



885-0156 AES Cabinet Solis Integration Guide

Revision B

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AES CAB-106 / 160 / 210 and Solis S6-EH3P (30-60K)

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1 INTRODUCTION

This guide provides information on integrating the AES CAB-106, CAB-160, and CAB-210 high-voltage battery cabinets (hereafter referred to as AES Cabinet) with the LYNK II Communication Gateway and Solis S6-EH3P inverters. 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. For additional details and advanced configurations, refer to the supporting documents below.

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.

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

Solis Documentation

Visit solisinverter.com for the latest Solis product manuals, configuration guides, and firmware updates.

Discover Energy Systems Documentation

Visit <http://www.discoverenergysys.com> for the most recent version of published documents.

- AES Cabinet Outdoor C&I Installation and Commissioning Manual (805-0104)
- LYNK II Installation and Operation Manual (805-0033)

Review these documents for the installation and operation of the system.

1.1 Applicable Products

Solis Three-Phase High-Voltage Hybrid Inverters

| Solis Inverter Model | Max Power (PV/AC/Battery) | AC Configuration |
|-------------------------|---------------------------|------------------|
| S6-EH3P30K03-LV-YD-H-US | 60 / 30 / 33 kW | 3/N/PE, 208V |
| S6-EH3P30K03-NV-YD-H-US | 60 / 30 / 33 kW | 3/N/PE, 480V |
| S6-EH3P40K-NV-YD-H-US | 80 / 40 / 44 kW | 3/N/PE, 480V |

| Solis Inverter Model | Max Power (PV/AC/Battery) | AC Configuration |
|-----------------------------|----------------------------------|-------------------------|
| S6-EH3P50K-NV-YD-H-US | 100 / 50 / 55 kW | 3/N/PE, 480V |
| S6-EH3P60K04-NV-YD-H-US | 100 / 60 / 60 kW | 3/N/PE, 480V |

AES Battery Energy Storage System Cabinets

| AES Cabinet | CAB-106 | CAB-160 | CAB-210 |
|----------------------------|---------------------------|-----------------------|-----------------------|
| Unit Model Number | SLL03C2-D1P52S1R2-A01 | SLL03C2-D1P52S1R3-A01 | SLL03C2-D1P52S1R4-A01 |
| Chemistry | LiFePO ₄ (LFP) | | |
| Nominal Energy | 106 kWh | 160 kWh | 212 kWh |
| Usable Energy | 104 kWh | 157 kWh | 209 kWh |
| Nominal Capacity | 320 Ah | | |
| Usable Capacity | 314 Ah | | |
| Nominal Voltage | 332.8 V | 499.2 V | 665.6 V |
| Charging Voltage Range | 310 - 360 V | 465 - 540 V | 620 - 720 V |
| Voltage Limits | 292 - 369 V | 437 - 553 V | 583 - 738 V |
| Maximum Continuous Current | 157 A | | |

2 AUDIENCE, MESSAGES, WARNINGS, GENERAL SAFETY, PERSONAL PROTECTIVE EQUIPMENT

This section outlines who should perform the installation and commissioning of AES Cabinets (CAB-106, CAB-160, CAB-210) with Solis inverters, along with critical safety warnings, required personal protective equipment (PPE), and guidelines for safely handling high-voltage energy storage systems.

- [Audience](#)
- [Warning, Caution, Notice, and Note Messages](#)
- [General Warnings](#)
- [Safe Handling Guidelines](#)
- [Personal Protective Equipment](#)

2.1 Audience

Configuration, installation, service, and operating tasks for the AES Cabinet and the inverter 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 with:


- 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.

2.2 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 result in damage to the equipment but not personal injury.

NOTE

Ad hoc information concerning important procedures and features of the battery not related to personal injury or equipment damage.

2.3 General Warnings

WARNING

ELECTRIC SHOCK AND FIRE HAZARD

The battery and the inverter must be installed and operated strictly 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 the energized surfaces of any electrical component in the battery system.
- Before servicing the battery, follow all procedures to fully de-energize the battery system.
- Follow the [“Safe Handling Guidelines”](#) below when working with the battery.

Failure to follow these instructions may result in injury.

2.4 Safe Handling Guidelines

Review all instructions and safety information in the product manuals before installing or operating the AES Cabinet and the inverter system. Follow these key safety guidelines:

- Avoid physical damage to the cabinet. Do not drop, crush, puncture, or submerge 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 Cabinet.

- 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.

2.5 Personal Protective Equipment

When handling or working near the AES Cabinet:

Wear Personal Protective Equipment (PPE)

- Arc-rated clothing.
- 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.

3 SYSTEM OVERVIEW AND DESIGN

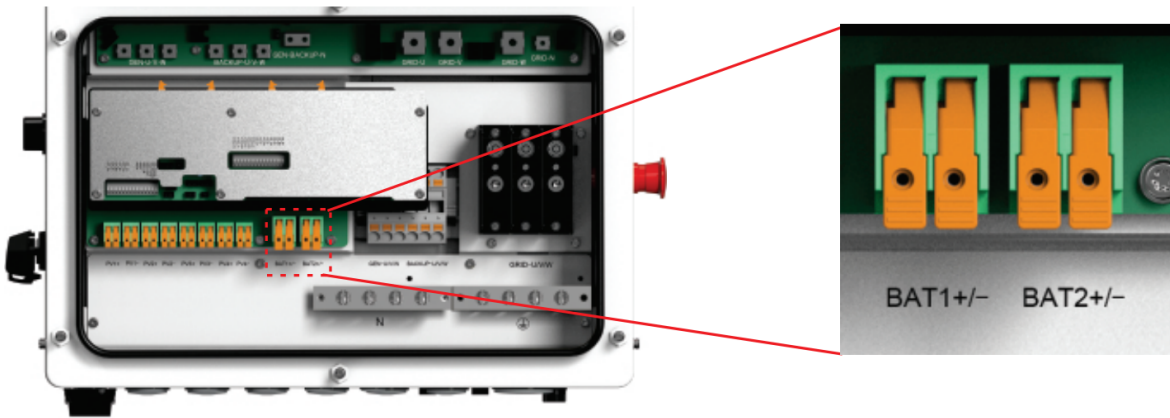
The AES Energy Storage Cabinet integrates with the Solis S6-EH3P hybrid inverter to deliver a scalable, high-performance energy storage solution for demanding applications. The integration leverages advanced battery management, efficient DC distribution, and real-time communication to optimize system operation.

Voltage Compatibility

The AES Cabinets operate at a nominal voltage of 332, 499, and 665 Vdc, which align with the Solis S6-EH3P inverter's DC battery range (150–800 Vdc). This compatibility supports efficient power delivery with minimal conversion loss.

Dual Battery Terminals

The Solis S6-EH3P inverter features two independent battery input terminals, with each input on the 30K model rated for 80 Adc (33 kW), the 40-50K models rated for 80 Adc (35 kW), and the 60K model rated for 84 Adc (35 kW), for a combined maximum of either 66 or 70 kW. The AES Cabinet connects to both terminals through its Integrated DC Distribution.

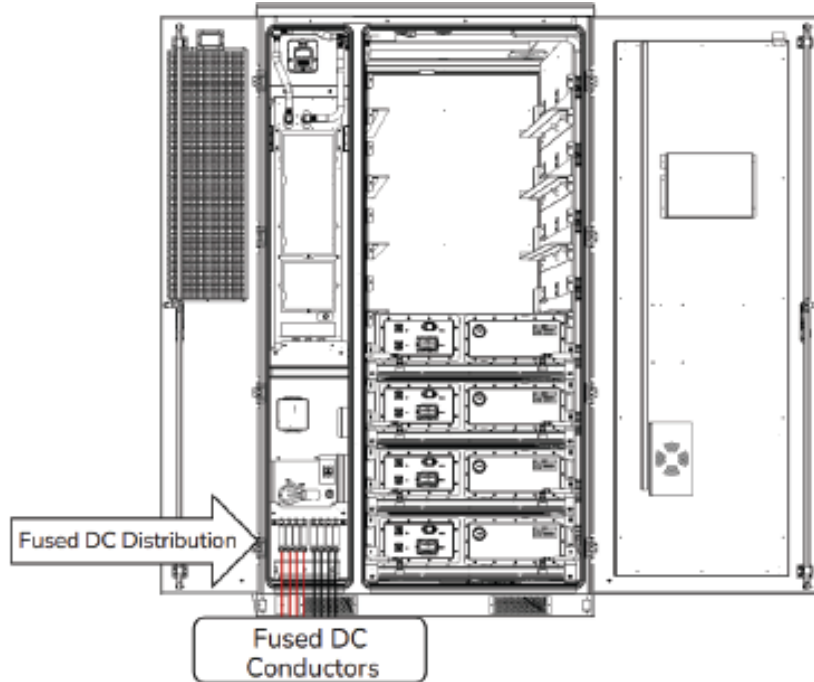


3.1 Integrated DC Distribution

The AES Cabinet includes DC distribution with built-in fuses for a streamlined connection.

- Four positive and four negative fused connections, including 70 A fuses per terminal (replaceable with fuses from 35 A, 40 A, 50 A, 60 A, 70 A, 80 A, 90 A, 100 A, 125 A, 150 A).
- Use 4 AWG cables to meet Solis S6-EH3P wiring requirements.

- This configuration allows the AES Cabinet to distribute power to multiple DC inputs and/or inverters.



3.2 Capacity and Configuration Options

NOTICE

EQUIPMENT DAMAGE

Do not parallel AES 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.

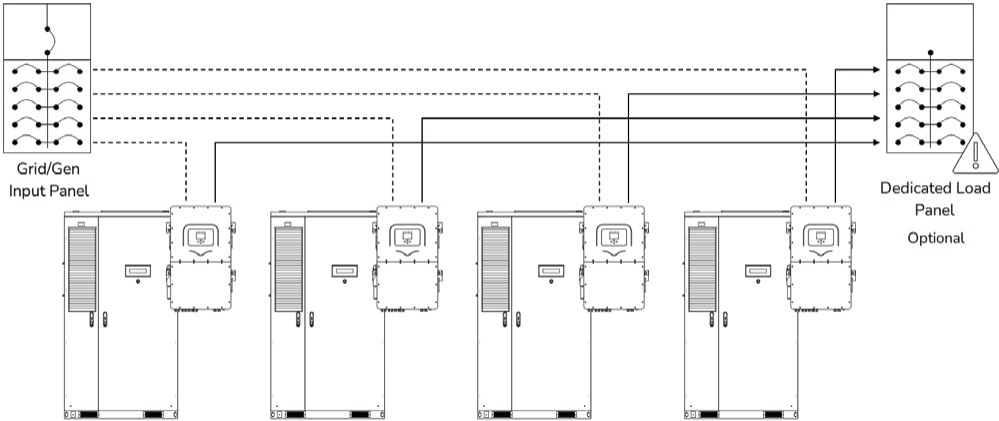
Do Not Parallel Battery Cabinets on the DC Bus

Each AES Cabinet is designed to operate independently and must connect to a dedicated inverter input. Do not combine or parallel the DC outputs of multiple cabinets, as this will result in unbalanced current flow, system instability, and equipment damage.

