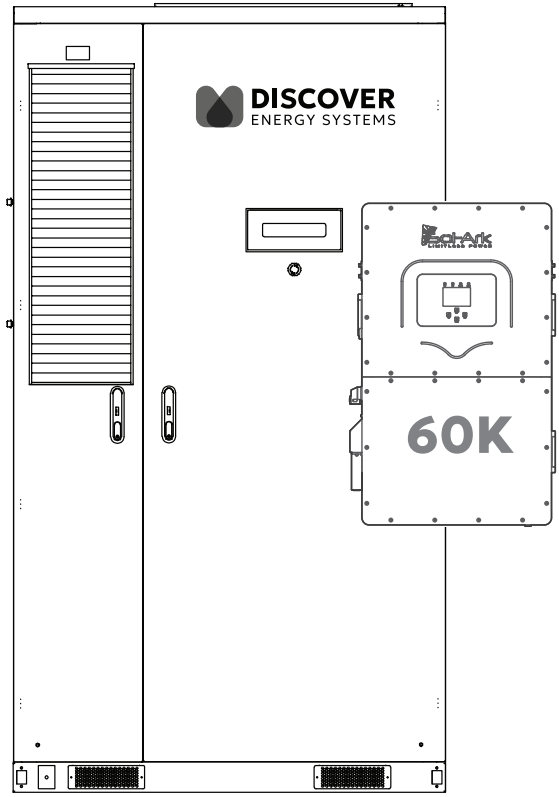
DISCOVER
ENERGY SYSTEMS



AES 210HV / SOL-ARK 60K-3P-480V INTEGRATION GUIDE

BATTERY MODEL

AES 210HV

885-0096 REV A

Introduction

This document complements the manufacturer's manual, offering guidance on integrating the AES 210HV energy storage solution with the Sol-Ark 60K-3P-480V commercial hybrid inverter.

1. AUDIENCE, MESSAGES, WARNINGS, GENERAL SAFETY, PERSONAL PROTECTIVE EQUIPMENT

1.1 Audience

Configuration, installation, service, and operating tasks for the AES 210HV and Sol-Ark 60K-3P-480V system should only be performed by qualified personnel in consultation with local authorities having jurisdiction and with authorized resellers. Qualified personnel should have training, knowledge, and experience in:

- Installing and commissioning electrical equipment.
- Interpreting and applying national and local electrical codes.
- Identifying, assessing, and mitigating electrical and mechanical hazards.
- Configuring and maintaining energy storage systems, including high-voltage batteries.
- Installing and managing communication systems, such as CAN and Ethernet.
- Configuring relay-activated systems and integrating them with other components.

1.2 Warning, Caution, Notice, and Note Messages

Messages in this manual are formatted according to this structure.

Additional information concerning important procedures and features of the product. Read all the instructions before installation, operation, and maintenance.

Important information regarding hazardous conditions.

⚠ WARNING

Important information regarding hazardous conditions that may result in personal injury or death.

⚠ CAUTION

Important information regarding hazardous conditions that may result in personal injury.

NOTICE

Important information regarding conditions that may damage the equipment but not result in personal injury.

NOTE

Ad hoc information concerning important procedures and features of the cabinet unrelated to personal injury or equipment damage.

1.3 General Warnings

Do not crush, disassemble or dispose of the battery in fire or the garbage.

This product is made of recyclable materials and must be recycled.

⚠ WARNING

ELECTRIC SHOCK AND FIRE HAZARD

The AES 210HV and Sol-Ark 60K-3P must be installed and operated according to the installation and integration guides.

- Ensure proper polarity and secure DC and AC wiring connections to prevent equipment damage or hazards.

Failure to follow these instructions may result in death or serious injury.

⚠ WARNING

ELECTRIC SHOCK AND FIRE HAZARD

Always de-energize the system before performing maintenance or making adjustments.

Failure to follow these instructions may result in death or serious injury.

⚠ CAUTION

ELECTRIC SHOCK

- Do not touch energized surfaces or terminals. Before servicing, ensure the system is fully de-energized, including removing MSDs and opening DC and AC disconnects.
- Follow all recommended handling and safety procedures when interacting with the battery system or inverter.

Failure to follow these instructions may result in injury.

General Handling and Use Guidelines

Review all instructions and safety information in the product manuals before installing or operating the AES 210HV and Sol-Ark 60K system. Follow these key safety guidelines:

- Avoid physical damage to the cabinet. Do not drop, crush, puncture, or submerse the cabinet in water or other liquids.
- Only use the system with qualified and compatible components to avoid fire, explosion, or system failure.
- Use a properly rated charging system approved for use with the AES 210HV.
- Do not exceed the maximum current and voltage ratings specified for the battery cabinet and inverter.
- Avoid short-circuiting the battery or exposing it to metallic objects that could create conductive bridges across the terminals.
- Replace components only with qualified replacements approved for use with the system.
- Recycle or dispose of batteries following local regulations.

1.4 Personal Protective Equipment

When handling or working near the AES 210HV cabinet:

- **Wear Personal Protective Equipment (PPE)**
  - Insulated gloves rated for high-voltage systems.
  - Safety glasses or goggles to protect against potential sparks or debris.
  - Fire-resistant clothing, including long-sleeved shirts and pants.
  - Non-conductive, anti-slip safety boots.
- **Remove Conductive Accessories**
  - Avoid wearing rings, watches, bracelets, necklaces, or metallic jewelry that could create a short circuit or accidental contact with electrical components.

Proper PPE use is essential when working with high-voltage energy storage systems like the AES 210HV.

2. SUPPORTING DOCUMENTATION

This guide provides information on integrating the AES 210HV high-voltage battery cabinet and the LYNK II Communication Gateway with the Sol-Ark 60K-3P inverter. For additional details and advanced configurations, refer to the supporting documents below.

Before installation or configuration, review all relevant documentation, including product manuals, application notes, installation guides, and configuration guides.

Sol-Ark Documentation

Visit sol-ark.com for the latest Sol-Ark product manuals, configuration guides, and firmware updates.

Discover Energy Systems Documentation

Visit discoverenergysys.com for the most recent version of published documents.

- AES 210HV Installation and Commissioning Manual (805-0092)
- LYNK II Installation and Operation Manual (805-0033)

Review these documents for installation and operation of the system.

3. OVERVIEW

This guide provides a general overview of the integration process and recommended settings for the AES 210HV cabinet and Sol-Ark 60K-3P inverter. It is not a comprehensive step-by-step guide for every possible installation scenario. Each installation may present unique conditions or specific use cases that require custom configurations or adjustments to recommended values.

Qualified installers must have the expertise to evaluate and adapt to the specific requirements of the installation site, ensuring the system is configured for optimal performance and safety. The installer must always consider the application's unique aspects and adjust settings accordingly.

3.1 System Overview

The AES 210HV Energy Storage Cabinet integrates seamlessly with the Sol-Ark 60K-3P inverter to deliver a scalable, high-performance energy storage solution for demanding applications. The integration leverages advanced battery management, efficient DC distribution, and real-time communication to optimize system operation.

Voltage Compatibility

The AES 210HV operates at a nominal voltage of 665 Vdc, aligning with the Sol-Ark 60K-3P inverter's DC battery range (160–700 Vdc). This compatibility supports efficient power delivery with minimal conversion loss.

Dual Battery Terminals

The Sol-Ark 60K-3P inverter features two independent battery input terminals, each rated for 50 Adc (for a combined maximum of 100 A). The AES 210HV connects to both terminals through its integrated DC Distribution Box, enabling efficient energy transfer.

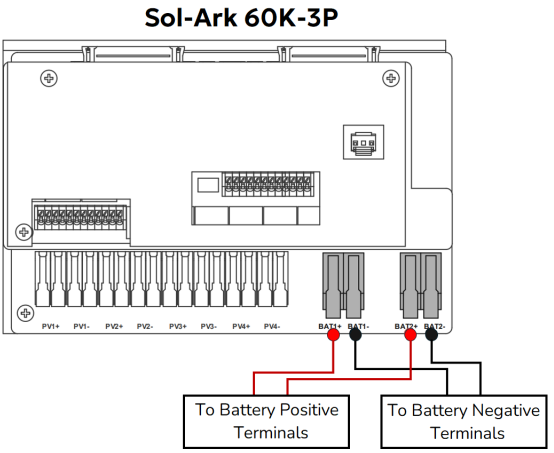


Figure 1. Sol-Ark 60K-3P Battery Terminals

Integrated DC Distribution Box

The AES 210HV includes a built-in fused DC distribution box for a streamlined connection.

