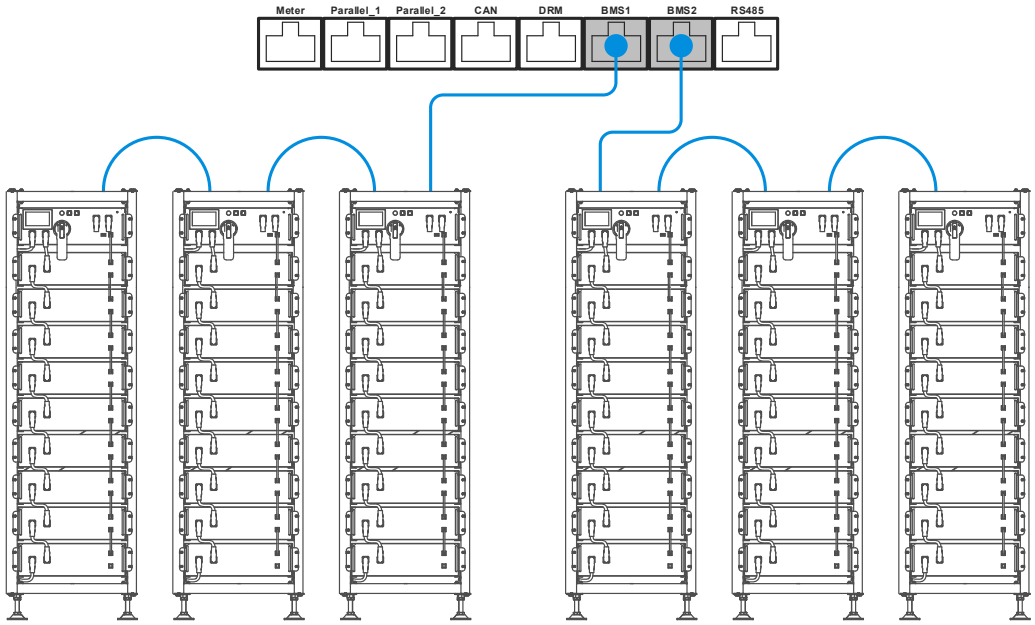
Battery Communications (Step 10 Details Continued)

Separate Battery Banks Communications

A. Configure and wire the HV batteries so that there are two battery banks, each with its own communication source.

B. Establish closed-loop communications by connecting each communication cable to a BMS port of the Sol-Ark (**BMS1** and **BMS2**).

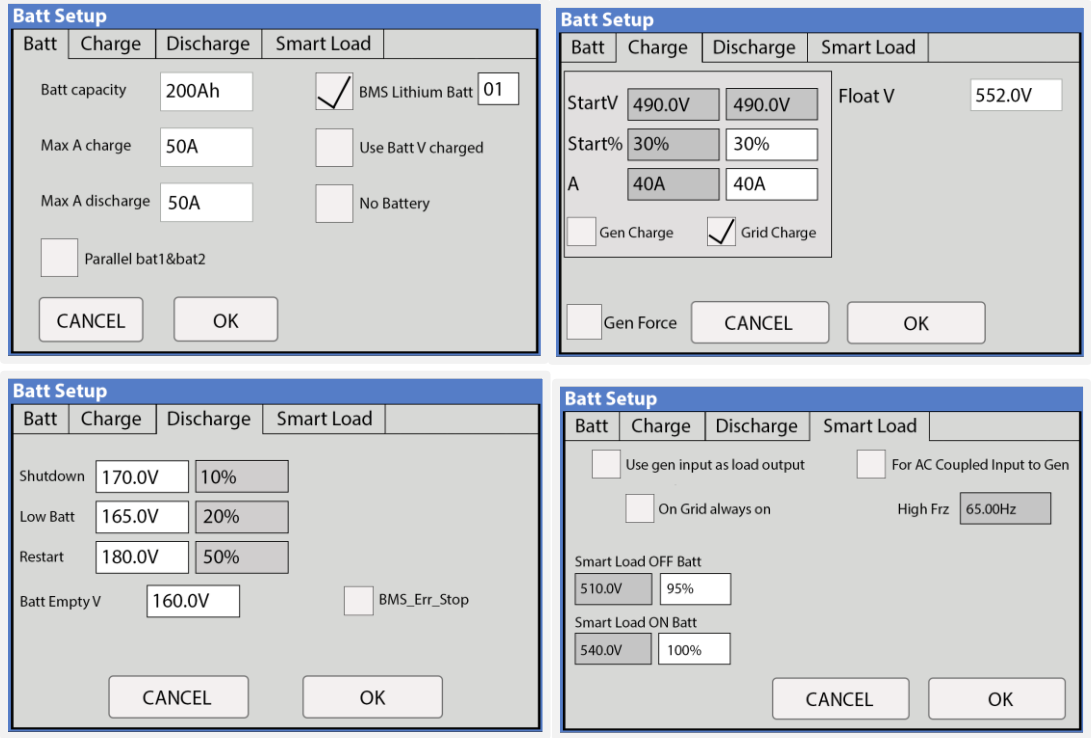
NOTE: Do NOT enable the **Parallel Bat1&Bat2** setting on the **Batt Setup** menu.



Multi-Battery Bank Communications

More Information

Battery Setup (Step 11 Details)



Batt

Batt Capacity: Specifies the capacity of the battery bank in Amp Hours (Ah).

- Batteries in series → Voltage adds up (V).
- Batteries in parallel → Capacity adds up (Ah).

Max A Charge: Sets the maximum charge current (A) rate to the batteries when charged from solar power → 50 maximum allowed. 100 A maximum total if using both battery terminals.