Parallel Inverters on the AC Bus

System scalability is achieved by paralleling inverters on the AC bus, not by paralleling the batteries. In this design, each inverter has a dedicated battery cabinet, and the inverter AC outputs are synchronized to support larger system loads. This ensures safe, stable, and balanced operation across all components.

Solis S6-EH3P Hybrid inverters offer unlimited scalability on the grid side, allowing the integration of multiple units for high-capacity PV and grid-interactive applications. However, parallel operation on the islanded backup side is limited to **ten** inverters.



Output of Solis Inverters in Backup

| Model | 1 Unit | 2 Units | 3 Units | ... | 9 Units | 10 Units |
|-------------------------|--------|---------|---------|-----|---------|----------|
| S6-EH3P30K03-LV-YD-H-US | 72.2 A | 144.4 A | 216.6 A | ... | 649.8 A | 722.0 A |
| S6-EH3P30K03-NV-YD-H-US | 36.1 A | 72.2 A | 108.3 A | | 324.9 A | 361.0 A |
| S6-EH3P40K03-NV-YD-H-US | 48.1 A | 96.2 A | 144.3 A | | 432.9 A | 481.0 A |
| S6-EH3P50K03-NV-YD-H-US | 60.1 A | 120.2 A | 180.3 A | | 540.9 A | 601.0 A |
| S6-EH3P60K04-NV-YD-H-US | 72.2 A | 144.4 A | 216.6 A | | 649.8 A | 722.0 A |

NOTE

For detailed instructions on paralleling multiple units, consult the Solis Commercial Three-Phase HV Hybrid Inverter Manual.

Compatible Inverter Models and Specifications

| Inverter Model | Max Power (PV/AC/Battery) |
|-------------------------|---------------------------|
| S6-EH3P30K03-LV-YD-H-US | 60 / 30 / 33 kW |
| S6-EH3P30K03-NV-YD-H-US | 60 / 30 / 33 kW |
| S6-EH3P40K03-NV-YD-H-US | 80 / 40 / 44 kW |
| S6-EH3P50K03-NV-YD-H-US | 100 / 50 / 55 kW |
| S6-EH3P60K04-NV-YD-H-US | 100 / 60 / 60 kW |

When pairing one AES Cabinet with a single Solis inverter, discharge performance is governed by the inverter's AC output rating, which ranges by model from 30 to 60 kW. The AES Cabinet supports continuous output up to 52 kW, 78 kW, or 104 kW (C/2 rate), so battery performance will scale according to inverter limitations:

| Inverter Model | Max Discharge Power |
|-------------------------|---------------------|
| S6-EH3P30K03-LV-YD-H-US | 30 kW |
| S6-EH3P30K03-NV-YD-H-US | 30 kW |
| S6-EH3P40K03-NV-YD-H-US | 40 kW |
| S6-EH3P50K03-NV-YD-H-US | 50 kW |

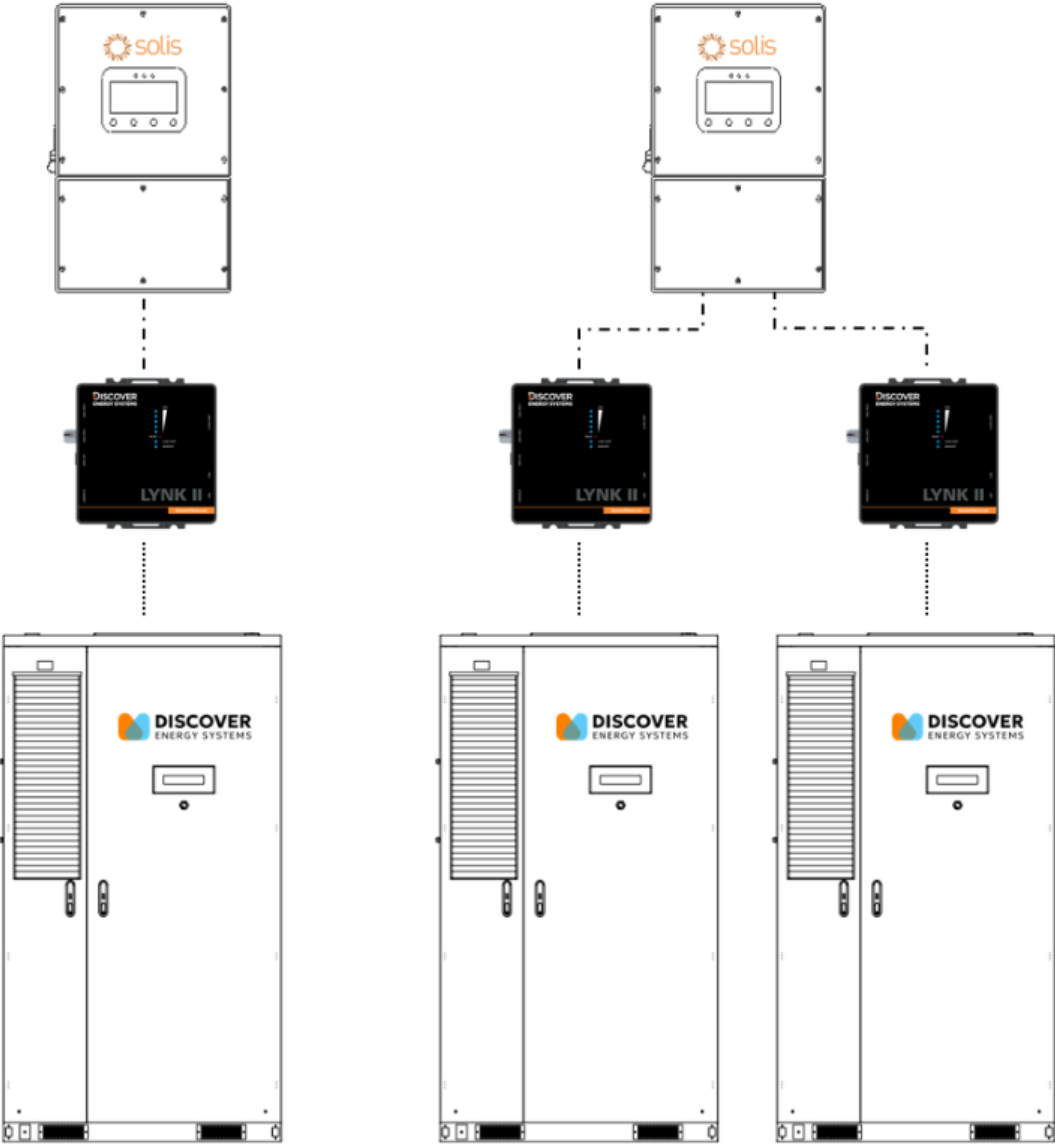
| Inverter Model | Max Discharge Power |
|-------------------------|---------------------|
| S6-EH3P60K04-NV-YD-H-US | 60 kW |

Systems can be configured with one battery per inverter or two batteries sharing a single inverter. In all cases, the battery remains within specification. Final system sizing should align with the site's load profile and desired runtime to ensure optimal performance and value.

Inverter Current and Power Limitation

The Solis S6-EH3P inverter has two battery input terminals, each rated for up to 80 A and a combined maximum of 160 A on the 30-50K models, or 84 A and a combined maximum of 168 A on the 60K model. When paired with the AES CAB-106 (332 Vdc nominal), CAB-160 (499 Vdc nominal), or CAB-210 (665 Vdc nominal), actual current is limited by the inverter's 33-60 kW power rating, resulting in approximately 25-37.5 A per terminal under regular operation.

Closed-Loop CANbus Connection - LYNK II Gateway



The LYNK II Gateway enables real-time, closed-loop communication between the AES battery cabinet and the Solis inverter. It transmits key battery data such as state of charge, voltage, current, temperature, and operating limits directly to the inverter. This allows the inverter to automatically adjust charging and discharging behavior for safe, efficient, and optimized system performance.

NOTICE**EQUIPMENT DAMAGE**

Connect the Solis inverter's BMS1 and BMS2 ports only to the CAN port on the LYNK II Gateway using a standard CAT6 or higher cable. Do not connect the inverter's BMS ports directly to the J3 or J4 ports on the AES Cabinet's High Voltage Box, as this can damage the inverter.

Failure to follow these instructions may result in equipment damage.

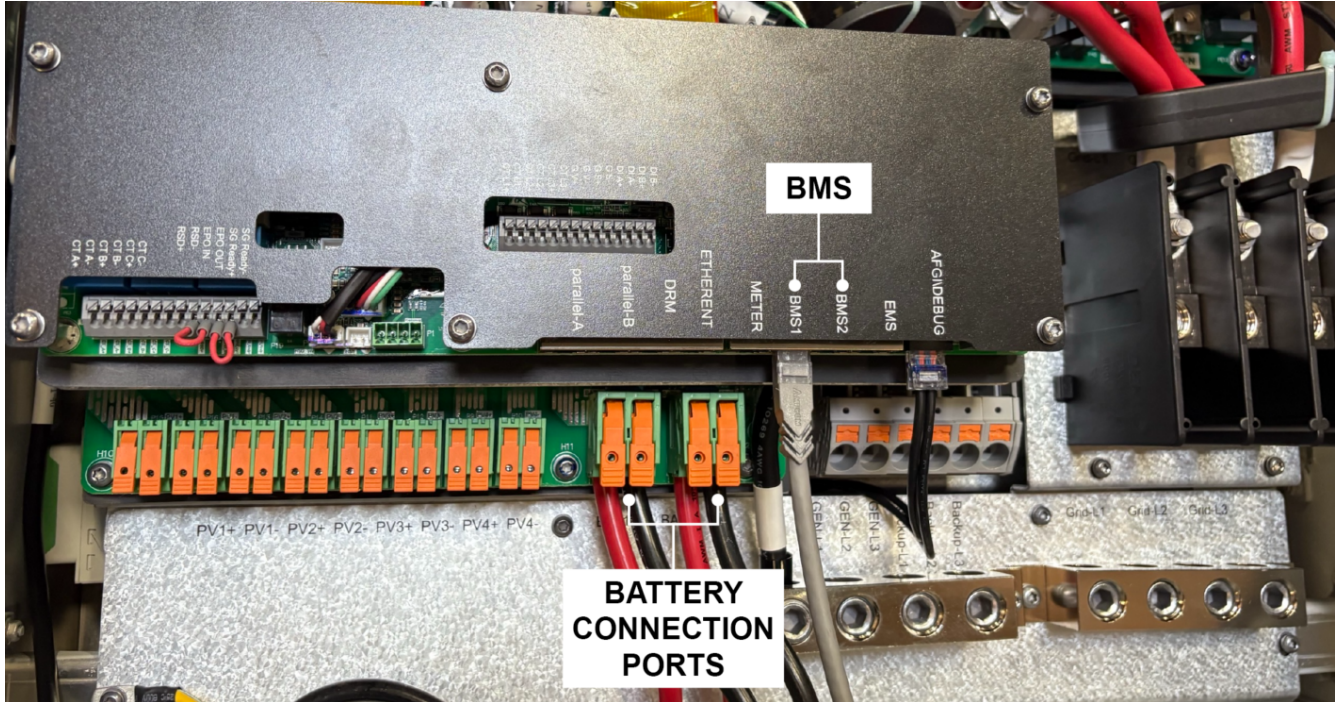
3.3 Closed-Loop CANbus Communication

Closed-Loop CANbus Communication with the LYNK II Gateway

The **LYNK II Communication Gateway** enables communication between the AES Cabinet and inverters. Using CANbus, the LYNK II Gateway connects the BMS of the battery with the battery BMS ports of the Solis S6-EH3P and automatically:

- **Establishes battery limits** (charge/discharge current, voltage, temperature) so the inverter always operates within safe parameters.
- **Pushes live state-of-charge and operating data** to the inverter for accurate power-flow and alarm handling.
- **Continuously adjusts** the inverter's charge profile in response to real-time cabinet conditions.

| System Layout | LYNK II Connections | Result |
|------------------------------|---|---|
| 1x AES Cabinet 1x S6-EH3P | Connect the LYNK II CANout to the inverter BMS 1 port (BMS 2 stays open). | A single closed-loop pathway. |
| 2x AES Cabinet 1x S6-EH3P | Utilize one LYNK II per cabinet. Connect the first LYNK II CANout to the inverter BMS 1 port, and the second LYNK II CANout to BMS 2. | The inverter uses each cabinet as an independent battery and shares the power evenly. |



NOTICE

EQUIPMENT DAMAGE

Connect the Solis inverter's BMS1 and BMS2 ports only to the CAN port on the LYNK II Gateway using a standard CAT6 or higher cable. Do not connect the inverter's BMS ports directly to the J3 or J4 ports on the AES Cabinet's High Voltage Box, as this can damage the inverter.

Failure to follow these instructions may result in equipment damage.

3.4 Interfacing with the AES Cabinet



LYNK ACCESS – Local Commissioning & Diagnostics

LYNK ACCESS software runs on the Windows® OS and connects directly with the AES battery cabinet through the on-board LYNK II Gateway through USB. It gives installers and technicians live, sub-second visibility of critical operating variables, such as cell voltages, temperatures, contactor state, energy counters, and alarms. It lets them run diagnostics or save data-logged reports without an internet connection.

Use LYNK ACCESS whenever you are on-site and need real-time data, troubleshooting tools, or firmware/parameter updates.

LYNK CLOUD – Remote Monitoring & Management

LYNK CLOUD is a secure, browser-based platform that receives encrypted telemetry from each LYNK II Gateway, which requires a wired internet connection. LYNK CLOUD provides 24/7 remote visibility of cabinet performance, state-of-health, and lifetime energy throughput, aggregates multiple sites into fleet dashboards, and issues configurable email notifications for alarms and critical events. Ideal for O&M teams and asset owners, LYNK CLOUD transforms the AES battery cabinet into a cloud-connected asset for proactive maintenance and performance analytics.

4 SYSTEM CONFIGURATION AND CONNECTIONS

There are three standard inverter-to-cabinet configurations.

- **1 Inverter: 1 Cabinet**
One S6-EH3P Inverter (30-60 kW), One AES Cabinet
- **1 Inverter: 2 Cabinets**
One S6-EH3P Inverter (30-60 kW), Two AES Cabinets

Systems can scale up to **10** Solis S6-EH3P inverters in parallel on the AC bus, supporting a total inverter output of up to 300-600 kW.

When designing larger systems, maintain consistent inverter-to-cabinet ratios across the entire installation. For example, if your system starts with a 1:1 ratio (one inverter per cabinet), all additional inverter-cabinet sets should follow the same 1:1 pattern.

NOTICE

UNBALANCED BATTERY HAZARD

Mixing ratios within the same system (e.g., combining 1:1 and 1:2 configurations) is not supported, as it can lead to unbalanced load sharing.

Failure to follow these instructions may result in equipment damage.

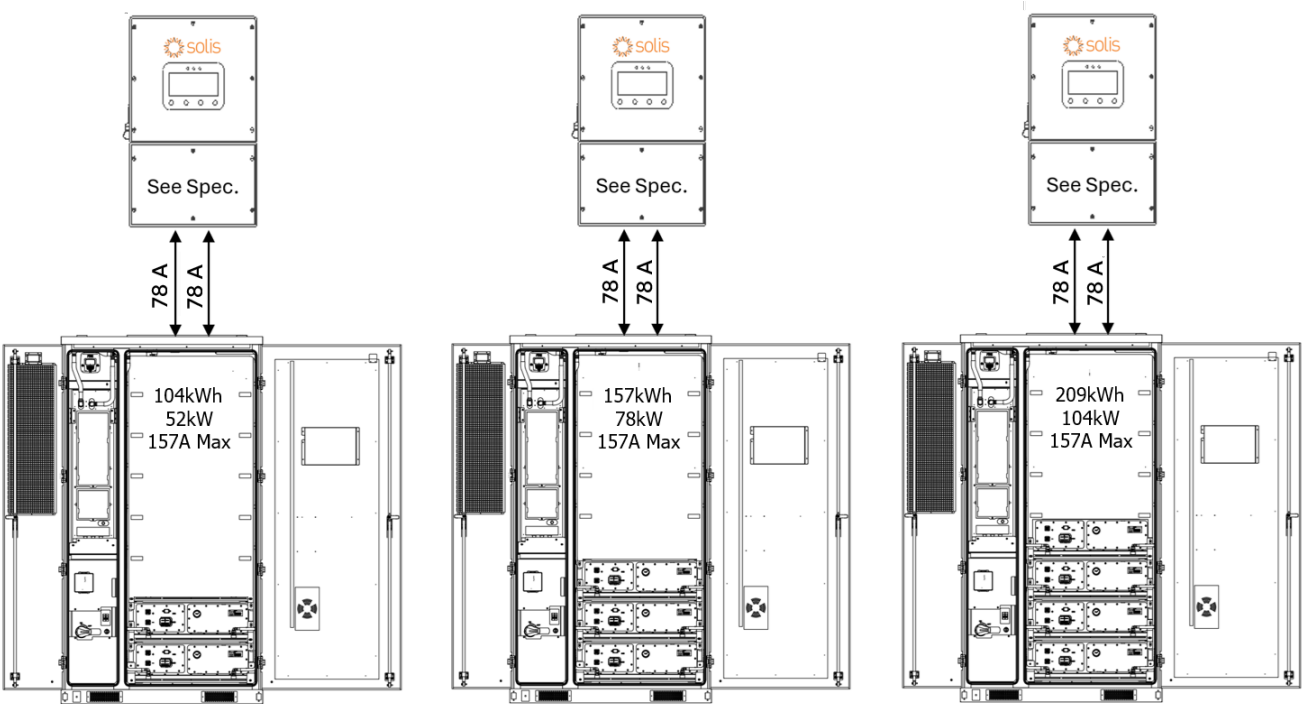
4.1 One Inverter, One AES Cabinet

WARNING

ELECTRIC SHOCK AND FIRE HAZARD

Follow NEC guidelines for conductor size, insulation rating (≥ 1000 Vdc), and torque specs for safe and code-compliant installation.

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



CAB-106, CAB-160, CAB-210 Configurations

When paired with a single Solis S6-EH3P inverter, the AES Cabinet’s maximum continuous current limit is 157 A, operating within its rated 52 / 78 / 104 kW continuous output limit. Actual discharge performance depends on the inverter model’s battery-side power capacity, as shown below.

Full Load Duration (Operation at Max Power)

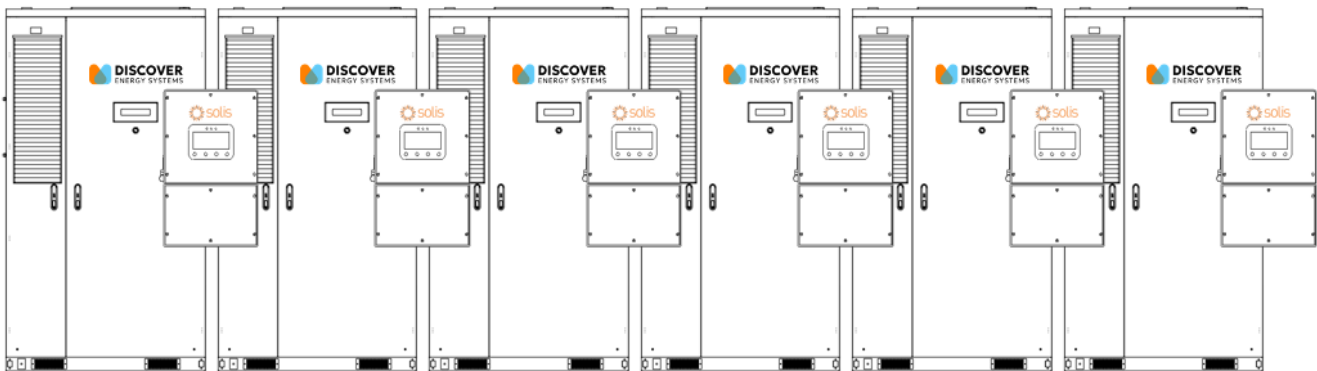
| Inverter Model | Inverter Battery Discharge Limit | CAB-106 | CAB-160 | CAB-210 |
|----------------|----------------------------------|--|---------------------------|---------------------------|
| | | AC Output / Usable Storage / Estimated Runtime | | |
| S6-EH3P30K03 | 30 kW | 30 kW / 104 kWh / 3½ hours | 30 kW / 157 kWh / 5 hours | 30 kW / 209 kWh / 7 hours |
| S6-EH3P40K04 | 40 kW | 40 kW / 104 kWh / 2½ hours | 40 kW / 157 kWh / 4 hours | 40 kW / 209 kWh / 5 hours |

| | | | | |
|--------------|-------|----------------------------|----------------------------|----------------------------|
| S6-EH3P50K04 | 50 kW | 50 kW / 104 kWh / 2 hours | 50 kW / 157 kWh / 3 hours | 50 kW / 209 kWh / 4 hours |
| S6-EH3P60K04 | 60 kW | 52 kW* / 104 kWh / 2 hours | 60 kW / 157 kWh / 2½ hours | 60 kW / 209 kWh / 3½ hours |

* *Curtailed by the battery.*

These run time estimates assume continuous full-power discharge and operation within safe continuous discharge parameters. Final performance should match the site's energy demand and load profile.

4.1.1 System Scalability – One Inverter, One AES Cabinet



Each Solis S6-EH3P inverter is paired with one AES Cabinet.