- Four positive and four negative fused connections, with included 70 A fuse per terminal (replaceable with fuses from 35A, 40A, 50A, 60A, 70A, 80A, 90A, 100A, 125A, 150A).
- Use 4 AWG cables to meet Sol-Ark 60K-3P wiring requirements.
- This configuration allows the AES 210HV to distribute power to multiple DC inputs and/or multiple inverters.

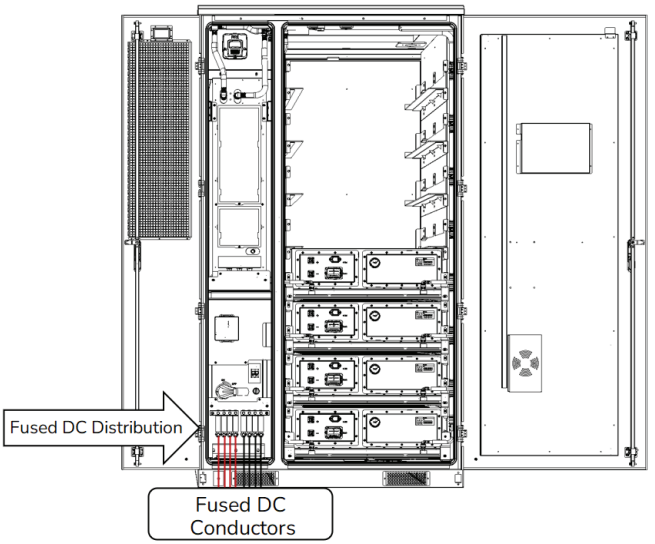


Figure 2. DC Distribution Box Wiring

Scalability with Sol-Ark

The Sol-Ark 60K-3P supports paralleling multiple inverters on the AC bus, enabling system configurations with up to 10 inverters and a total output of 600 kW. AC Inputs are paralleled on a common AC input (grid/gen) bus; same with the AC outputs, on a load bus. Batteries feed the Sol-Ark 60K-3P inverters independently, the battery cabinets must not be paralleled to a common DC bus.

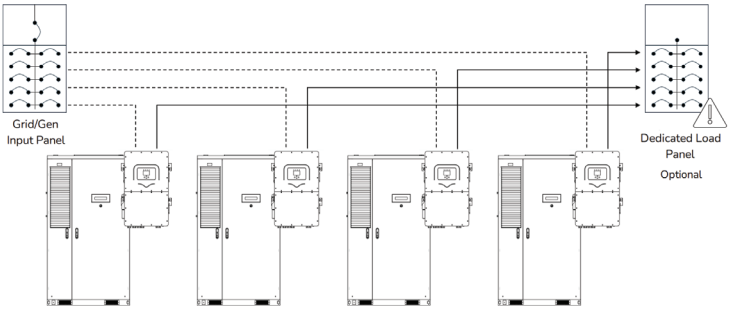


Figure 3. Sol-Ark Scalability

LYNK II Communication Gateway

The AES 210HV includes the LYNK II Communication Gateway for real-time, closed-loop communication with the Sol-Ark 60K-3P inverters via their BMS1 or BMS2 CANBUS ports. The LYNK II:

- Enables direct communication with the inverter for optimized performance.
- Dynamically adjusts charge and discharge parameters based on cabinet conditions.
- Monitors and communicates state of charge, voltage, current, and temperature.

The Sol-Ark 60K-3P features two RJ45 CAN ports (BMS1 and BMS2) that connect to the AES 210HV through the LYNK II Gateway for seamless closed-loop operation.

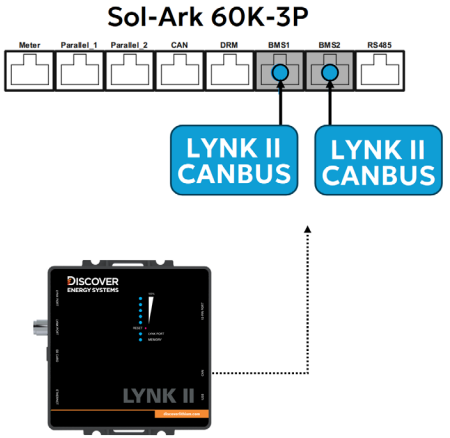


Figure 4. Sol-Ark 60K-3P Canbus Ports

The closed-loop configuration supports:

- **Real-Time Monitoring.** The LYNK II Gateway continually processes data from the AES 210HV's integrated Battery Control Unit (BCU), which manages overall battery system operations and the Battery Monitoring Units (BMUs), which track individual battery pack and battery cell parameters.
- **Fault Detection.** The LYNK II Gateway monitors abnormal battery behavior or battery system faults that trigger alarms and will halt the charging or discharging of the battery to safeguard the battery system.

Figure 5. LYNK ACCESS software

LYNK Access. PC software for real-time monitoring that provides on-site access to cabinet performance data and system status through the LYNK II Gateway.

LYNK Cloud. A cloud-based application for remote real-time monitoring and access to cabinet performance, system health, and alerts using remote internet-connected devices.

4. SYSTEM CONFIGURATION AND DESIGN CONSIDERATIONS

4.1 Parallel Batteries

NOTICE
EQUIPMENT DAMAGE Do not parallel AES 210HV battery cabinets on the DC bus. Attempting to parallel the DC outputs of individual battery cabinets can result in unbalanced currents, system instability, or potential damage to the equipment. **Failure to follow these instructions may result in equipment damage.**

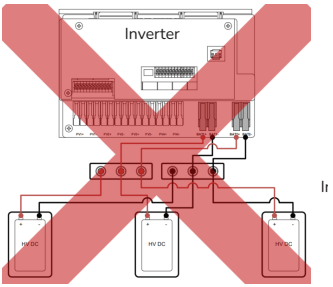


Figure 6. Do Not Parallel Battery Cabinets on the DC Bus

Do not parallel cabinets. Each battery cabinet operates as an independent unit designed to connect directly to its assigned inverter inputs. Paralleling the DC outputs of multiple individual cabinets can result in unbalanced currents, system instability, or potential damage to the equipment.

The scalability described in this document refers to inverter system-level scalability achieved by paralleling multiple inverters on the AC bus. In this configuration, each inverter operates independently with its dedicated battery connection, while the combined AC output of the inverters is synchronized on the AC bus to meet large power demands. This approach promotes balanced load sharing across all inverters.

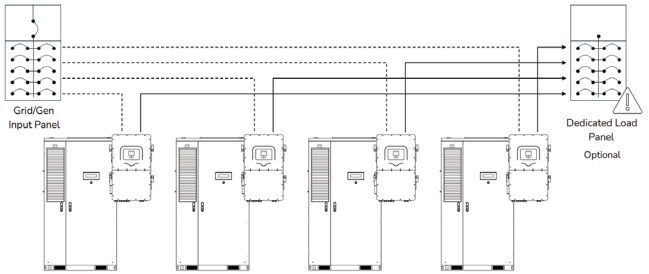


Figure 7. Parallel Multiple Sol-Ark 60K-3P on the AC Bus (up to 10 inverters)

NOTE
Refer to the Sol-Ark Manual on how to parallel inverters.

4.2 System Configuration Options

4.2.1 120kW/209kWh - Two 60K-3P Inverters, One AES 210HV Battery Cabinet

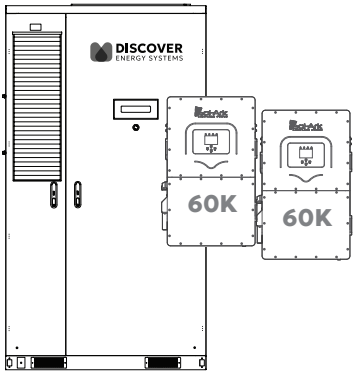


Figure 8. Two Sol-Ark 60K-3P Inverters, One AES 210HV Battery Cabinet

Performance

Peak Discharge Rate (2 hours). A single AES 210HV cabinet can deliver a continuous current of 160 A, corresponding to approximately 106 kW of power output from the cabinet. In a configuration with two Sol-Ark 60K-3P inverters, the current is divided evenly so that 80 A is used by each inverter. This setup adjusts each inverter's maximum battery output to align with the cabinet's current limitation and protects the system from overloading. The inverters maintain their full potential to deliver 60 kW of output each when supplemented by DC-coupled solar input, resulting in a combined maximum system output of 120 kW under optimal solar plus battery conditions.