Max A Discharge: Sets the maximum discharge current (A) rate from the batteries → 50 A maximum allowed. 100 A maximum total if using both battery terminals.

For off-grid systems, the battery bank will discharge 120% of this value for a peak of 10 seconds before the inverter shuts down to prevent battery damage.

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More Information

Battery Setup (Step 11 Details Continued)

BMS Lithium Batt: Enables closed communications with lithium batteries. Specify Serial Number (00, 01, 02…) according to communication protocol.

Use Batt V Charged: Displays battery charge in terms of voltage.

Parallel bat1&bat2: Must be checked when using both battery inputs for the same battery bank. When enabled, the inverter will expect a single battery communication source.

Charge

Float V: Lower steady voltage at which the battery is maintained after being fully charged. Set according to manufacturer specs.

Gen Charge: Uses the **GEN** AC source to charge the battery bank.

Start V: Voltage at which the system will auto-start and allow a generator or AC source to charge the battery.

Start %: SOC at which the system will auto-start and allow a generator or AC source to charge the battery.

A: Maximum rate of charge to the batteries (per terminal) from the generator or AC source (DC Amps). Set value according to the generator size.

More Information

Battery Setup (Step 11 Details Continued)

Grid Charge: There are two scenarios in which this option is used:

- **Grid connected to Grid input:** The inverter will limit the charge rate to the set value in **A** and the battery will charge to 100% SOC.
- **Generator connected to Grid input:** You must select the check box ☑ **GEN connect to Grid input**. The system will use **Start V, Start%** and **A** conditions to charge the battery and stop charging at 95% SOC.

  NOTE: There's an adjustable upper limit if **Time of Use** is enabled.

Gen Force: Test function for generator auto-start. Enable and press **OK** to close normally open relay (CN2, pins 1 and 2) and force the generator on. Disable and press **OK** to disengage. The generator will not provide power during this test if grid power is available.

NOTE: The gen must be in automatic mode if applicable and must have a two-wire start (dry-contact, normally open) connected to the Sol-Ark.

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More Information

Battery Setup (Step 11 Details Continued)

Discharge

Shutdown: Battery voltage or % at which the inverter will shut down to protect the battery from an overdischarge situation (battery symbol on the home screen will turn red).

Low Batt: Low battery voltage or % (battery symbol on the home screen will turn yellow). Stopping point for TOU.

Restart: Battery voltage or % at which AC output will resume after previously reaching shutdown.

Batt Empty V: Sets the empty voltage and associates this voltage to 0% SOC. This value determines the lowest % SOC limit.

BMS_Err_Stop: Enables system stop when there is loss of battery communications.

More Information

Battery Setup (Step 11 Details Continued)

Smart Load

A. This mode uses the **GEN** input as a load output that delivers power when the battery exceeds a user-programmable threshold or when the Sol-Ark is connected to the grid.

B. When ☑ **Use gen input as load output** is enabled, the **GEN** input turns into an output to power high-power loads such as a water heater, irrigation pump, AC unit, pool pump, or any other load.

C. When ☑ **On Grid always on** is enabled, the **GEN** terminal will always output power as long as the grid is connected, regardless of battery charge.

- **Smart Load OFF Batt:** Battery voltage or percentage at which the GEN terminal will stop outputting power.
- **Smart Load ON Batt:** Battery voltage or percentage at which the **GEN** terminal will start outputting power.
- **Solar Power (W):** Amount of PV production needed before **GEN** terminal starts outputting power.

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More Information

Battery Setup (Step 11 Details Continued)

AC Coupling Settings - (For AC Coupled Input)

A. Grid-tied systems with AC coupled solar arrays must have the ☑ **Grid Sell** check box enabled. Make sure that you're allowed to sell back to the grid.

B. To use the **GEN** terminal as an AC coupling input for microinverters or string inverters, select the check box ☑ **For AC Coupled Input to Gen**.

C. In off-grid systems, the Sol-Ark will use frequency shifting to control the AC coupled solution based on the battery SOC.

The meaning of **Smart Load OFF Batt and Smart Load ON Batt** will change in this mode.

- **Smart Load OFF Batt:** The % SOC at which the AC coupled inverters turn OFF.

  90% recommended.

- **Smart Load ON Batt:** The % SOC at which the AC coupled inverters turn ON.

  80% recommended.

More Information

Connecting PV Modules (Step 12 Details)

NOTE: The Sol-Ark 60K-3P-480V has 4 independent MPPTs that support up to 2 PV strings each. MPPTs can handle a maximum VOC of 1,000 V and an ISC of 55 A. However, it will self-limit and operate at an Imp of 36 A.

A. Maximum DC solar input = 78 kW (±5%) | Max input power per MPPT = 19.5 kW | Max recommended input voltage per MPPT = 850 VOC | Max input current per MPPT = 36 A (self-limiting).

B. Design for an input current of 36 A per MPPT. The inverter will self-limit beyond 36 A. If ISC exceeds 55 A, damage will occur.

C. PV Source Circuit maximum voltage of 1,000 VOC; damage can occur with PV strings whose open-circuit voltage exceeds 1,000 VOC

   NOTE: Strings in parallel on the same MPPT must have the same designed open-circuit voltage (Voc), otherwise the system will be limited to the lowest string voltage.

D. PV1 A/B must have the same VOC.

E. If the solar panels are oriented in different directions and connected in the same MPPT, there will be a loss in PV efficiency.

   NOTE: Per NEC Art 690.43, exposed non-current-carrying metal parts of PV module frames, electrical equipment, and conductor enclosures of PV systems shall be connected to an equipment grounding conductor. All grounding conductors and grounding electrodes should be installed according to NEC Art 690.47 or as required by the AHJ.