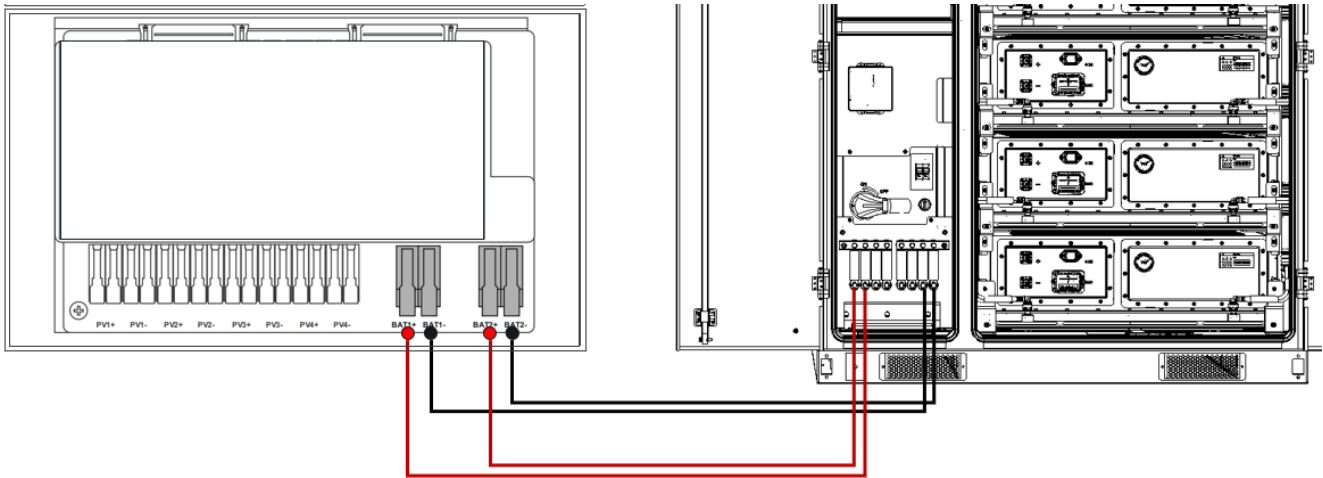
In this setup:

- 104 / 160 / 209 kWh of usable backup energy per inverter
- Discharge power limited by the inverter model (30–60 kW)
- Up to ten inverters can be connected in parallel on the backup side, providing up to 300-600 kW of continuous backup power and approximately 1.04–2.09 mWh of total backup energy (10 × 104 kWh / 10 × 157 kWh / 10 × 209 kWh).

Grid-Tied (Non-Backup) Scalability

The number of inverters or batteries is unlimited for non-backup use. Each inverter runs independently, allowing systems to scale as large as needed for energy shifting, peak shaving, or other grid-interactive applications.

4.1.2 DC Battery Wiring – One Inverter, One AES Cabinet



Each Solis S6-EH3P inverter has two battery input terminals, each rated up to 80 A for the 30-50K models and 84 A for the 60K model. The AES Cabinet connects using:

- Two positive and two negative #4 AWG conductors
- Each conductor is protected by a 70 A fuse in the AES Cabinet's built-in DC distribution box

This setup ensures balanced current flow to each of the inverter's internal DC/DC converters and, depending on the inverter model, supports continuous discharge of 30-60 kW.

4.1.3 Communication – One Inverter, One AES Cabinet



In a one-to-one configuration, the AES Cabinet communicates with the Solis inverter through the LYNK II Gateway, enabling real-time, closed-loop control.

- Use standard CAT6 or higher Ethernet cables, wired in a straight-through configuration with RJ45 plugs on both ends.
- Connect one cable from the LYNK II's CAN port to the Solis inverter's BMS1 port.

- Connect a second cable from the LYNK port on the LYNK II Gateway to the J3/J4 port on the AES Cabinet’s High Voltage Box. On most AES Cabinets, a CAT6 cable is already connected to the J3 port on the AES Cabinet’s High Voltage Box and is accessible from the LYNK II.

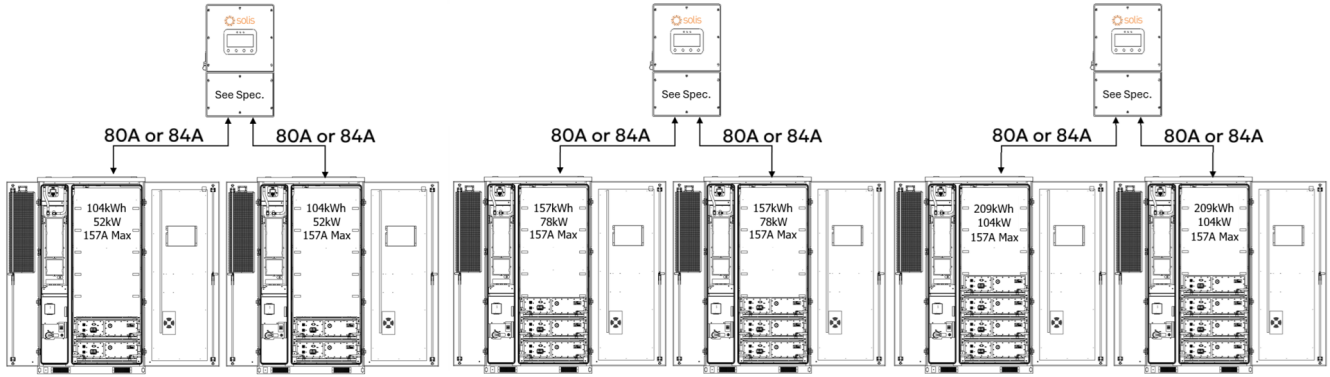
This communication link enables the inverter to receive live battery data, including state of charge, voltage, current, temperature, and charge/discharge limits, for safe, accurate, and optimized operation.

4.2 One Inverter, Two AES Cabinet

⚠ **WARNING**

ELECTRIC SHOCK AND FIRE HAZARD
 Follow NEC guidelines for conductor size, insulation rating (≥ 1000 Vdc), and torque specs for safe and code-compliant installation.

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



CAB-106, CAB-160, and CAB-210 Configurations

When two AES Cabinets are paired with a single Solis S6-EH3P inverter, the AES Cabinets’ maximum continuous current limit is 157 A, operating within their rated 104 / 156 / 208 kW continuous output limit. Actual discharge performance depends on the inverter model’s battery-side power capacity, as shown below.

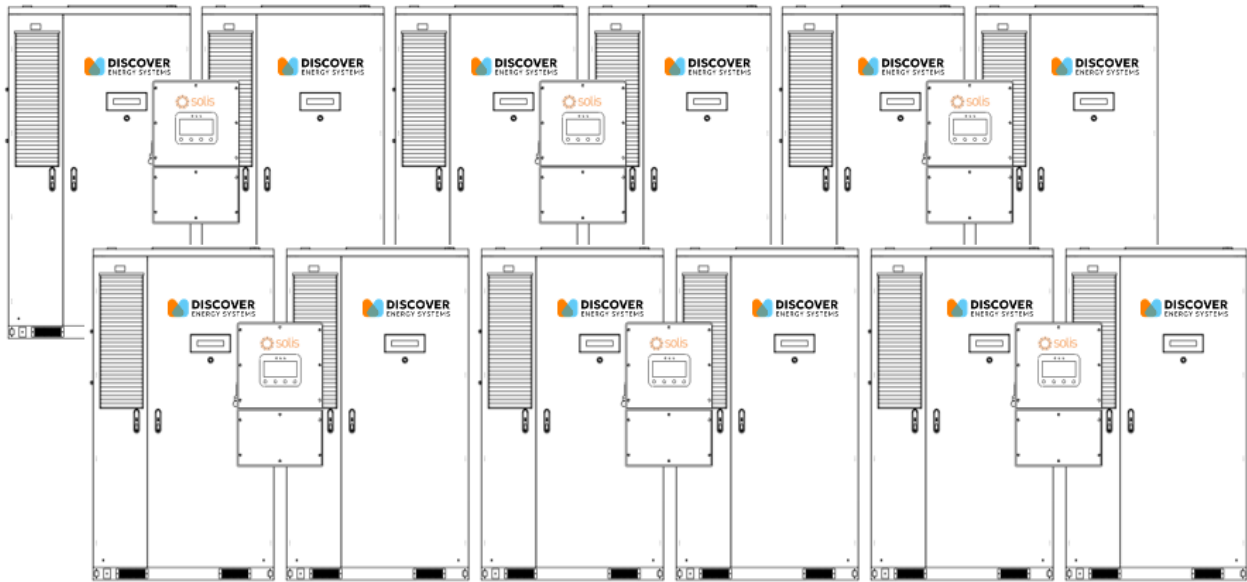
Full Load Duration (Operation at Max Power)

| Inverter Model | Inverter Battery Discharge Limit | 2 × CAB-106 | 2 × CAB-160 | 2 × CAB-210 |
|----------------|----------------------------------|-------------|-------------|-------------|
|----------------|----------------------------------|-------------|-------------|-------------|

| | | AC Output / Usable Storage / Estimated Runtime | | |
|--------------|-------|---|-----------------------------|-----------------------------|
| S6-EH3P30K03 | 30 kW | 30 kW / 208 kWh / 7 hours | 30 kW / 314 kWh / 10½ hours | 30 kW / 418 kWh / 13½ hours |
| S6-EH3P40K04 | 40 kW | 40 kW / 208 kWh / 5 hours | 40 kW / 314 kWh / 7½ hours | 40 kW / 418 kWh / 10½ hours |
| S6-EH3P50K04 | 50 kW | 50 kW / 208 kWh / 4 hours | 50 kW / 314 kWh / 6 hours | 50 kW / 418 kWh / 8 hours |
| S6-EH3P60K04 | 60 kW | 60 kW / 208 kWh / 3½ hours | 60 kW / 314 kWh / 5 hours | 60 kW / 418 kWh / 7 hours |

These run times assume continuous full-power discharge at the inverter's rated limit. While the inverter determines the maximum power output, the dual-cabinet setup extends runtime. Dual cabinets increase total stored energy and are ideal for longer-duration backup or deeper cycling in time-of-use and peak-shaving applications.

System Scalability – One Inverter, Two AES Cabinets



Each Solis S6-EH3P inverter can be paired with two AES battery cabinets, doubling the usable energy per inverter while maintaining discharge power based on inverter size.