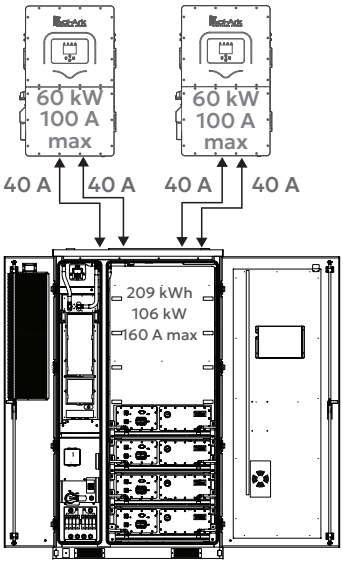


Figure 9. Two Inverters, One Cabinet Connection

Scalability

The Sol-Ark system-level scalability supports up to 10 paralleled inverters on the AC bus. A configuration with two Sol-Ark 60K 3P inverters per AES 210HV achieves a maximum power output of 600 kW and energy storage of up to 1.06 MWh across all 10 inverters.

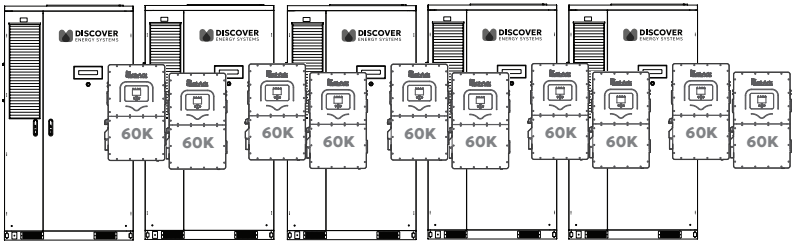


Figure 10. Ten Paralleled Inverters

DC Wiring

Each inverter's battery input terminals are connected to the AES 210HV using two pairs of 50 A conductors (two positive and two negative cables per inverter) for a total of four positive wires and four negative wires.

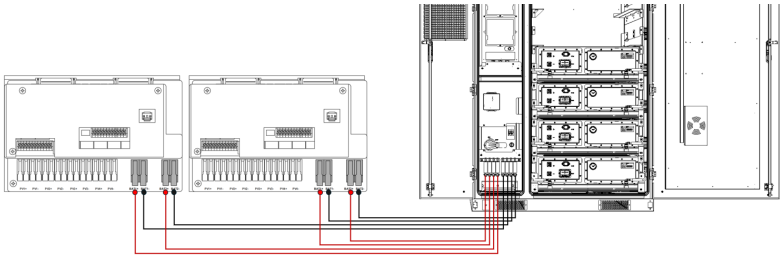


Figure 11. Inverter to Cabinet DC Wiring

Communication

A dual inverter set up uses two LYNK II Gateway devices (950-0025)—one LYNK II that is included with the AES 210HV cabinet and a second purchased separately. Each LYNK II Gateway connects to the BMS1 port of its respective inverter and to the J3 or J4 port on the battery cabinet's High Voltage Box.

In this configuration, each LYNK II device emulates the battery for its respective inverter. From the inverters' perspective, they believe they are connected to separate batteries and the inverters naturally balance the load across each other for seamless operation.

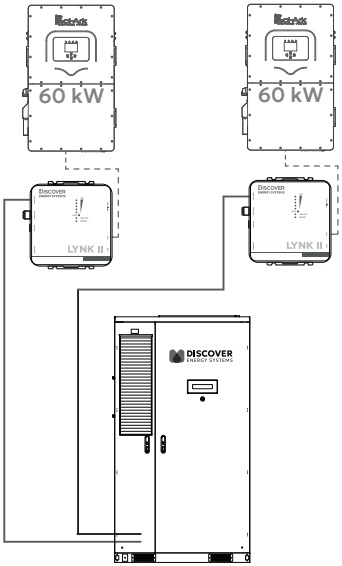


Figure 12. Inverter - LYNK II - Cabinet Communication

4.2.2 60kW/209kWh - One 60K-3P Inverter, One AES 210HV

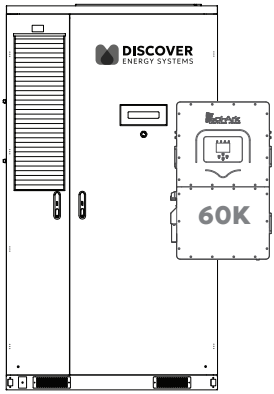


Figure 13. One Sol-Ark 60K-3P Inverter, One AES 210HV Battery Cabinet

Performance

Peak Discharge Rate (3.5-Hour). A single 60K-3P inverter can charge and discharge at a maximum continuous rate of 100 A (60 kW), which is within the AES 210HV cabinet's continuous operation limit. At this peak continuous performance, the battery achieves a discharge duration of approximately 3.5 hours.

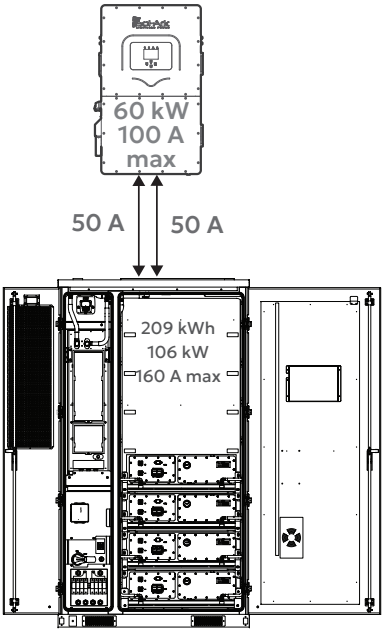


Figure 14. One Inverter, One Battery Connection

Scalability

The Sol-Ark system-level scalability supports up to 10 inverters paralleled on the AC bus. This configuration provides a maximum power output of 600 kW and energy storage of up to 2.12 MWh across all 10 inverters.

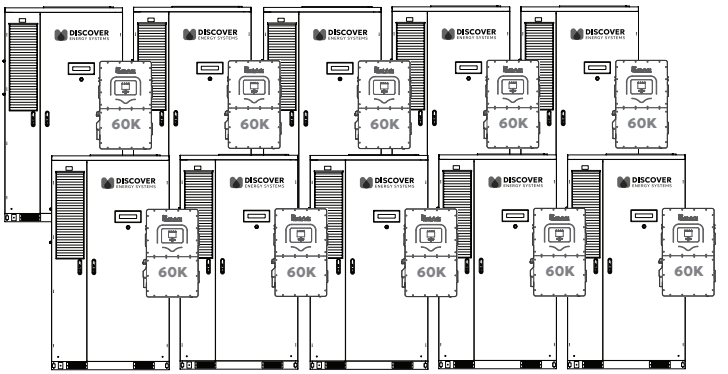


Figure 15. Parallel Inverters

DC Wiring

The inverter's battery input terminals are connected to the AES 210HV using two pairs of 50 A conductors (two positive and two negative cables).

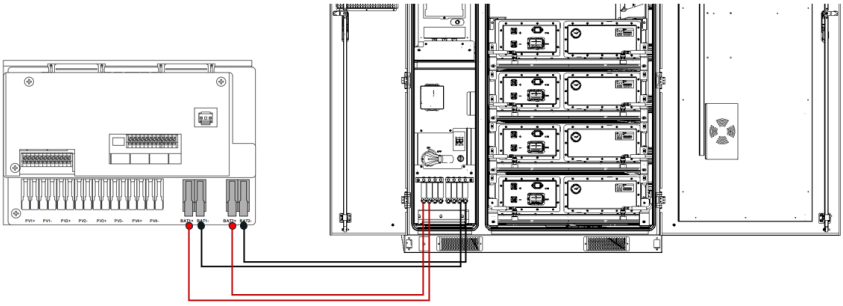


Figure 16. Inverter to Cabinet DC Wiring

Communication

This one-to-one setup uses the integrated LYNK II Gateway device provided with the AES 210HV cabinet. The LYNK II connects directly to the inverter's BMS1 port and to the J3 or J4 port on the battery cabinet's High Voltage Box.