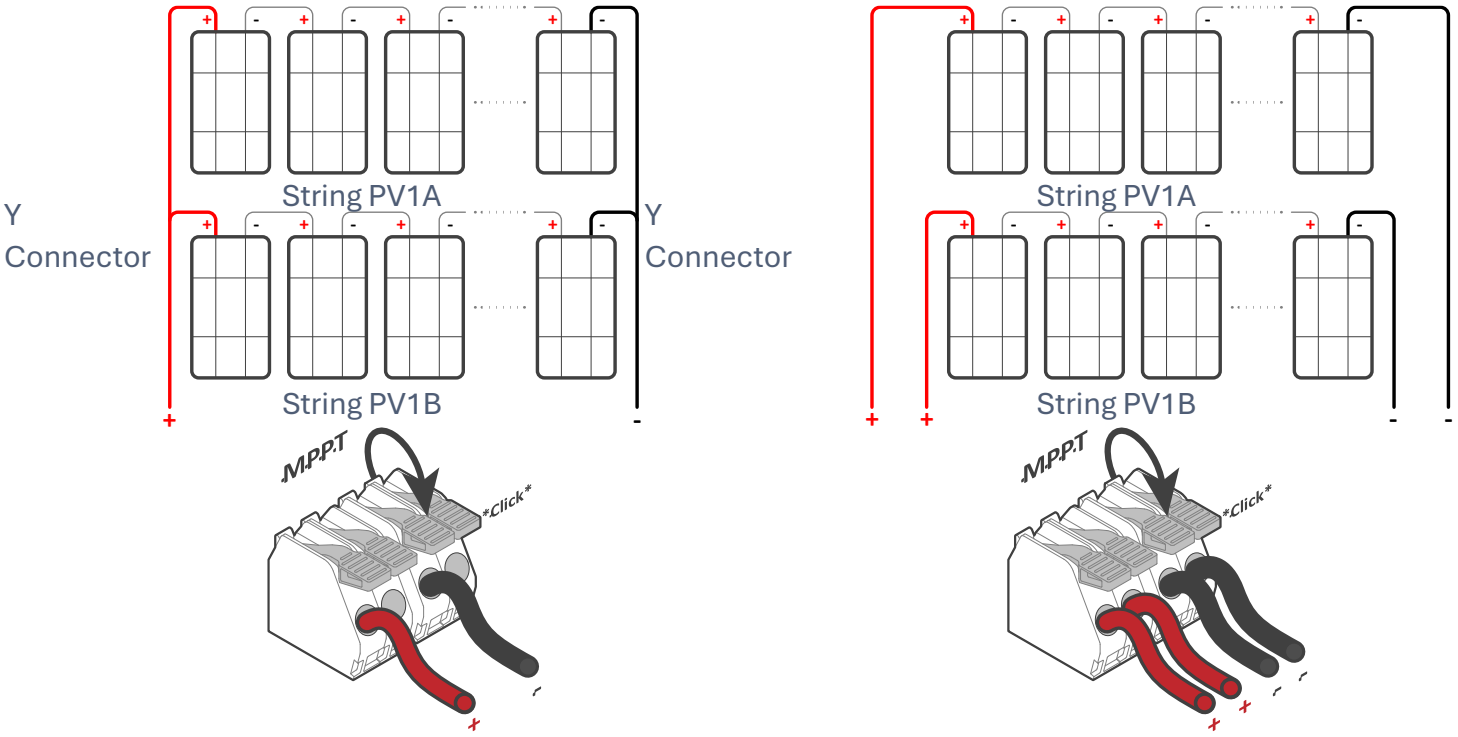
F. For ground-mounted arrays, Sol-Ark recommends installing an auxiliary grounding electrode placed near the array to ensure optimal earth-to-ground resistance of the grounding system. Follow the requirements of NEC Art. 250.54 when installing it.

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More Information

Connecting PV Modules (Step 12 Details Continued)

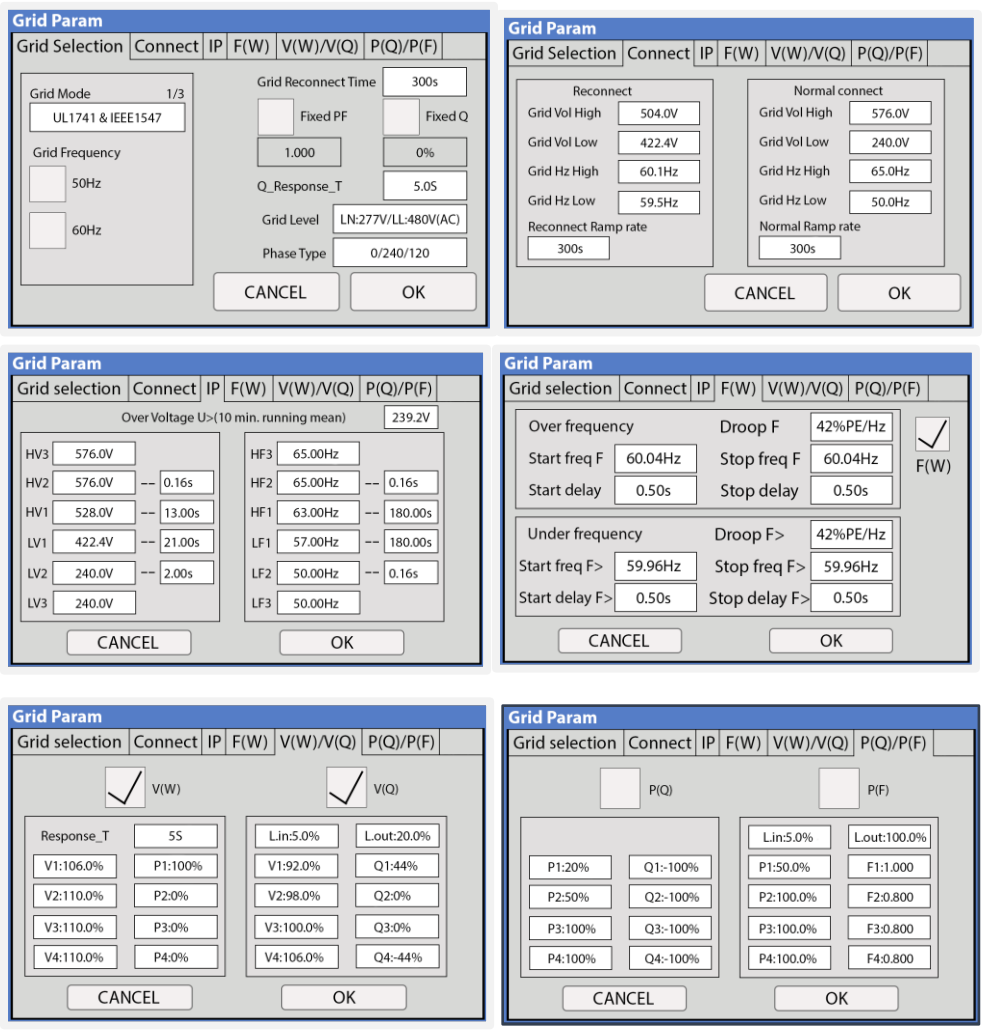
A. Connect the solar panel strings using either of the following configurations:



➢ Return to **Step 12.** Check PV input.

More Information

Check Grid Parameters (Step 13 Details)



Grid Selection

Grid Mode: Tap and use navigation arrows to cycle through different grid modes:

General Standard: Applies general grid interconnection standards. Enables grid frequency and voltage adjustments. (Useful for off-grid applications with backup generators).

UL 1741 & IEEE 1547: Applies UL 1741 and IEEE 1547 grid interconnection requirements and standards.

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More Information

Check Grid Parameters (Step 13 Details Continued)

CPUC RULE21: Applies California's grid interconnection requirements and standards.

SRD-UL-1741: Applies UL 1741SB grid interconnection requirements and standards.

Grid Frequency: Frequency of the AC sine wave.

Grid Reconnect Time: The amount of time in seconds the inverter will wait before reconnecting to the grid.

Fixed PF: Allows for power factor correction, ±0.8 to 1.0

Fixed Q: Allows for power factor correction based on desired reactive power percentage.

Grid Level: Tap and use navigation arrows to cycle through different nominal grid voltage levels.

NOTE: Grid level must be selected according to nominal grid voltage.

- LN:277VAC LL:480VAC
- LN:230VAC LL:400VAC
- LN:220VAC LL:380VAC

Phase Type: Tap and use navigation arrows to specify phase sequence.

- 0/240/120: Positive sequence A-B-C
- 0/120/240: Negative sequence A-C-B

More Information

Check Grid Parameters (Step 13 Details Continued)

Connect

Reconnect: Parameters used to determine an allowable range of frequency and voltages to dictate a reconnection to the grid after initial grid loss. Frequency and voltages must be within these margins during Grid Reconnect Time to allow grid reconnection.

Normal connect: Parameters used to determine an allowable range of frequency and voltages to retain connection to the grid following a reconnect and normal operation.

NOTE: Parameters will be set automatically based on selected grid mode compliance, unless **General Standard** is selected.

- **Reconnect Ramp Rate:** Reconnection power ramp time in seconds.
- **Normal Ramp Rate:** Startup power ramp time in seconds.

IP

HV1/HV2/HV3: Overvoltage protection point.

LV1/LV2/LV3: Undervoltage protection point.

HF1/HF2/HF3: Overfrequency protection point.

LF1/LF2/LF3: Underfrequency protection point.

F(W)

F(W): Enables the use of Frequency-Watt. The Sol-Ark regulates its power output to the grid as a function of the frequency to support grid stabilization during over and under-frequency conditions.

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More Information

Check Grid Parameters (Step 13 Details Continued)

Droop F: Percentage of inverter's nominal power increase / decrease per Hertz (Hz).

Start freq F: Frequency at which the inverter will start decreasing active power by the programmed Droop F percentage.

Stop freq F: Frequency at which the inverter will stop decreasing active power by the programmed Droop F percentage.

V(W) / V(Q)

V(W): Enables the use of Volt-Watt. The Sol-Ark regulates active power output to the grid as a function of voltage to support stabilization during over and under-voltage conditions.

V(Q): Enables the use of Volt-VAr. The Sol-Ark regulates reactive power output to the grid as a function of the voltage to support stabilization during over and under-voltage conditions.

V, P & Q: Percentage of nominal grid voltage (V) to which the Sol-Ark will reduce its active power (P) or reactive power (Q).

P(Q) / P(F)

P(Q): Enables the use of Watt-VAR to regulate reactive power output according to programmable active power parameters.

P(F): Enables PF regulation according to programmable active power parameters.