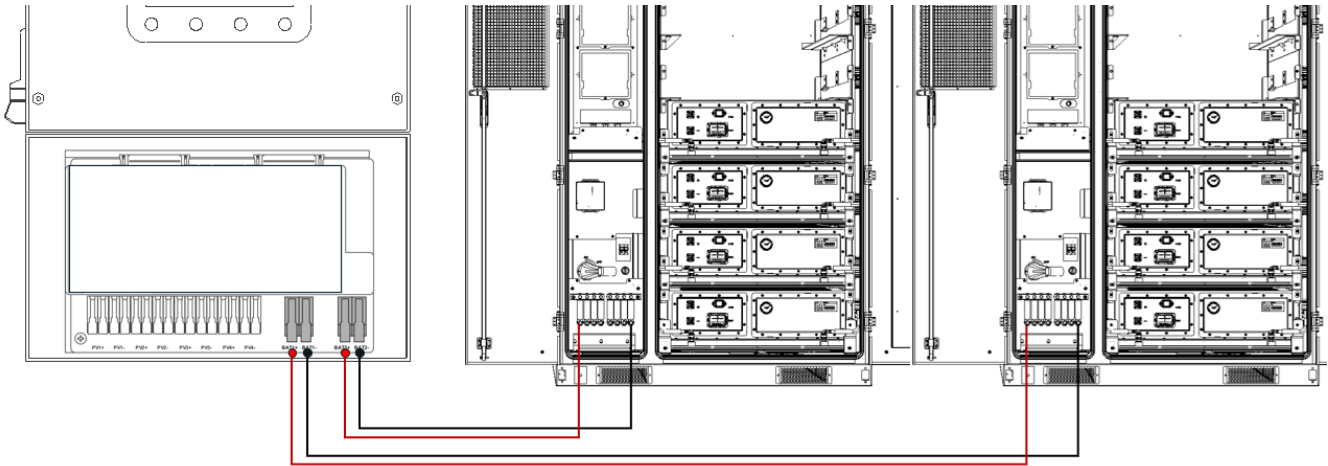
In this setup:

- 208 / 314 / 418 kWh of usable backup energy per inverter (2 × 104 kWh / 2 × 157 kWh / 2 × 209 kWh)
- Discharge power limited by the inverter model (30–60 kW)
- Up to ten inverters can be connected in parallel on the backup side, supporting 300-600 kW of backup power and approximately 2.08–4.18 mWh of total backup energy (10 × 208 kWh / 10 × 314 kWh / 10 × 418 kWh).

Grid-Tied (Non-Backup) Scalability

For grid-tied applications, the number of batteries or inverters is not limited. Each inverter operates independently, enabling large-scale deployments for energy arbitrage, load shifting, or demand charge reduction without backup power constraints.

DC Battery Wiring – One Inverter, Two AES Cabinets



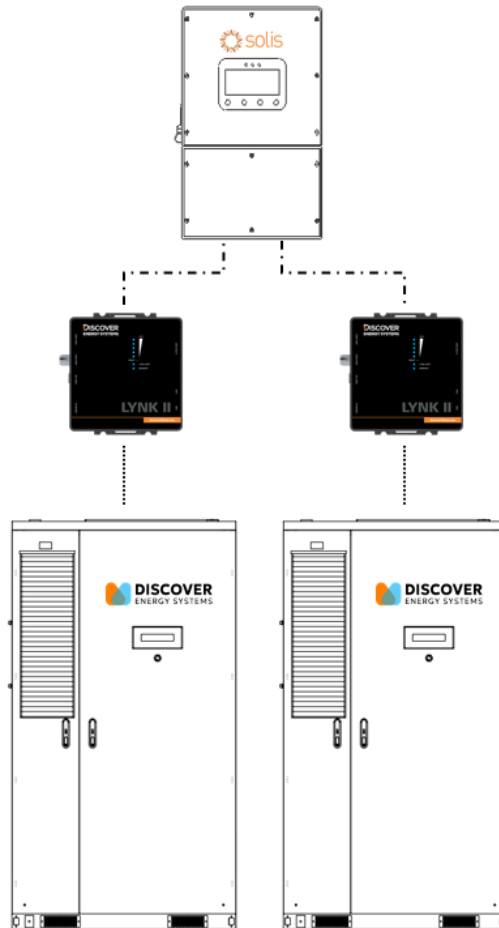
When connecting two AES battery cabinets to a single Solis S6-EH3P inverter, each cabinet is wired to a dedicated battery input terminal:

- Battery 1 connects to the inverter's BAT1 terminals
- Battery 2 connects to the inverter's BAT2 terminals

The inverter's integrated dual DC/DC converters are independently fused and control each input, allowing the inverter to manage each battery cabinet separately while balancing charge and discharge as needed.

Always follow NEC guidelines for conductor sizing, 1,000 Vdc insulation rating, proper torque values, and verify polarity before energizing the system.

4.2.1 Communication – One Inverter, Two AES Cabinets



Each AES battery cabinet uses its own LYNK II Gateway for closed-loop communication with the Solis inverter in a two-to-one configuration. The inverter’s two BMS ports (BMS1 and BMS2) allow it to communicate with each battery independently.

- Use standard CAT6 or higher Ethernet cables, wired in a straight-through configuration with RJ45 plugs on both ends.
- Connect one cable from LYNK II #1 CAN port to the Solis inverter’s BMS1 port. Connect another cable to LYNK II #1’s LYNK port to the J3/J4 port on the AES Cabinet’s High Voltage Box. On most AES Cabinets, a CAT6 cable is already connected to the J3 port on the AES Cabinet’s High Voltage Box and is accessible from the LYNK II.

- Connect a third cable from LYNK II #2 CAN port to the Solis inverter's BMS2 port. Connect a fourth cable from LYNK II #2's LYNK port to the J3/J4 port on the AES Cabinet's High Voltage Box.

This setup enables the inverter to independently manage and monitor both battery cabinets, receiving real-time data for state of charge, voltage, current, temperature, and charge/discharge limits from each LYNK II Gateway. Two independent LYNK II Gateways ensure precise, safe, and optimized performance across both battery units.

5 INSTALLATION AND WIRING

- [Location and Mounting Considerations](#)
- [Conduit and Cable Routing Guidelines](#)
- [DC Cable and Wiring](#)
- [Auxiliary AC Input Wiring for the HVB and TMS](#)
- [Communication Wiring](#)
- [Grounding](#)

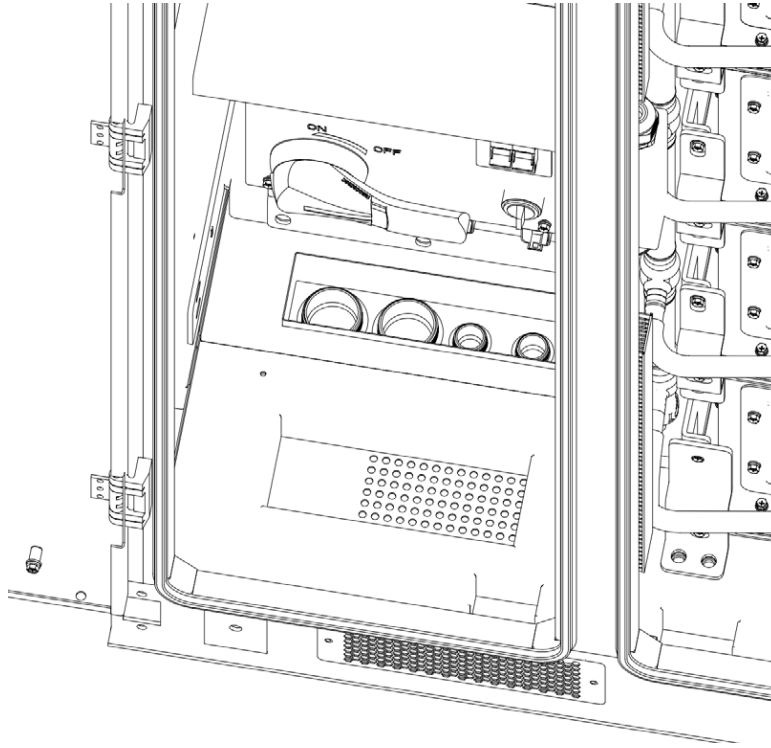
5.1 Location and Mounting Considerations

Inverter Mounting. Follow the Solis inverter installation manual.

Cabinet Mounting. Follow the [AES Cabinet Outdoor C&I Installation and Operation Manual](#).

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 less than 80 A (30-50K models) or 84 A (60K model) per pair of conductors. Ensure the distance between the inverter and cabinet results in a voltage drop of less than 2.5%.

Conduit and Raceways. The AES Cabinet features 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.



You can also pass wiring through an entry on the bottom part of the left side wall of the cabinet.

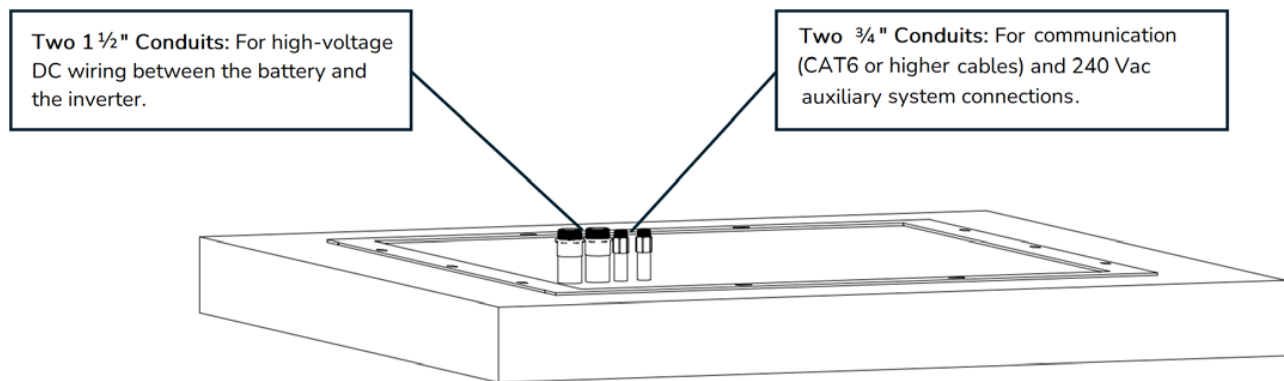
NOTICE

CABINET DAMAGE / VOID WARRANTY

- Follow the instructions in the AES Cabinet Outdoor C&I Installation and Operation Manual for the installation of wiring and conduit.
- For permission to pass wiring and conduit through the sides of the AES Cabinet, please contact customer support for consultation and sign off on any alterations.
- Damage resulting from unauthorized changes to the Cabinet will void the warranty.

Failure to follow these instructions may result in equipment damage.

5.2 Conduit and Cable Routing Guidelines



Two 1 1/2" Conduits: For high-voltage DC wiring between the battery and the inverter.

Two 3/4" Conduits: For communication (CAT6 or higher cables) and 240 Vac auxiliary system connections.

To reduce electromagnetic interference and ensure safe, reliable operation, use separate conduits for different wiring types:

DC Conductors

Use a dedicated conduit for high-voltage DC wiring between the AES battery cabinet and the inverter.

- Two 50 mm (2") conduit holes are provided for 1 1/2" trade size conduit
- Supports up to eight #4 AWG current-carrying conductors

240 Vac Connections

Run AC supply wiring to the AC Auxiliary System (UPS and TMS) in a separate conduit.