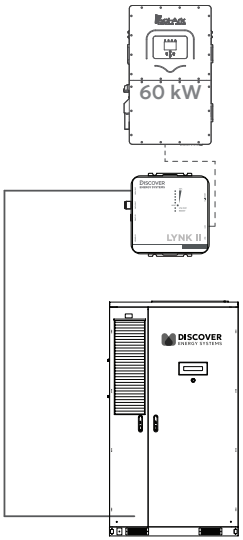


Figure 17. Inverter - LYNK II - Battery Communication

4.2.3 60kW/418kWh - One 60K-3P Inverter, Two AES 210HV

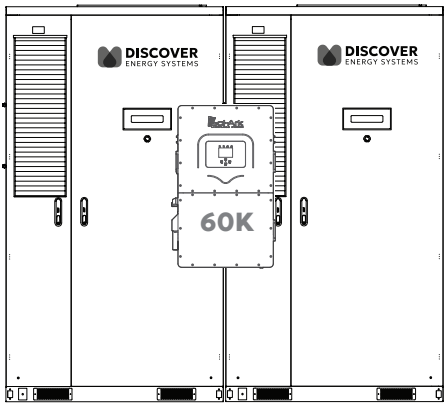


Figure 18. One Sol-Ark 60K-3P Inverter, Two AES 210HV Battery Cabinets

Performance

Peak Discharge Rate (7-Hour). A single 60K-3P inverter can charge and discharge at a maximum continuous rate of 100 A (60 kW), split between the two batteries at 50 A per cabinet. At the inverters' peak continuous performance, the cabinet achieves a discharge duration of approximately seven hours.

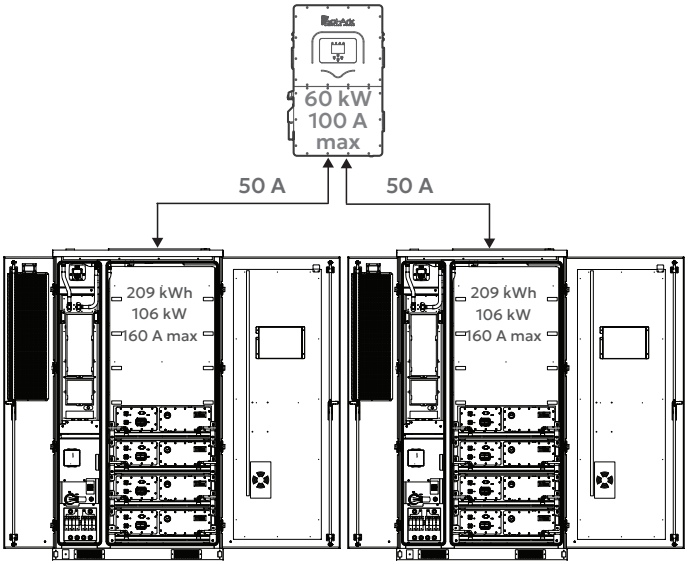


Figure 19. Inverter - Cabinet Connection

Scalability

The Sol-Ark system-level scalability supports up to 10 inverters paralleled on the AC bus. This configuration allows for a maximum power output of 600 kW and energy storage of up to 4.24 MWh across all 10 inverters.

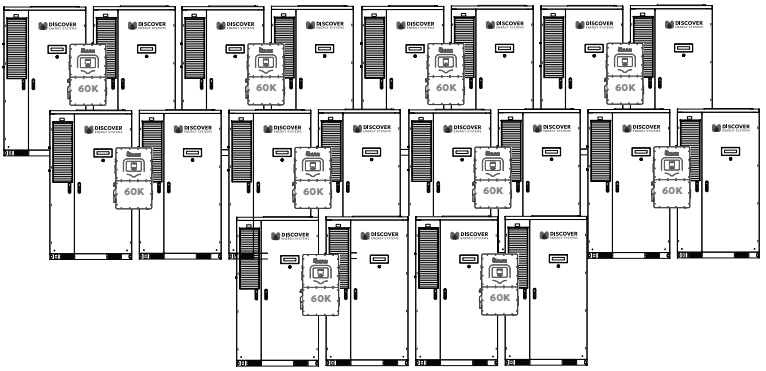


Figure 20. Parallel Inverters

DC Wiring

The inverter's battery input terminals are connected to each of the AES 210HV cabinets using one pair of 50 A conductors (one positive and one negative cable) per battery cabinet.

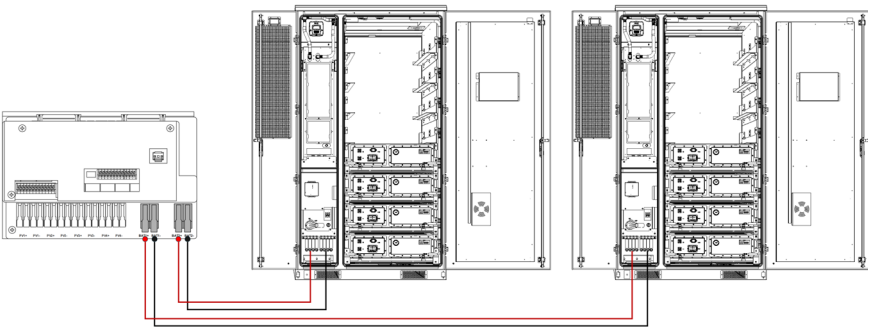


Figure 21. Inverter to Cabinet DC Wiring

Communication

This configuration uses the integrated LYNK II Gateway devices provided with the AES 210HV cabinets. The LYNK II Gateway from cabinet #1 connects to the inverter's BMS1 port and to the J3 or J4 port on the battery cabinet's High Voltage Box, and the LYNK II Gateway from cabinet #2 connects to the inverter's BMS2 port and to the J3 or J4 port on the battery cabinet's High Voltage Box.

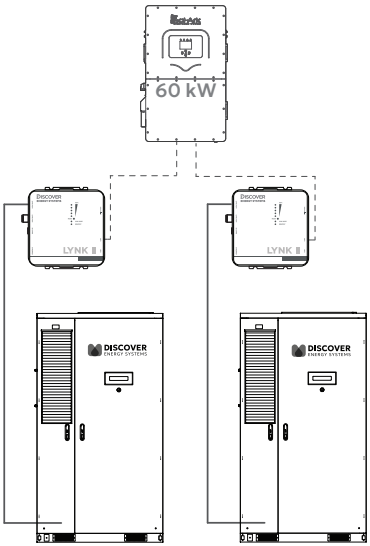


Figure 22. Inverter - LYNK II - Cabinet Communication

5. INSTALLATION AND WIRING

5.1 Charge and Discharge Current

Each Sol-Ark 60K-3P inverter supports up to 50 A of charge/discharge current for each of its two battery terminals, for a total charge/discharge current of 100 A for each inverter, which is the equivalent of 60 kW for a batteries with an output voltage of at least 600 Vdc.

In applications that use two Sol-Ark 60K-3P inverters connected to a single AES 210HV cabinet, the inverter's DC input is limited by the cabinet's continuous current rating of 160 A, which is split between the inverters to balance the power evenly.

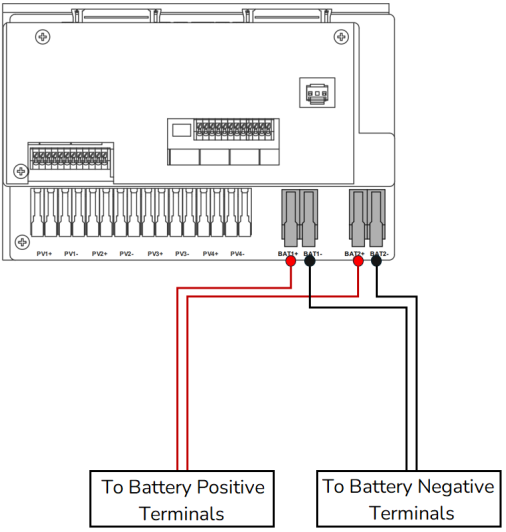


Figure 23. Multi-Terminal Installation

5.2 Communication Connection - Inverter/Cabinet

One Cabinet, One Inverter. Connect the LYNK II Gateway device CANBUS output to the inverter's BMS1 port. (Figure 24) Connect the LYNK II Gateway device's LYNK output to either the J3 or J4 port on the battery cabinet's High Voltage Box.

One Cabinet, Two Inverters. In configurations where two inverters are connected to one AES 210HV Cabinet, a LYNK II Gateway device is required for each inverter. Through its BMS1 port, each inverter connects through the LYNK II Gateway and independently communicates with the cabinet. (Figure 24) Connect each LYNK II Gateway device's LYNK output to the J3 and J4 ports on the battery cabinet's High Voltage Box.