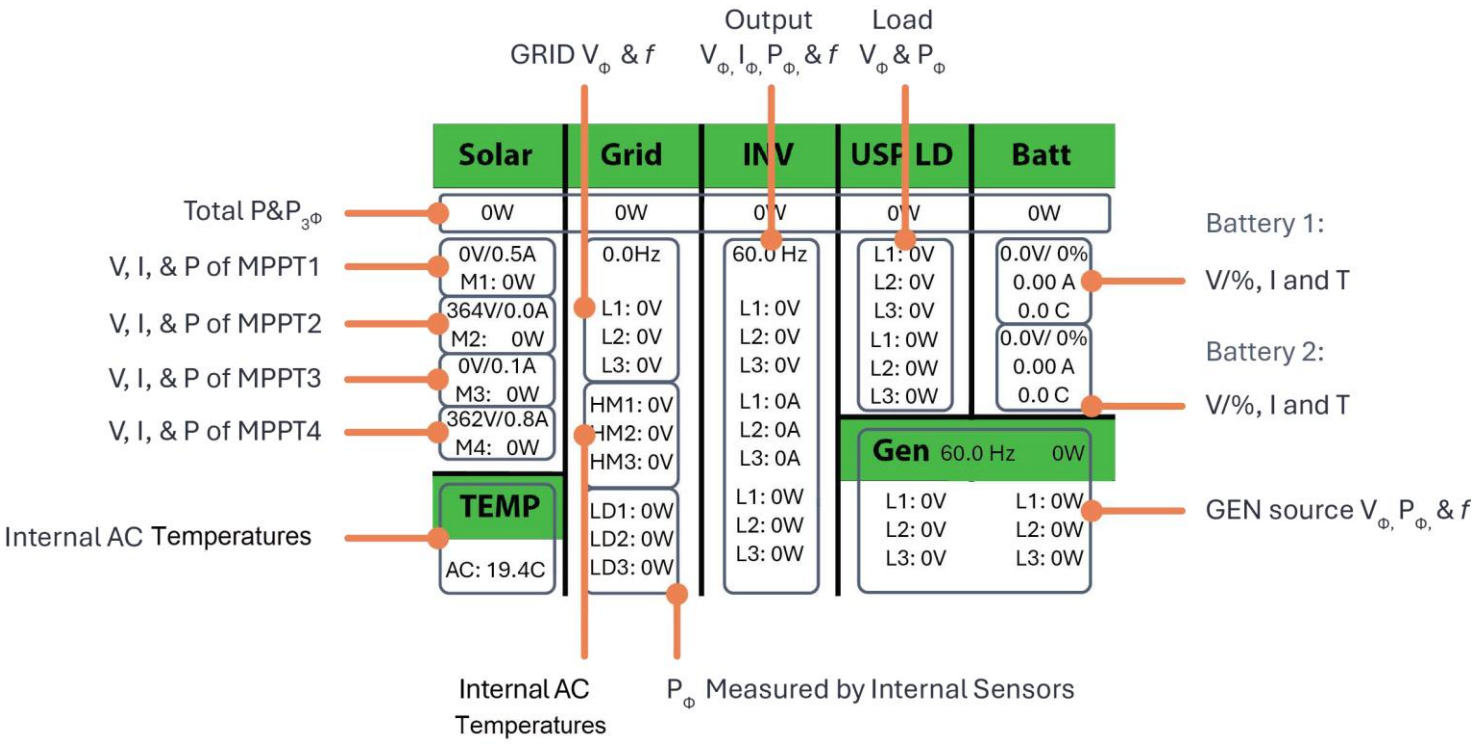
NOTE: Follow electrical grid code before changing grid settings.

➢ Return to **Step 13.** Check Grid Parameters.

More Information

Test Island Mode (Step 16 Details)

The graphic shows the detailed voltage screen when performing an island test.



Details screen

➢ Return to **Step 16.** Test Island Mode.

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More Information

Alternate Method for Connecting to Wi-Fi using IP Address (Step 17 Details)



You can configure a Wi-Fi network through an IP address.

A. On a smartphone or computer, connect to the **EAP-#####** network.
Go to: **Settings > Wi-Fi > EAP-##### network.**

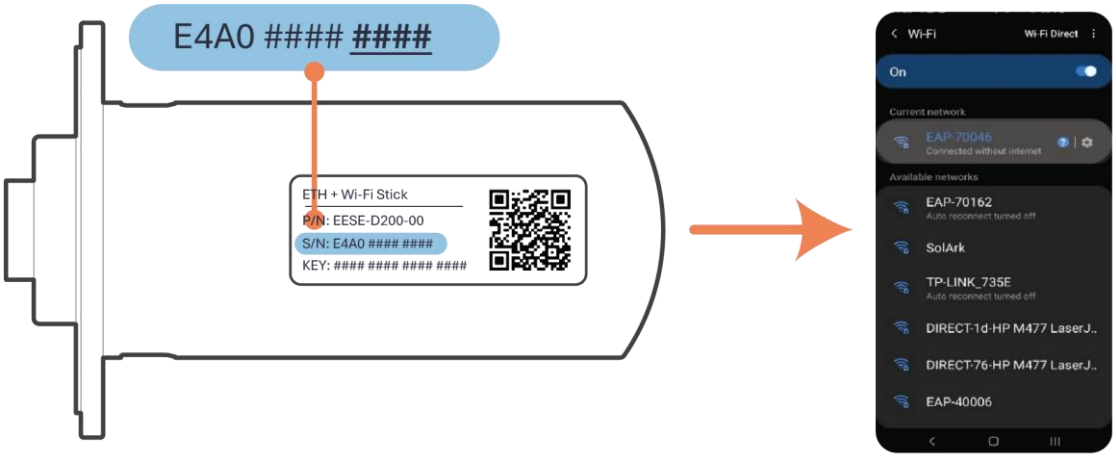
B. Type in the password, which depends on the product you received:

*If you see **"KEY" printed on the dongle:***
the 16-digit password is printed there

If there is no "KEY" printed on the dongle:
the password is **12345678**

The **EAP-#####** network contains the last 5 digits of the dongle serial number. You can find this number on the label.

C. A message such as "**Connected without internet**" appears when the device is connected to the EAP-#####.



Locating the Dongle Network Name

NOTE: The Wi-Fi dongle does NOT provide internet access. It needs an external internet provider to connect to. The dongle is compatible with Wi-Fi signals broadcast at 2.4 GHz (it is not compatible with 5 GHz networks).