- One 30 mm (1 1/8") conduit hole is provided for 3/4" trade size conduit
- Supports two #10 AWG conductors plus ground

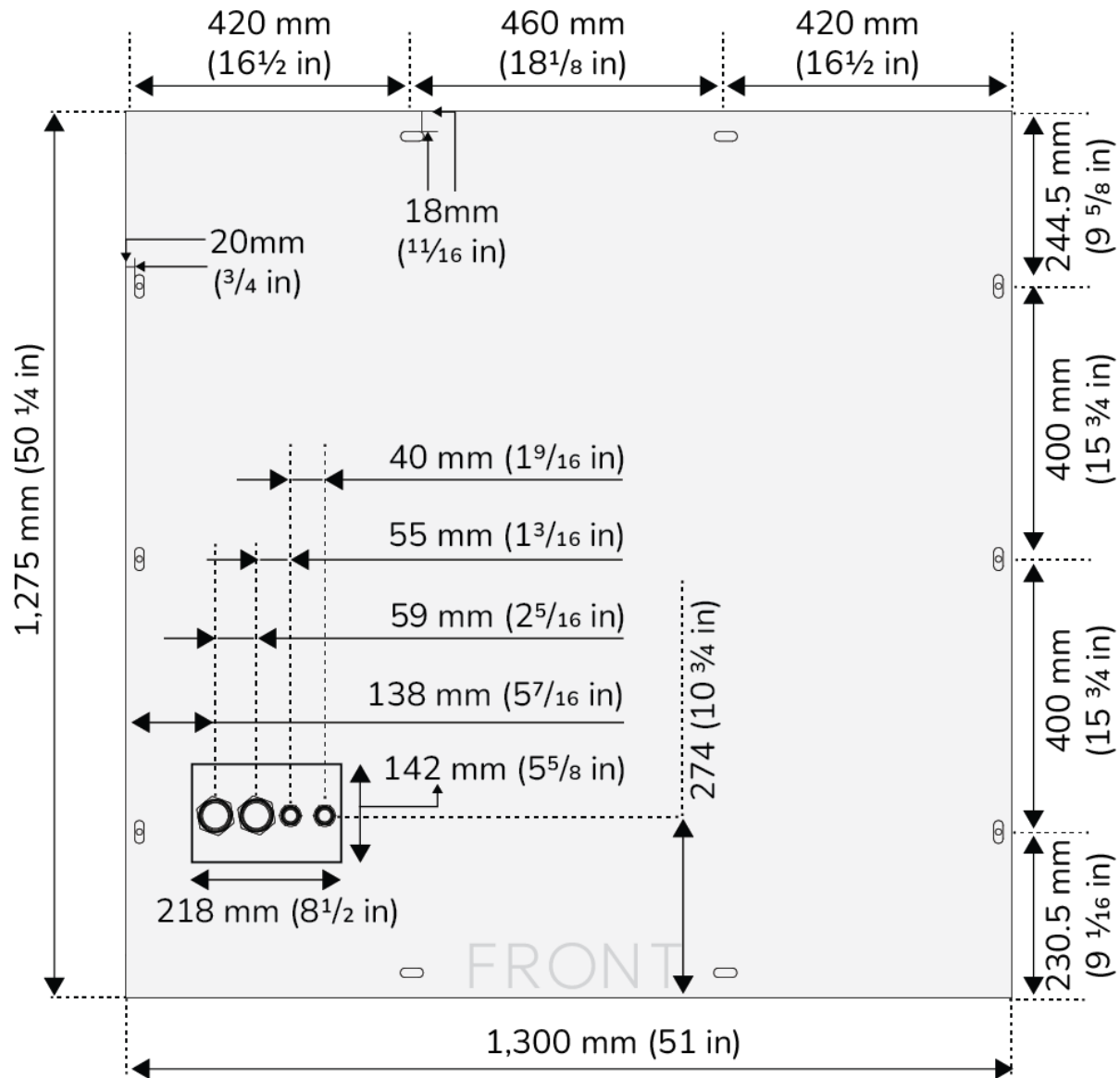
Communication Cables

Route CAT6 or higher communication cables in individual conduit to prevent signal interference and ensure stable data transmission.

- One 30 mm (1 1/8") conduit hole is provided for 3/4" trade size conduit

Best Practices

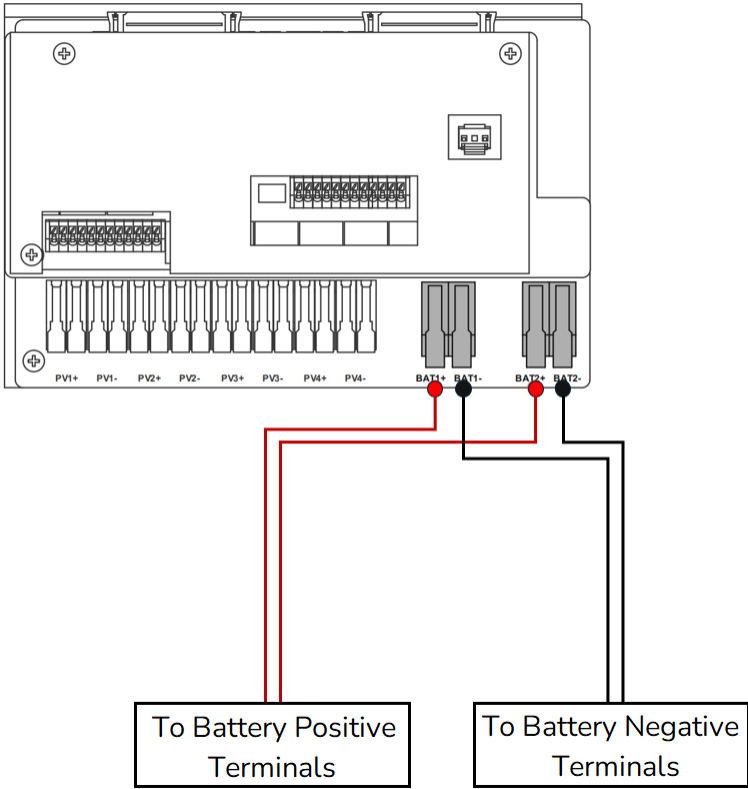
- Use appropriately sized conduits, rated for environmental exposure, and securely installed.
- Keep DC, AC, and communication lines physically separated
- This enhances system reliability, streamlines service, and facilitates compliance with electrical codes and safety standards.



5.3 DC Cable and Wiring

When pairing the AES battery cabinet with a Solis inverter, discharge performance is governed by the inverter's battery input rating, which ranges by model from 33 kW to 60 kW. AES CAB-106 / CAB-160 / CAB-210 supports continuous output of 52 / 78 / 104 kW (C/2 rate) or approximately 157 Adc.

| Inverter Model | Max Power Battery |
|-------------------------|-------------------|
| S6-EH3P30K03-LV-YD-H-US | 33 kW |
| S6-EH3P30K03-NV-YD-H-US | 33 kW |
| S6-EH3P40K04-NV-YD-H-US | 44 kW |
| S6-EH3P50K04-NV-YD-H-US | 55 kW |
| S6-EH3P60K04-NV-YD-H-US | 60 kW |



Properly Rated Cables. Cables for high-voltage DC connections should be rated at least 1 kV to provide a safety margin for the system's maximum battery voltage of 375 Vdc (CAB-106), 575 Vdc (CAB-160), or 750 Vdc (CAB-210).

| Inverter | Ports | Max. Terminal Rating | Terminal Wire Size Range |
|-----------------|----------------|----------------------|----------------------------------|
| S6-EH3P(30-50)K | Battery Port 1 | 80 Adc | Refer to Solis Inverter's Manual |
| | Battery Port 2 | | |
| S6-EH3P60K04 | Battery Port 1 | 84 Adc | |
| | Battery Port 2 | | |

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.
- The AES battery cabinet supports a maximum charge/discharge current of 157 A, or about 78 A per port. Use appropriately sized fuses to maximize charging and discharging energy without compromise.

Failure to follow these instructions may result in equipment damage.

5.4 Auxiliary AC Input Wiring for the 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.

AC Supply Rating: Use wiring rated for up to 30 A. A 32 A miniature circuit breaker protects the HVB and auxiliary systems.

Voltage Limit: Supply voltage must be single-phase, 200–275 Vac. Do not exceed 275 Vac.

Transformer Use:

- If needed, use a step-down transformer to provide ~240 Vac.
- A transformer can be single-phase or three-phase, but each HVB requires only a single-phase input.
- Minimum transformer size: 5 kVA for single-phase.
- A transformer may serve multiple AES battery cabinets if adequately sized and wired.

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.

5.5 Communication Wiring

To enable both closed-loop inverter communication and cloud-based monitoring, the LYNK II Gateway must be connected to:

- The inverter's BMS port (for real-time battery data exchange)
- An active Internet connection through its Ethernet port (optional, for LYNK Cloud access)

Run two CAT6 or higher cables to the cabinet to support both functions.

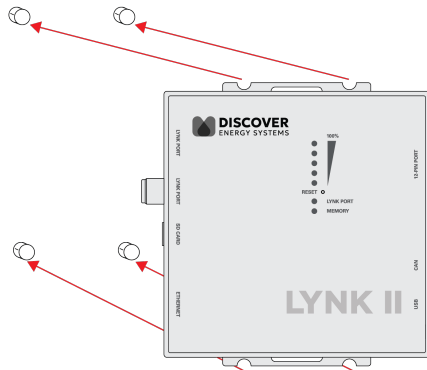
| Connection Type | Wire Size | Max Distance |
|---------------------|----------------|--|
| Communication (CAN) | 16 – 22 AWG | Up to 30 m (100 ft) using 24 AWG |
| Ethernet (LAN) | CAT6 or higher | 30 – 120 m (100 – 400 ft) using 23 AWG |

5.5.1 Cable Requirements

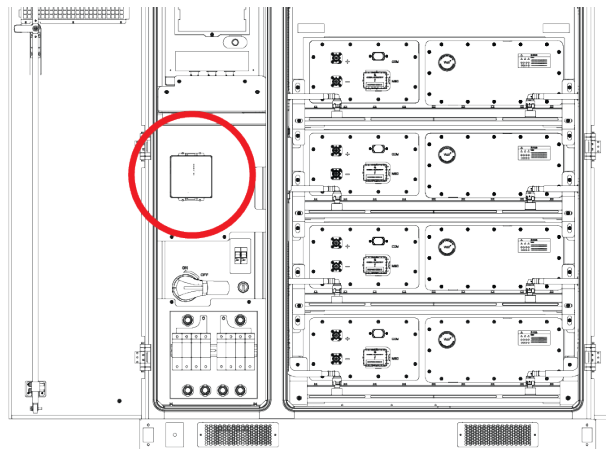
- **Recommended Cable:** Use shielded CAT6 or higher to minimize EMI and ensure reliable data transmission.
- **RJ45 Pinout:** Confirm pin assignments match the inverter's CAN communication spec.

Installation

- Install the LYNK II Gateway into the AES Cabinet, onto the top shield of the High Voltage Box.
 - a. In the location reserved for the LYNK II Gateway, unscrew the nuts from the 4 studs.