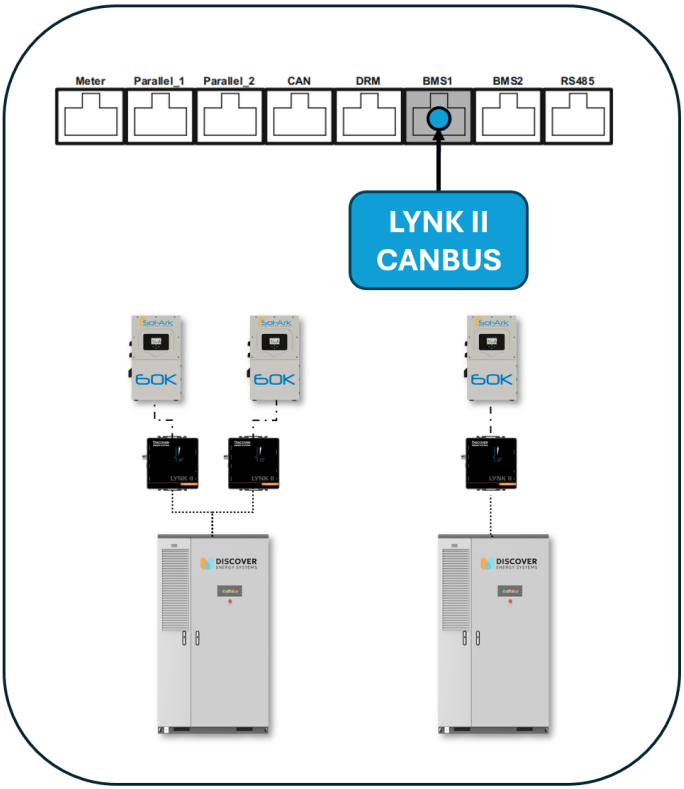


Figure 24. Single Cabinet Configurations

Two Cabinets, One Inverter. For setups with two cabinets connected to one inverter, use both the BMS1 and BMS2 ports so each cabinet communicates independently with the inverter. Connect the LYNK II Gateway device CANBUS output to each BMS port. (Figure 25) Connect each LYNK II Gateway device's LYNK output to either the J3 or J4 port on the corresponding battery cabinet's High Voltage Box.

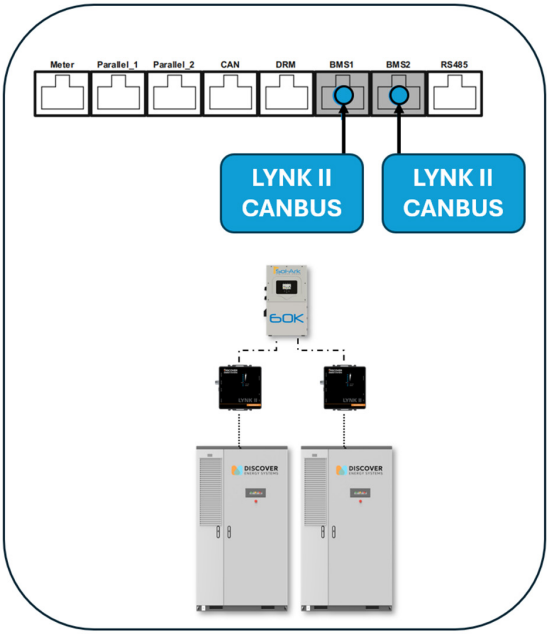


Figure 25. Two Cabinet Configuration

5.3 Installation Considerations

Inverter Installation. Follow the mounting instructions in the inverter's installation manual.

Cabinet Installation. Refer to the cabinet installation manual for mounting instructions.

Separation Distance. The inverter and battery cabinet do not need to be adjacent. The inverter supports up to 4 AWG copper wiring, with a maximum continuous current of 50 A per pair of conductors. Ensure the distance between the inverter and cabinet contributes less than a 2.5% voltage drop.

Conduit and Raceways. The AES 210HV has a bottom entry path for all wire connections to enter the battery cabinet. Cables route through underground conduits or the wire chase beneath the cabinet for a clean and organized installation.

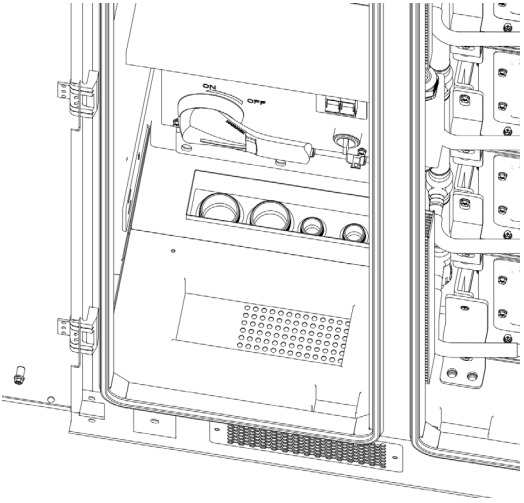


Figure 26. Conduit and Raceways

Conduit Recommendations

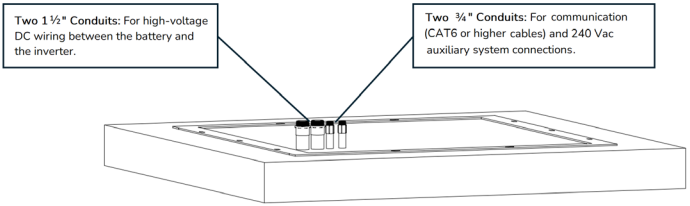


Figure 27. Conduit

Use separate conduits for different types of connections to minimize electromagnetic interference and increase system reliability.

DC Conductors. Install dedicated conduit for the high-voltage DC wiring between the cabinet and the inverter. Two 50 mm (1.96”) holes for conduit entries (for 1 ½" Trade Size conduit) are available for up to eight #4 AWG current-carrying conductors.

240 Vac Connections. To isolate it from other circuits, use a separate conduit for the AC supply wiring to the AC Auxiliary System (Uninterruptible Power System (UPS) and Thermal Management System (TMS)). One 30 mm (1.12”) hole for conduit entry (for ¾" Trade Size conduit) is available for AC conductors supporting two #10 AWG current-carrying conductors plus ground.

Communication Connections. Run the CAT6 communication cables in a separate conduit to prevent signal interference, maintain robust data transmission, and ensure safety and code compliance. One 30 mm (1.12”) hole for conduit entry (for ¾" Trade Size conduit) is available for CAT6 (or similar) communication cables.

Best Practice. Ensure that all conduits are appropriately sized, rated for the environment (for example, they are weatherproof for outdoor installations), and securely installed to protect the wiring. The separation of wiring types enhances operational safety, simplifies maintenance, and reduces the risk of cross-system interference.

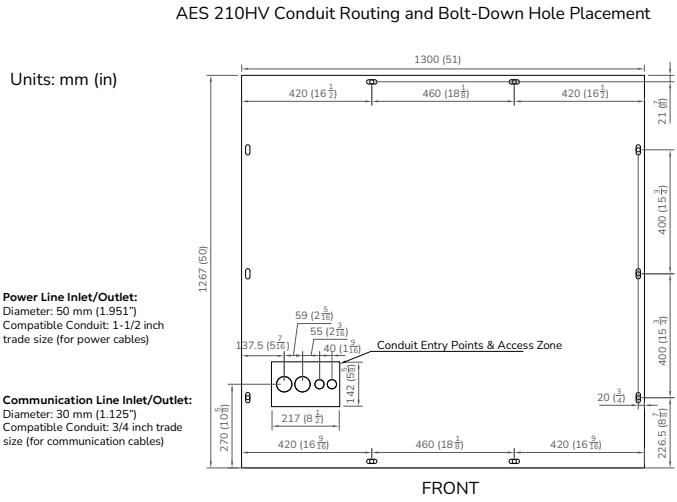


Figure 28. Conduit Box and Bolt-Down Hole Placement

5.4 DC Cable and Wiring

Properly Rated Cables. Cables for high-voltage DC connections should be rated to at least 1 kV to provide a safety margin for the system's maximum battery voltage of 750 Vdc.