More Information

Alternate Method for Connecting to Wi-Fi using IP Address (Step 17 Details Continued)

A. After you're connected, open an internet browser on the same device, such as Safari, Chrome, Firefox, Edge, or any other browser.

B. On the address bar (http://.....), type the IP address: **10.10.10.1** as shown in the figure below. If you cannot access the configuration page, try again on a different device.

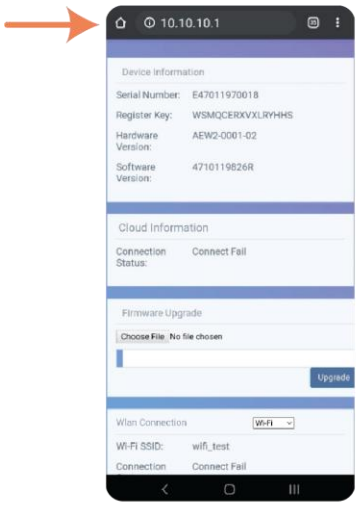
C. Scroll down to the **WLAN Connection** section and tap the **Scan** button to scan for local Wi-Fi networks.

D. Nearby Wi-Fi networks will appear. Select the local network you want to connect to, input your credentials, and tap **Connect**.

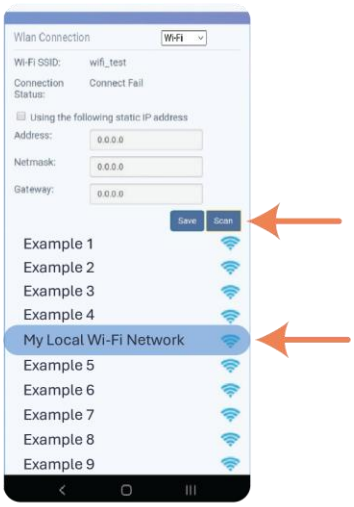
E. Once connected, a "Connection Successful" message will appear. Tap the **Save** button next to **Scan** to save settings.

F. Wait about 5 minutes. The dongle will connect to the Wi-Fi network and will then have access to MySolArk.

NOTE: DO NOT connect to the **EAP-#####** network as that is the Wi-Fi dongle itself. The device does not provide internet access.



a. Internet Browser IP Address



b. Wi-Fi Network Scan

➢ Return to **Step 17.** Connect the dongle.

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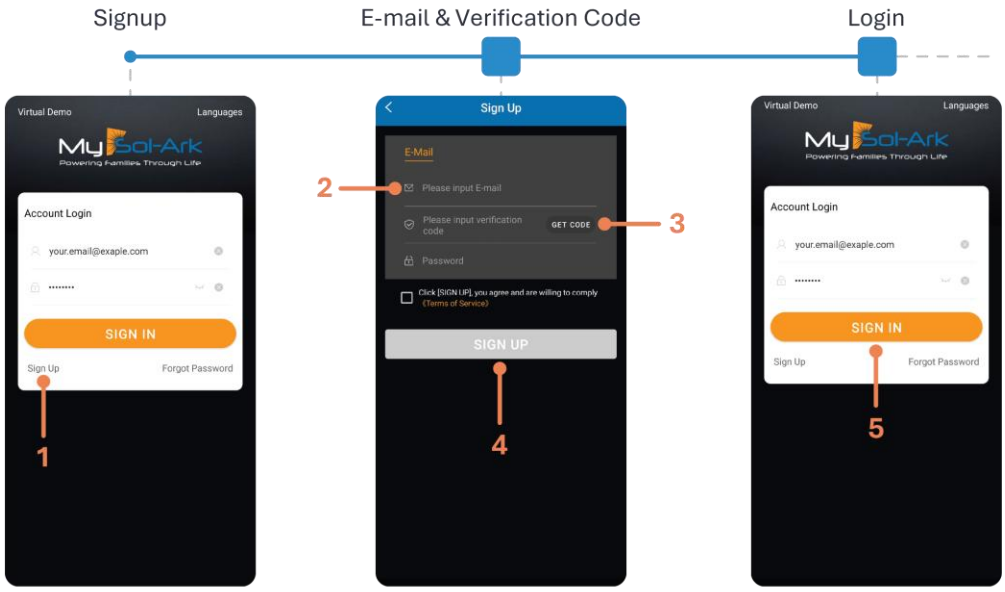
More Information

Create a Plant on MySolArk (Step 18 Details)

A. **Download and install the MySolArk app** for Android or Apple smartphones. QR codes are provided below.

Google Play Store	MySolArk	Apple App Store

B. Create a **MySolArk** account and log in.



More Information

Create a Plant on MySolArk (Step 18 Details Continued)