- b. Mount the LYNK II onto the studs and screw on the nuts.
- c. After the LYNK II is mounted, connect the CAT6 cable located nearby to the LYNK port on the LYNK II Gateway. The other end of the CAT6 cable is connected to the J3/J4 port on the High Voltage Box.



NOTICE

EQUIPMENT DAMAGE

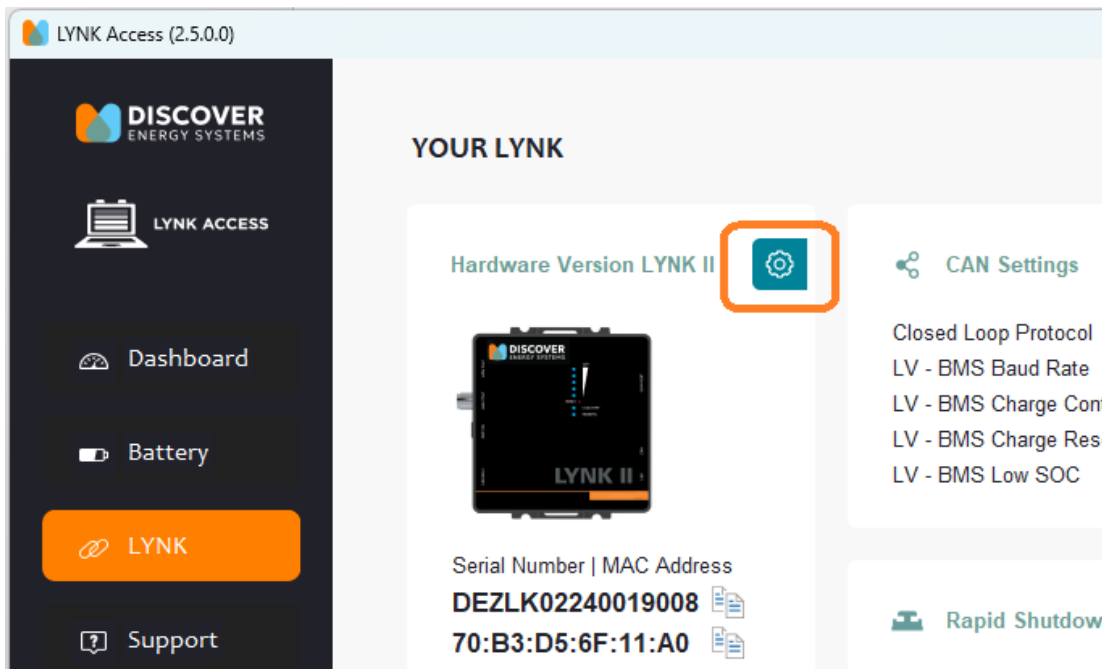
- LYNK communication cables carry voltage over their wires (POE 24V). Connect cables from the J3/J4 ports (LYNK port) to other LYNK ports only.
- Connecting LYNK communication cables to an Ethernet port may damage it.

Failure to follow these instructions may result in equipment damage.

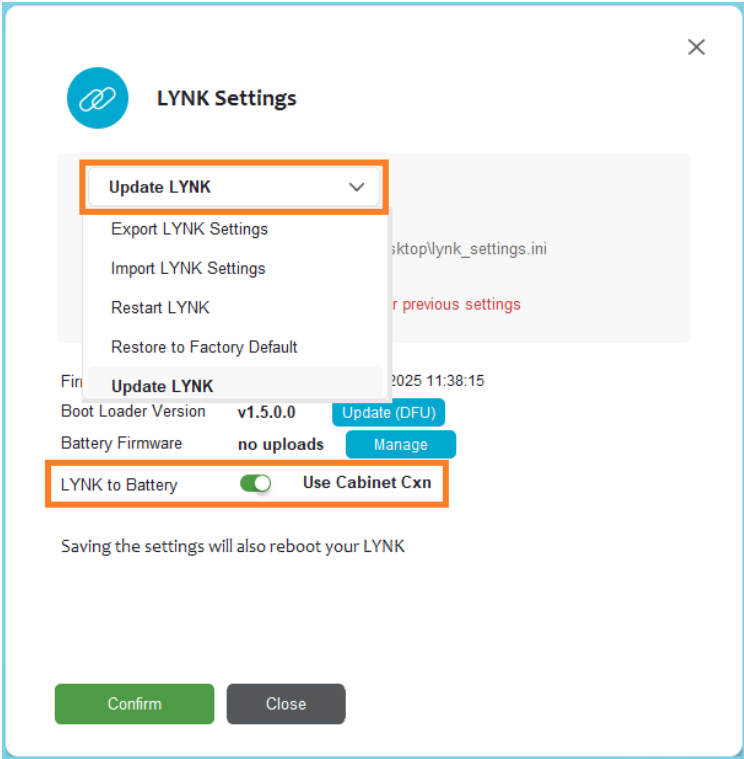
- **Inverter Connection:** Connect a CAT6 or higher cable between the LYNK II CAN port and the inverter's BMS port.
- **(Optional) Internet Access:** For your system to use LYNK Cloud, connect a CAT6 or higher cable from the LYNK II Gateway's Ethernet port to a live internet source. This setup enables remote monitoring via LYNK Cloud.

LYNK II Gateway Configuration

1. Connect the LYNK II Gateway to a computer using the USB cable.
2. Launch LYNK ACCESS 2.5.0 or later and update the LYNK II firmware to version 2.5.0 or later.
3. Configure closed-loop communication on LYNK ACCESS.
 - a. In the LYNK tile, click on the blue gear icon.

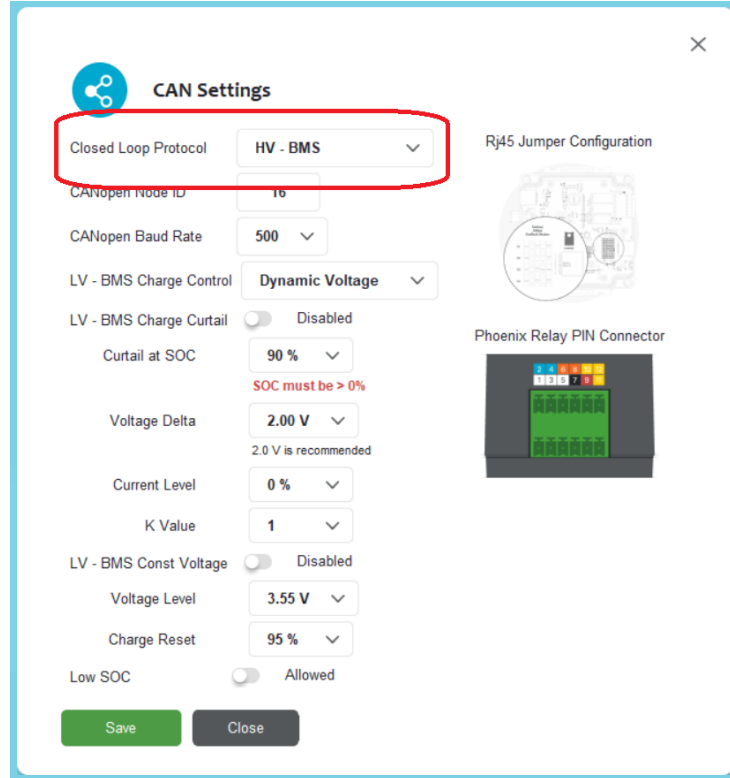


b. In the LYNK Settings dialog box that appears, from the drop-down menu, select **Update LYNK**.



c. Toggle **LYNK to Battery** from **Use AEBus** to **Use Cabinet Cxn** and click **Confirm** to update the LYNK II with the new settings.

Note that the **Closed Loop Protocol** is automatically set to **HV-BMS**.



The default setting will work for most installations. Please reach out to Discover if you are looking to change the default settings.

One Cabinet, One Inverter

Connect the LYNK II Gateway's CAN port to the inverter's BMS1 or BMS2 port. Connect the LYNK II Gateway's LYNK Port to the J3 or J4 port on the battery cabinet's High-Voltage Box.

Two Cabinets, One Inverter

Each battery cabinet requires a LYNK II Gateway. Connect the CAN Out port of the LYNK II Gateways to the BMS1 and BMS2 ports of the inverter. Then, connect each LYNK II's LYNK Port to either the J3 or J4 port on each battery's high-voltage box.

5.6 Grounding

Grounding. Follow NEC and local regulations for grounding all components. Grounding lugs and mounting locations are located on the external corners of the cabinet.

6 COMMISSIONING PROCEDURE

Pre-Commissioning Checklist

Verify Inverter Firmware is Up to Date

Check and confirm that the latest firmware is installed.

- To see if there is a newer version available:
 - Settings > Device Upgrade

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.

Inverter Pre-Commissioning

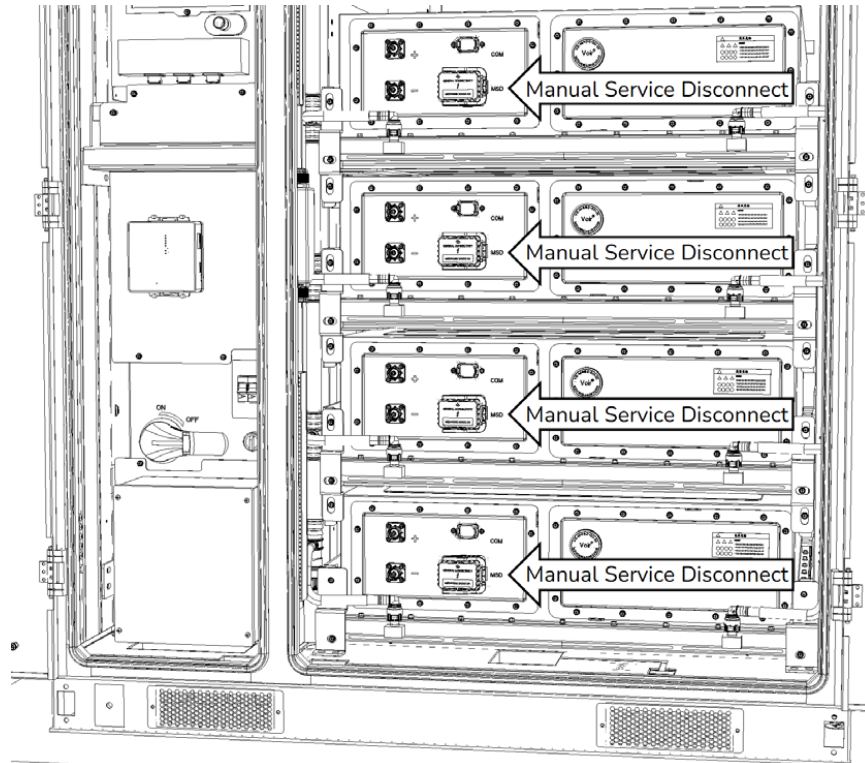
Before starting the system, complete all pre-commissioning checks outlined in the Solis inverter manual. These include:

- Verifying all mechanical and electrical connections
- Confirming proper ventilation and secure mounting
- Preparing tools (e.g., multimeter) and the SolisCloud mobile app for setup and monitoring

For complete instructions and app registration steps, refer to the Solis S6-EH3P inverter manual

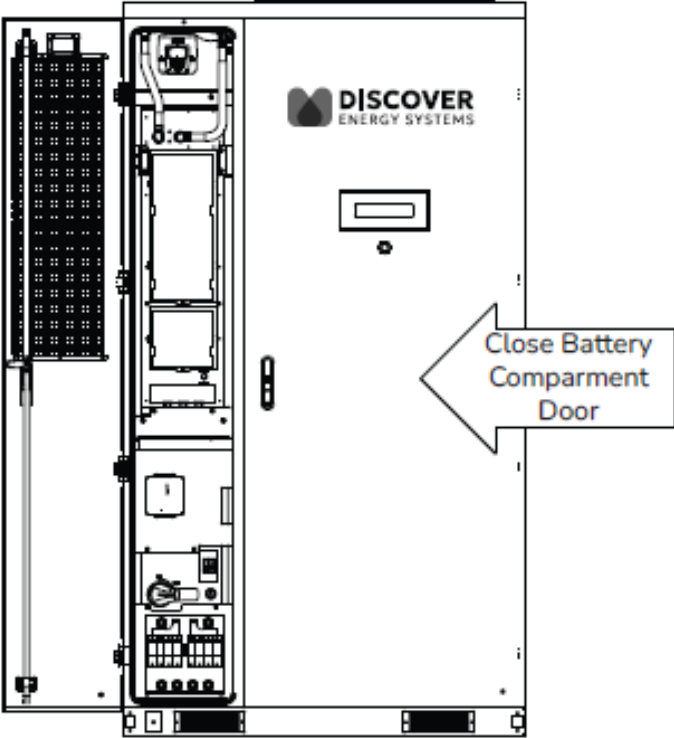
6.1 Cabinet Initiation and Activation

Cabinet Initiation



Install the Manual Service Disconnects (MSDs) into each battery pack's designated receptacle. Handle with care to avoid damage, and follow all installation instructions provided.

The MSDs are fuses. Perform a continuity check on them before installation. If any have failed, please get in touch with Discover's product support team to arrange a replacement.



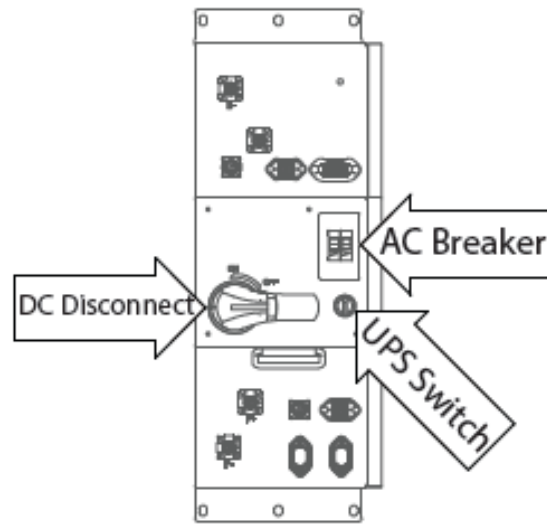
NOTICE

SYSTEM SHUTDOWN

The battery compartment door must remain closed during system operation. Opening the door will trigger an alarm and automatically shut down the system.

Failure to follow these instructions may result in equipment damage.

Cabinet Activation



Before powering up the inverter with the battery, ensure all covers, enclosures, and access panels are securely closed.

NOTE

Follow these steps, in order, to avoid a pre-charge error.

1. Close the DC Disconnect
 - Confirm the AES Cabinet's DC disconnect is in the closed position (ON) and secure.
2. Power on the Auxiliary AC Input Circuit
 - To energize the system, provide power to the Auxiliary AC input through the grid, generator, or backup load panel. If none of these power sources are available, skip to step 3.
 - 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 the UPS ON to provide temporary power for the cabinet's control system.
 - For systems without an initial AC supply, use UPS control to black-start the cabinet (control power energization).
 - The UPS is for short-term operation only. Promptly restore AUX 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.

- Ensure the battery side compartment door is closed during the startup process.
- The green LED on the cabinet door flashes to indicate the system is Ready.
- Allow up to 60 seconds for the LYNK/BCU to initialize and check internal systems.

5. Pre-Charge Circuit Activation

- After initialization, the BCU engages the pre-charge circuit and provides power to start the inverter.
 - The BCU then closes its main contractors when the pre-charge process is complete, at which point the inverter will have full power.

6. Verify Cabinet Status

- Confirm that the cabinet indicator LEDs indicate normal operation.
 - 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:
 - Connect your laptop running LYNK ACCESS to the LYNK II Gateway to diagnose the battery.
 - You can also refer to the troubleshooting section of the AES Cabinet manual for diagnostic steps.

7. If your AC auxiliary power is backed up from the load panel, verify the power to the temperature management system (Step 2).

6.2 Inverter Configuration

NOTE

For system programming and configuration of parallel inverters, follow the procedure outlined in the inverter manual.

1. **Power On the Inverter.** Press the inverter's power switch. If battery power is present, the inverter will begin its startup process and all five indicator lights will illuminate.
2. **Switch On AC and PV Inputs.** Turn on the AC grid input breakers and PV input breakers to energize the system.
3. **Check for Inverter Activation.** If the inverter does not power up, confirm that it is receiving a valid DC input from the battery.

4. **Verify Rapid Shutdown (RSD) Status.** Ensure the Rapid Shutdown (RSD) switch has not been triggered. If triggered, the inverter will remain off and PV string voltages will stay at a safe level.
5. **Keep AC Output Circuits Isolated (if applicable).** If the system uses inverter stacking or multi-inverter configuration, keep AC output circuits isolated until stacking configuration is complete.
6. **Wait for Full Inverter Activation.** Allow the inverter to complete its boot sequence before beginning any configuration or system setup.

Inverter Quick Settings Overview

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

When commissioning the inverter for the first time, complete the Quick Setup in the following order:

Inverter Time → Meter Setting → Grid Code → Storage Mode → Battery Model

Inverter Time

Set the current date and time. The default setting will follow your mobile device.

CT / Meter Setting

- Select CT or Meter (Solis supports Eastron 3-phase, auto-detected meters).
- Choose the installation location: Grid side, Load side, or Grid+PV.
- Set CT direction: use Forward if installed correctly; use Reversal if polarity is reversed.
- Set CT ratio: default is 60. If using a different CT, adjust manually. If using a meter, set the ratio accordingly.

Grid Code

- Select the region, either the USA or Canada.
- Select UL-240V-18 for IEEE 1547-2018 or R21P3-240 for California Rule 21.

Storage Mode

Choose the system's energy flow priority:

- Self-Use, Selling First, or Off-Grid.

NOTE

The load is always the inverter's priority. Self-use mode makes charging the battery the second priority. Selling First mode makes exporting excess PV power the second priority. Only one mode can be active at a time.

Battery Settings

NOTE

For detailed setup and commissioning requirements, refer to the applicable Solis inverter Installation Guide and User Manual.

- Choose the connection method: 1 Batt 2 DC or 2 Batt 1 DC
- Select the battery brand and model. If Discover is not listed, choose General_LiBat_HV
- Set the maximum charge/discharge current: 157 A.
- For dual-battery systems using the same settings, enable "Batt2 Settings follow Batt1."

Battery Settings Menu

The Battery Settings menu on the inverter interface enables detailed adjustments to battery parameters. Use these settings to fine-tune charging behavior, protect battery health, and optimize system performance.

The table below outlines recommended configuration values for each setting to ensure safe and efficient operation when using the AES battery cabinet. Adjustments may be made based on project-specific requirements.

The screenshot shows the 'BATTERY SETTING' menu with the following configuration:

- Battery connection method:** 1Batt 2DC (selected)
- Batt1 type:** Lithium Battery (selected), PYLON_LV (model)
- Max charge current:** 157A
- Max discharge current:** 157A
- Over discharge:** 10%
- Recovery:** 20%
- Force charge:** 20%
- Max charge SOC:** 100%
- Battery saving:**
- Batt2 Settings follow Batt1:**

| Setting | Recommended Value | Notes |
|---------------------------|-------------------|---|
| Max charge current | 157 A | Matches the battery's maximum charge capability (Do not exceed cabinet limits). |

| Setting | Recommended Value | Notes |
|------------------------------|-------------------|--|
| Max discharge current | 157 A | Keeps battery within safe continuous discharge range. |
| Over discharge | 10-20% | Preserves battery life by avoiding deep discharge. |
| Recovery | 20-30% | Set ~10% above over discharge to avoid cycling instability. |
| Force charge | 10-20% | Same as Recovery. Only active under grid charge priority conditions. |
| Max charge SOC | 100% | Charge to 100% to promote cell balancing in the battery. |

6.3 System Testing

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 error codes or warnings on the cabinet and the inverter.
- Using LYNK ACCESS, confirm that SOC, voltage, and current values match expected levels.

Inverter PV DC Input. If applicable, close the PV disconnects connecting the PV System to the inverters and confirm charging.

AC Loads On. If applicable, close the AC output disconnects for the inverter load output and verify that the load is connected. Then, navigate to the Loads screen and verify that the inverter displays the correct power values for the load.

Test Operation

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

6.4 Shutdown Procedure

To safely shut down the AES cabinet system and associated inverter, follow the steps below in order:

1. Activate Emergency Stop (E-Stop) on the Inverter

- This immediately turns off the inverter functions and stops charging/discharging operations.

2. Activate the Emergency Stop (E-Stop) on the AES Battery Cabinet

- This isolates the battery internally by opening the HV contactors.

3. Open the PV Disconnect

- Disconnect the DC input from the solar array to the inverter.

4. Open All AC Disconnects

- Shut off all AC power sources connected to the system.
- Open the grid, load, and disconnect any generator AC to isolate the inverter from external power.
- To disconnect power to the UPS and internal systems, turn off the cabinet auxiliary AC input by opening the HV Box AC breaker.

5. Open the DC Disconnect on the Cabinet's HV Box

- Confirm the AES Cabinet's DC disconnect is in the open position (OFF).

6. Open the Inverter's DC Breakers

- Disconnect the DC input from the battery to the inverter.

7. Switch Off the Cabinet UPS (Auxiliary Power)

- Rotate the UPS switch inside the cabinet to the left to cut power to the Battery Control Unit (BCU) and LYNK II. This is important as leaving it on will result in dead UPS batteries and make a black start impossible until the batteries are charged.

8. Verify Complete Shutdown

- Confirm that all equipment is powered down.
- Check that no LEDs are illuminated, no fans or pumps are running, and no indicators are active on the inverter, cabinet, LYNK, or internal systems.

6.5 Completing the Commissioning Process

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.
- One way to keep a record of the battery is to generate and store a diagnostic report through LYNK ACCESS software.

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.
<https://discoverenergysys.com/contact/contact-technical-support>

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