Inverter Ports	Max. Terminal Rating	Terminal Wire Size Range
Battery Port A	50 Adc	6 AWG – 4 AWG
Battery Port B	50 Adc	6 AWG – 4 AWG

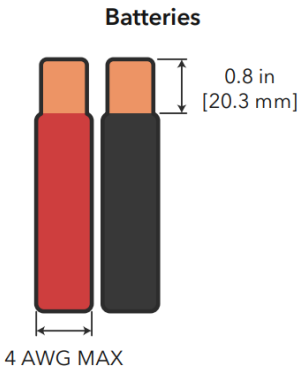


Figure 29. Battery Cables

NOTICE
EQUIPMENT DAMAGE Confirm the polarity of all DC connections before powering on the system. Incorrect polarity can damage the equipment and void the warranty. **Failure to follow these instructions may result in equipment damage.**

5.5 Auxiliary AC Input Wiring For HVB and TMS

NOTICE
EQUIPMENT DAMAGE The Auxiliary AC input voltage supplied to the High Voltage Box (HVB) and Thermal Management System (TMS) must not exceed 275 Vac. Overvoltage can damage the equipment and void the warranty. **Failure to follow these instructions may result in equipment damage.**

NOTE
If a 240 V single-phase source is unavailable, a transformer can step down 277 V or 480 V to 240 V. The transformer should be rated at least 5 kVA per cabinet.

AC Wiring to the HVB. AC wiring to the HVB should be rated and sized to support up to 30 A. The HV Box and Auxiliary equipment is protected with a 32 A Miniature Circuit Breaker.

Voltage Limits. The AC voltage supplied to the HVB and TMS must not exceed 275 Vac. The Auxiliary AC input requires a single phase input with a voltage range from 200 to 275 Vac.

Transformer Configuration. If a transformer is required, it can step down the supply voltage to approximately 240 Vac. Ensure proper wiring on both the primary and secondary sides using appropriately rated wires and breakers. Either a single-phase or three-phase transformer can be used, but note that the Auxiliary AC input operates on a single-phase supply.

The transformer should have a minimum capacity of 5 kVA for single-phase operation. A single large transformer can also be used to supply Auxiliary AC power to multiple cabinet systems.

5.6 Communication Wiring

NOTE
For closed-loop communication, the LYNK II must be connected to the Sol-Ark inverter. Additionally, an optional Ethernet port on the LYNK II allows for cloud-based system monitoring. To enable both functions, run two CAT6 (or equivalent) cables to the cabinet: one for the inverter connection and another for internet access.

Component	Wire Size Range	Max Distance
Communication	16 – 22 AWG	0 – 30 m (0 – 100 ft): 24 AWG
	CAT 5E or higher	30 – 120 m (100 – 400 ft): 23 AWG

Recommended Cable. Use a shielded CAT6 or higher cable to minimize interference. Standard CAT5 or CAT6 cables are more susceptible to interference.

RJ45 Pin Configuration. Verify the RJ45 pin assignments match the specifications in the inverter manual.

Connection Setup. To establish the communication link, connect a CAT6 or higher cable between the inverter and the CAN port on the LYNK II Gateway. For cloud-based monitoring, connect a second CAT6 cable from the LYNK II's Ethernet port to an active internet source.

5.7 Grounding

Grounding. Follow NEC and local regulations for grounding all components.

6. STEP-BY-STEP COMMISSIONING PROCEDURE

6.1 Pre-Commissioning Checklist

Verify System

- Verify all breakers and disconnects (DC and AC) are in the OFF position.

Inspect Connections

- Verify the polarity of all DC connections.
- Verify all AC and communication connections are secure and correct.
- Ensure all covers, enclosures, and access panels are securely closed.
- Close the cabinet's battery compartment door.

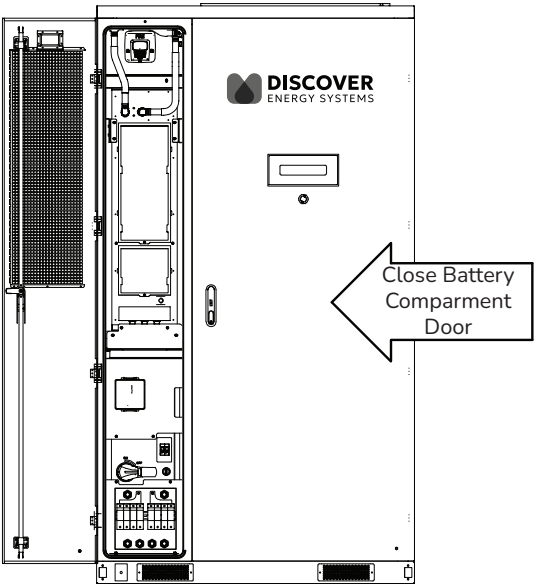


Figure 30. Close Battery Compartment Door During System Operation

NOTICE
SYSTEM SHUTDOWN The battery compartment door must remain closed during system operation. Opening the door will trigger a maintenance alarm and automatically shut down the system. **Failure to follow these instructions may result in equipment damage.**

6.2 Cabinet Initiation

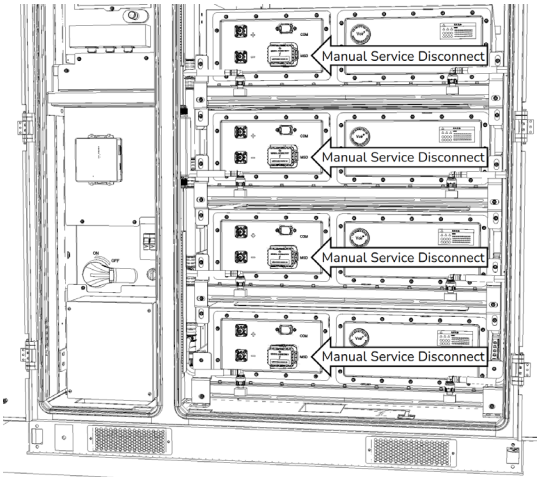


Figure 31. Manual Service Disconnects

Follow instructions for installation of Manual Service Disconnect (MSD) into the battery pack's MSD receptacle slots.

6.3 Cabinet Activation

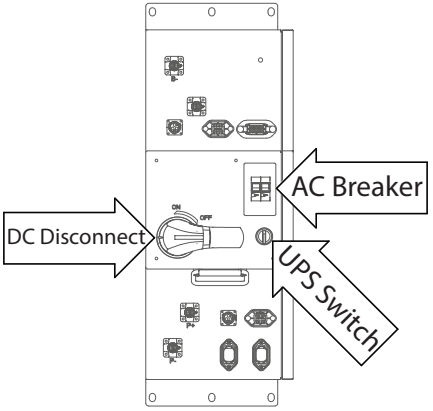


Figure 32. High Voltage Box (HVB)

1. Close the DC Disconnect
   - Confirm the AES 210HV DC disconnect is in the closed position (ON) and secure.
2. Power on the Auxiliary AC Input Circuit
   a. To energize the system, provide power to the Auxiliary AC input.
   b. Close the AC breaker on the HV Box.
3. Blackstart (if applicable)

- For systems without an initial AC supply, utilize the UPS system to blackstart the cabinet by turning ON the UPS to provide temporary power for the cabinet's control system.
  - The UPS is for short-term operation only. Promptly restore AC power once available.

4. Cabinet Initialization
   - The Battery Control Unit (BCU) and LYNK II Gateway will power up and initiate a system startup sequence.
     - During the startup process, the green LED on the cabinet door flashes to indicate the system is Ready.
     - Allow 30 to 60 seconds for the LYNK/BCU to initialize and check internal systems.
5. Pre-Charge Circuit Activation
   - After initialization, the BCU will engage the pre-charge circuit and provide power to start the inverter.
     - The BCU then closes its main contractors when the pre-charge process is complete.
6. Verify Cabinet Status
   - Confirm that the cabinet indicator LEDs indicate operation is normal.
     - On successful startup, the status LED on the cabinet door will be solid green, indicating the system is in operation.
     - If the status LED does not become solid green or error indicators appear, refer to the troubleshooting section of the AES 210HV manual for diagnostic steps.

6.4 Inverter Configuration

NOTE
For inverters in parallel, follow the procedure in the inverter manual for Parallel System Programming and set up.

1. Power On the Inverter
   - The inverter activation process may take 3 to 5 minutes. When the inverter is powered up, the display is illuminated.
     - If the inverter does not activate, verify that you have DC output from the cabinet. Check the wiring, and verify that the inverter receives DC input.
   - Turn ON the AC inputs supplying grid power to the inverter (if applicable).
     - Keep AC output circuits isolated until the inverter stacking configuration is complete (if applicable).
     - Keep the DC PV input circuits isolated until the Battery Setup configuration for closed-loop communication with the inverter is complete.
   - Wait for the inverter to activate before proceeding with configuring the inverter.