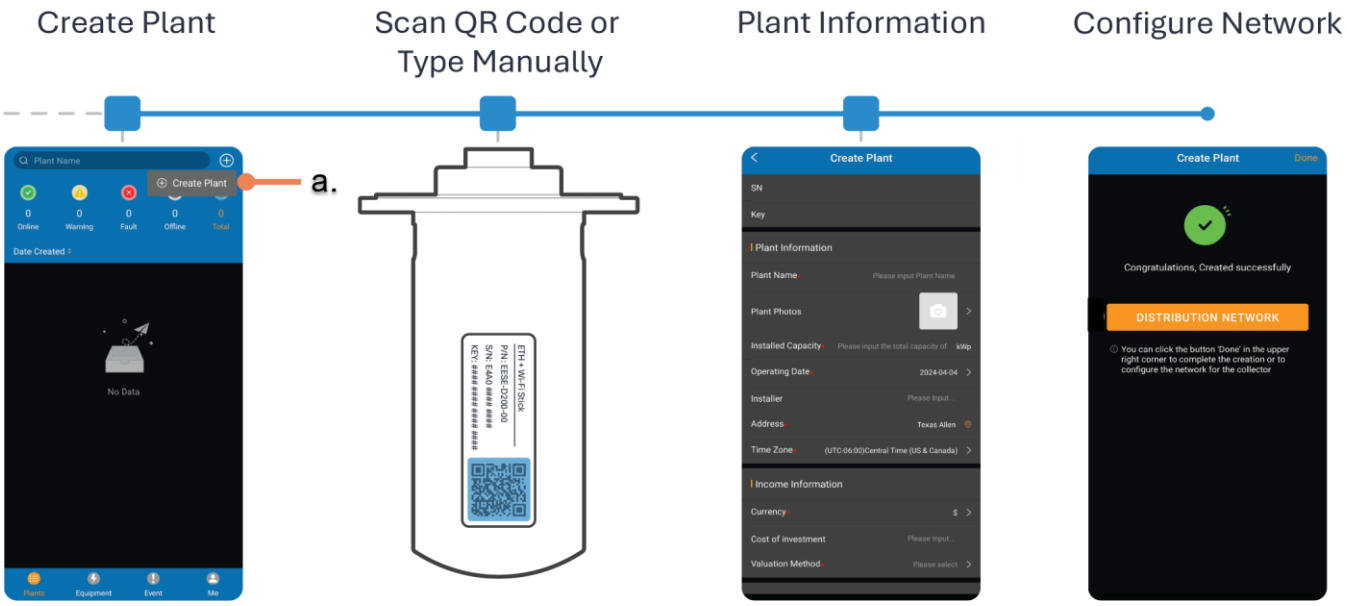
C. Create the Plant.

For Installers:

- Create the plant and configure the system before sharing it with the owner.
- After creating and configuring the plant, the installer can share and grant manager permissions to the owner by navigating to **My Plants → ... → Share → Add Account.**

For Homeowners:

- The homeowner must create their own MySolArk account first.



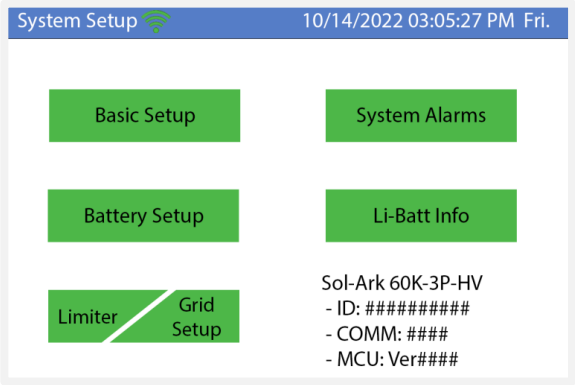
➢ Return to **Step 18.** Create the plant.

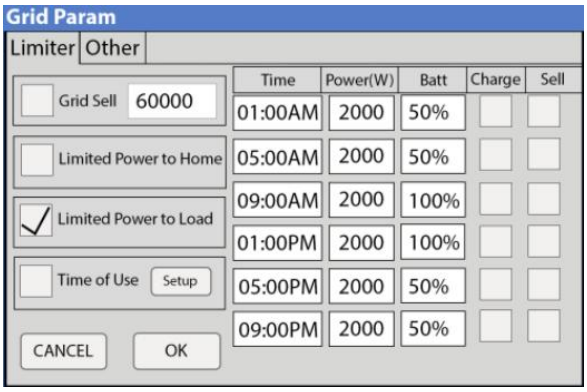
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More Information

System Work Modes (Step 21 Details)

To access different work modes, go to **System Settings → Limiter tab.**





Grid sell

Allows excess produced PV to back-feed **GRID** input to the utility.

- Will not export power with loss of grid
- Will not export if inverter detects generator
- Maximum amount of power is determined by programmed wattage

More Information

System Work Modes (Step 21 Details Continued)

Limited Power to Home (LPH)

Allows inverter to track total backup and non-backed up loads using external CTs.

- *If Grid Sell is NOT enabled with LPH*, the inverter will back-feed **GRID** input with excess PV to zero non-backed loads.
- *If Grid Sell is enabled with LPH*, the inverter will back-feed all excess PV through the **GRID** input, and the system will correctly report the exported amount.

Limited Power to Load (LPL)

Allows inverter to track backup load power from only the **LOAD** terminals.

- *If **Grid Sell** is NOT enabled with LPL*, inverter will limit PV to cover only backup loads.
- *If **Grid Sell** is enabled with LPL*, inverter will back-feed **GRID** input with excess PV to the grid sell power amount.

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More Information

System Work Modes (Step 21 Details Continued)

Time of Use (TOU)

Found in the **Limiter** tab, **Time of Use** mode is used with **Limited Power to Home** or **Limited Power to Load,** and optionally, **Grid Sell**, if excess PV power is allowed to backfeed the grid. The main purpose of TOU mode is for batteries to assist with load demand.

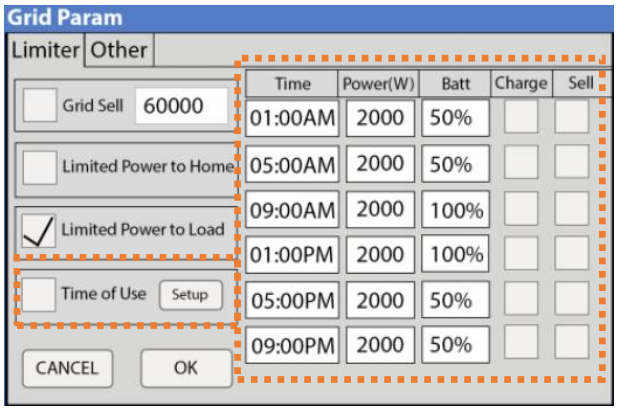
TOU mode has six different time slots over a 24-hour period to control the battery charge/discharge behavior during operation:

Power(W) column is the maximum amount of power batteries will send.