6.4.1 Battery Setup Configuration

If there are multiple inverters, repeat this procedure for each inverter.

Access the inverter's **System Setup** menu, navigate to the **Battery Setup**, and in the **Batt** tab configure the inverter communication with the battery, charge and discharge parameters, and parallel operation of the inverter's DC/DC Converters.

1. From the **System Setup** menu, select **Battery Setup**.

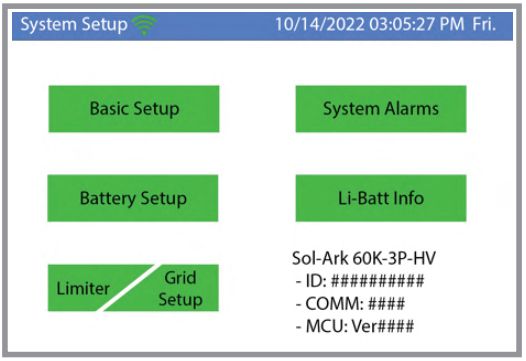


Figure 33. System Setup Menu

2. In the **Batt Setup** dialog box, open the **Batt** tab and configure the following.

NOTICE

EQUIPMENT SETUP

Examples of specific settings for various system configurations are provided in Figure 35, Figure 36, and Figure 37.

Failure to follow these instructions may result in equipment damage.

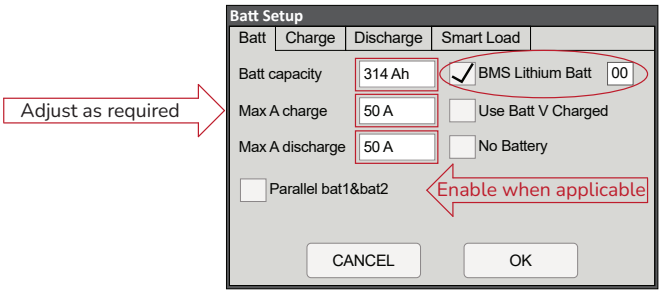


Figure 34. Batt Setup - Batt Tab

- **Batt Capacity.** Set the battery capacity to match the AES 210HV usable capacity. For example, 157 Ah if split between two inverters, 314 Ah for one battery and one inverter, or 628 Ah for two cabinets with one inverter.
- **BMS Lithium Batt.** Select this check box for closed communication with the AES 210HV. Configure the protocol to 00.
- **MAX A Charge/Discharge.** Define the maximum current allowed for charging and discharging the cabinet through the inverter's DC/DC terminals.
- **Parallel Bat1&Bat2.** Select this check box for applications where both of the inverter's DC Battery Connections are to a single cabinet and the communication cable is

connected only to the inverter's BMS1 port. The inverter will use both integrated Battery DC/DC converters in parallel, providing the full current to each input/output between the inverter and the cabinet.

3. Configure the Inverter's charge and discharge limits based on the system configuration. Refer to the examples below.

NOTE
Before changing tabs, always click OK to save the settings. After clicking OK, you must navigate back to the respective settings menu each time.

Example Configurations

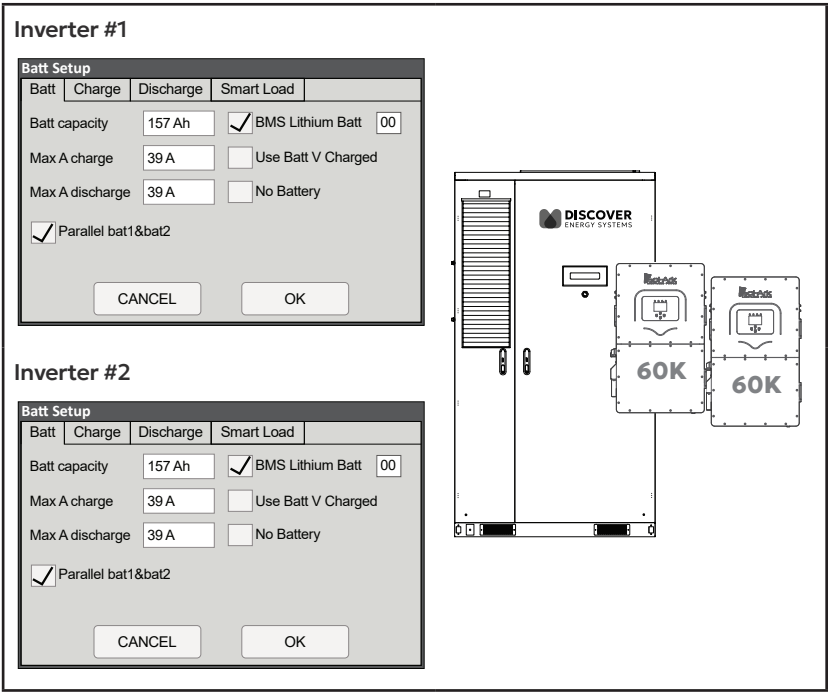


Figure 35. 120 kW/209 kWh - Two 60K-3P Inverters, One AES 210HV Battery Cabinet

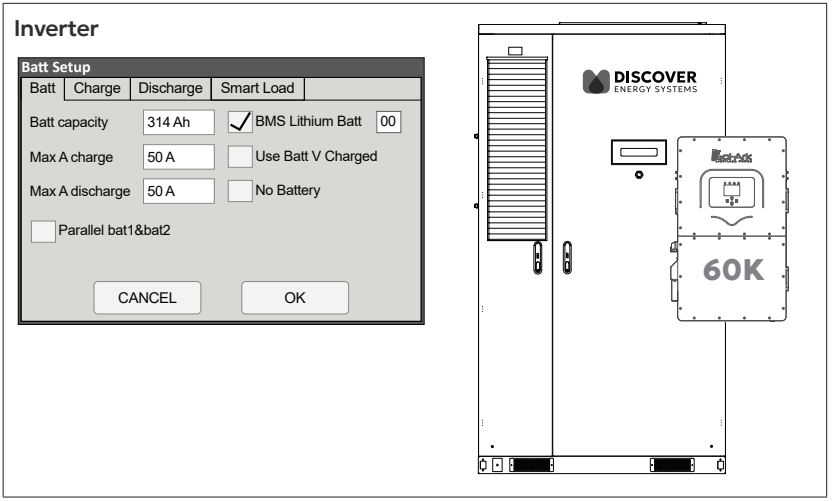


Figure 36. 60 kW/209 kWh - One 60K-3P Inverter, One AES 210HV Battery Cabinet

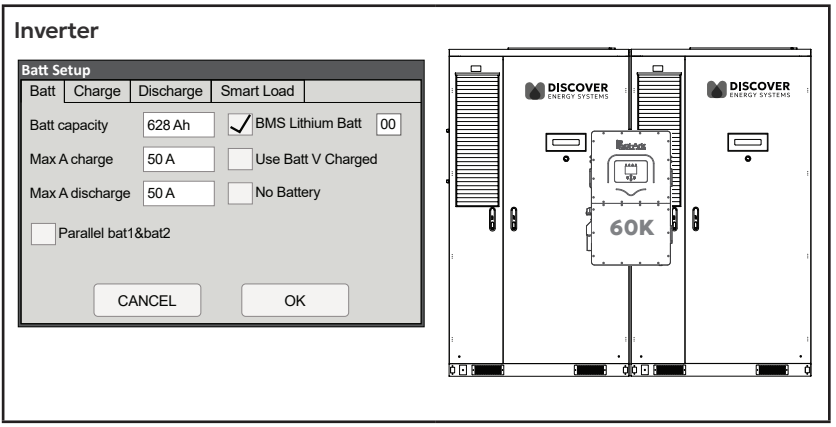


Figure 37. 60 kW/418 kWh - One 60K-3P Inverter, Two AES 210HV Battery Cabinets

6.4.2 Charge Tab Configuration

Configure these settings if the system needs to charge the batteries using grid or generator power. While these settings are not mandatory, improper configuration may result in ineffective charging from these sources.

NOTE

Certain values may be grayed out when the **BMS Lithium Batt** check box is selected. These values are typically ignored when closed-loop communication is active. However, it is recommended to configure them as a backup in case closed-loop communication is interrupted or deactivated for troubleshooting.

To adjust grayed-out values, temporarily disable closed-loop mode by clearing the **BMS Lithium Batt** check box. Once the open-loop configurations are complete, be sure to re-enable closed-loop by selecting the check box.

1. From the **System Setup** menu, select **Battery Setup**.
2. In the **Batt Setup** dialog box, open the **Charge** tab and configure the following settings. The recommended values are shown in the image below.

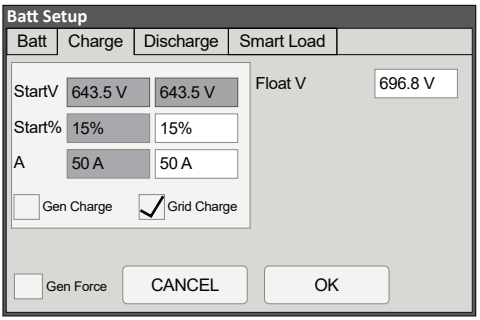


Figure 38. Batt Setup - Charge Tab

- **Grid Charge, Gen Charge.** To enable charging from the Grid Input terminals or Gen Input terminals, select the respective check box (**Grid Charge** or **Gen Charge**). If neither check box is selected, the inverter will not draw power from these sources to charge the batteries.
- **Start V and Start %.** Set the appropriate values for triggering generator or grid charging. The recommended values are shown in the above screenshot.
- **Current (A).** Define the maximum DC charge rate per battery DC input terminal for the generator or AC source. This value may be overridden by many other settings in the system, such as TOU settings or Gen/Grid Power Limits settings.
- **Float Voltage (Float V).** Ignored in closed-loop lithium battery systems but should be configured as a fallback in case of communication issues.

NOTE

Before changing tabs, always click OK to save the settings. After clicking OK, you must navigate back to the respective settings menu each time.

6.4.3 Discharge Tab Configuration

Configure the settings in the **Discharge** tab to protect the battery system from excessive discharge.

1. From the **System Setup** menu, select **Battery Setup**.
2. In the **Batt Setup** dialog box, open the **Discharge** tab and configure the following settings.

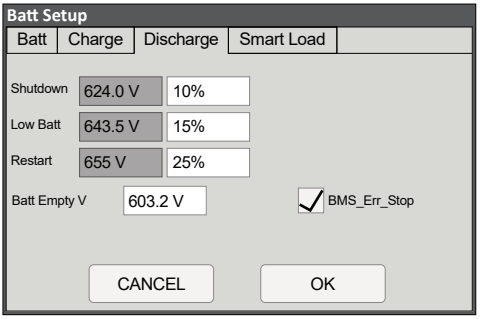


Figure 39. Batt Setup - Discharge Tab

- **Discharge Parameters.** Set the battery state of charge (SOC) percentages and voltage values for **Shutdown**, **Low Batt**, and **Restart**. The recommended values are shown in the above image.
- **Batt Empty V.** The recommended value is shown in the above image (Figure 39).
- **BMS Err Stop.** When the **BMS_Err_Stop** check box is selected, the inverter will error and stop operating if closed-loop CAN communication with the cabinet is interrupted. While not mandatory, enabling this setting prevents the system from defaulting to open-loop mode (without warning) in the absence of closed-loop communication. Charging in open-loop for extended periods could lead to permanent damage of the battery.

NOTE
Before changing tabs, always click OK to save the settings. After clicking OK, you must navigate back to the respective settings menu each time.

6.5 System Power-Up and Testing

Follow this procedure to power up.

Closed-Loop System Check

- Check that the inverter displays battery SOC, voltage, and current to confirm that it is in closed-loop communication with the cabinet.
- Check for any error codes or warnings on both the cabinet and inverter.

1. From the **System Setup** menu, select **Li-Batt Info** to confirm the correct system information is displayed. Compare the data presented in the **Li-Batt Info** screen to the data provided in LYNK Access.
   - Confirm that SOC, voltage, and current values match expected levels.

NOTE
If the **Li-Batt Info** box is not visible, the system is not configured for closed-loop communication. To enable it, navigate to the **Batt Setup** section and confirm the **BMS Lithium Batt** check box is selected. The **Li-Batt Info** box will only appear when the system is properly set up for closed-loop operation.

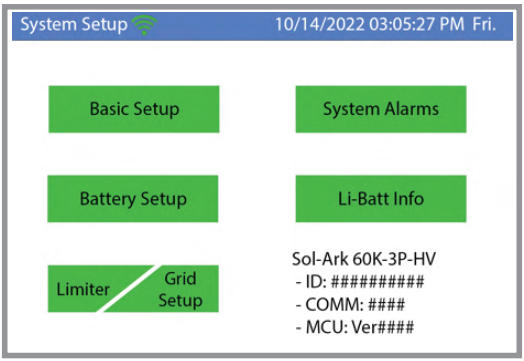


Figure 40. System Setup - Li-Batt Info

Inverter PV DC Input. If applicable close the PV disconnects connecting the PV System to the inverters.

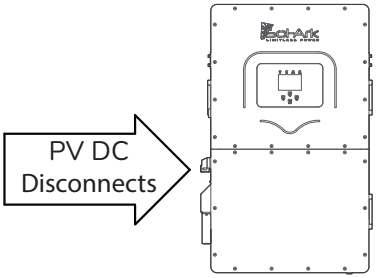


Figure 41. PV Disconnects

AC Loads On. If applicable close the AC output disconnects for the inverter load output and verify the load is connected.

Navigate to the Details screen (by clicking the battery icon on the home screen) and verify that the inverter detects the PV input and displays the correct power values for production and load.

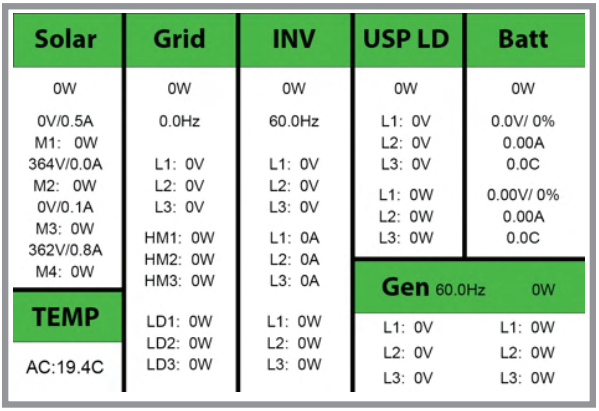


Figure 42. Details Screen

Test Operation

- Simulate charge and discharge cycles by introducing loads or enabling PV input.
- Monitor performance to verify there is a proper response to load and charging inputs.

6.6 Remote Monitoring Setup

1. MySolArk Platform
   - Connect the inverter to the internet through Ethernet or Wi-Fi.
   - Create a MySolArk account and register the inverter for remote monitoring.
2. LYNK Cloud Platform
   - Create your free account and register for LYNK Cloud access.
   - Connect the LYNK II Gateway to the Internet through Ethernet.
   - Create a LYNK Cloud account or log in to your existing account at mylynkcloud.com.
   - Register the LYNK II Gateway with LYNK Cloud to enable remote monitoring of the cabinet system.
3. Monitor System Data
   - Verify battery SOC, voltage, current, and fault status through the LYNK Access or LYNK Cloud platform.

7. FINAL STEPS

Document System Settings and Test Results

- Record all configured settings, including voltage, current limits, charge/discharge parameters, and communication settings.
- Log system test results, such as battery health checks and communication verification.
- Maintain this documentation for future reference, troubleshooting, and compliance requirements.

User Training

- Provide system users with a thorough overview of operational procedures, safety precautions, and basic troubleshooting steps.
- Demonstrate how to monitor system performance using the inverter or LYNK II interface.
- Ensure users understand alarms, fault codes, and recommended corrective actions.

Operation & Maintenance (O&M) Scheduling

- Establish a preventive maintenance schedule in collaboration with site operators.
- Define periodic inspection intervals for battery health, connections, the thermal management system, and firmware updates.
- Document maintenance procedures and responsibilities to ensure long-term reliability.

Product Registration & Warranty Compliance

- Register the product per the warranty instructions to activate coverage and ensure eligibility for support.
- Verify that all installation documentation is complete and meets warranty requirements.

Additional Support & Troubleshooting

- Refer to the product manuals for detailed system configurations, troubleshooting procedures, and firmware updates.
- Contact technical support for system-specific assistance or if further guidance is required.

These final steps ensure system reliability, compliance, and ease of future maintenance.