- Corresponding **Sell** box will force the continuous amount of power from batteries
- Corresponding **Charge** box will allow that amount of power to charge batteries from grid/generator (grid or gen charge)

Batt (%/V) column is the upper/lower limit for batteries to discharge/charge.

- With NO **Charge** or **Sell** box enabled, the batteries will discharge to cover loads down to this **%/V**
- When **Charge** is enabled, batteries will charge to the programmed **%/V** if below that value
- When **Sell** is enabled, batteries will discharge down to the programmed **%/V**



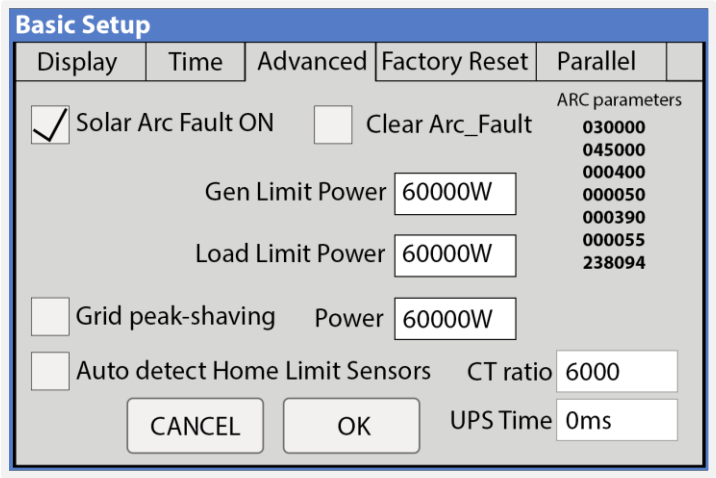
More Information

System Work Modes (Step 21 Details Continued)

Advanced Setting – Grid Peak Shaving

Allows system to limit the amount of power imported through the **GRID** input. The batteries will be used as the primary source to keep peak shaving value from being exceeded.

- Can be used for a generator wired to the **GRID** input to avoid overload scenarios
- Forces TOU settings to be enabled, so must program time slots accordingly
- It's recommended to use external CTs with this feature and enable **Limited Power to Home** on the **Limiter** tab



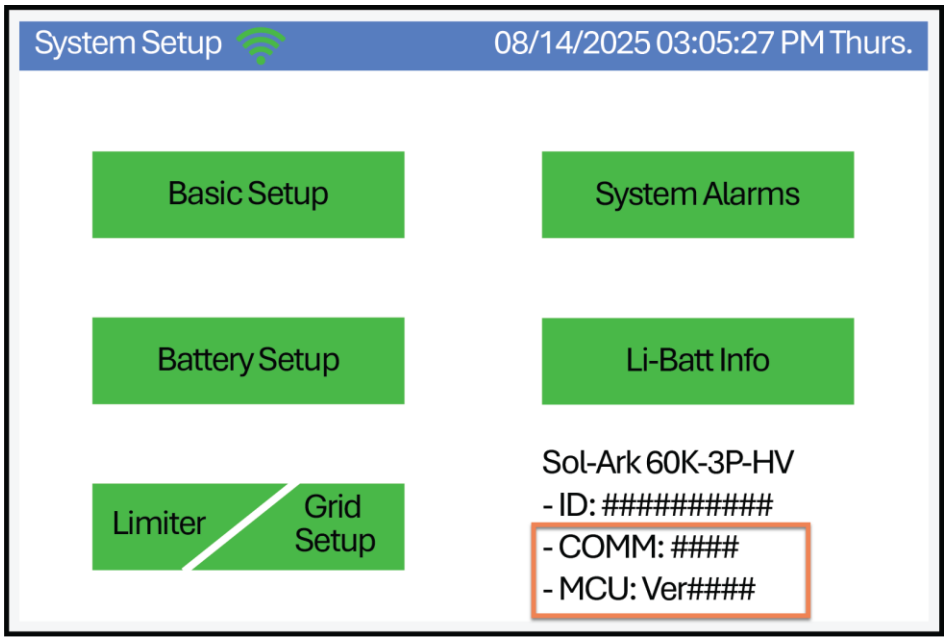
➢ Return to **Step 21.** Check system performance.

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More Information

Finding the Inverter Software Version

1. Click the gear icon and look at the bottom right of the screen.



   You can also see the software version on the MySolArk **Equipment** tab.

2. Go to the Software Updates page on the Sol-Ark website.
3. If the software version is older than the version shown on the website, scroll down and submit an **Update Request Form**.
4. About 30 to 40 minutes after the update is scheduled, repeat Step 1 to confirm the latest software version.

More Information

Power-ON Sequence

1. Turn ON the HV batteries
2. Press the inverter power button and wait for the normal LED to light
3. Turn ON the PV Disconnect and wait for the DC LED to light
4. Turn ON the external grid AC Disconnect or breaker feeding GRID input and wait for the AC LED to light
5. Turn ON the external load AC Disconnect or breaker feeding backup load panel

Power-OFF Sequence

1. Turn OFF the external load AC Disconnect or breaker feeding backup load panel
2. Turn OFF the external grid AC Disconnect or breaker feeding GRID input
3. Turn OFF the PV Disconnect
4. Press the inverter power button and wait for the normal LED to turn OFF
5. Turn OFF the HV batteries

➢ See the *60K Installation Manual* for more information on the startup sequence.

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