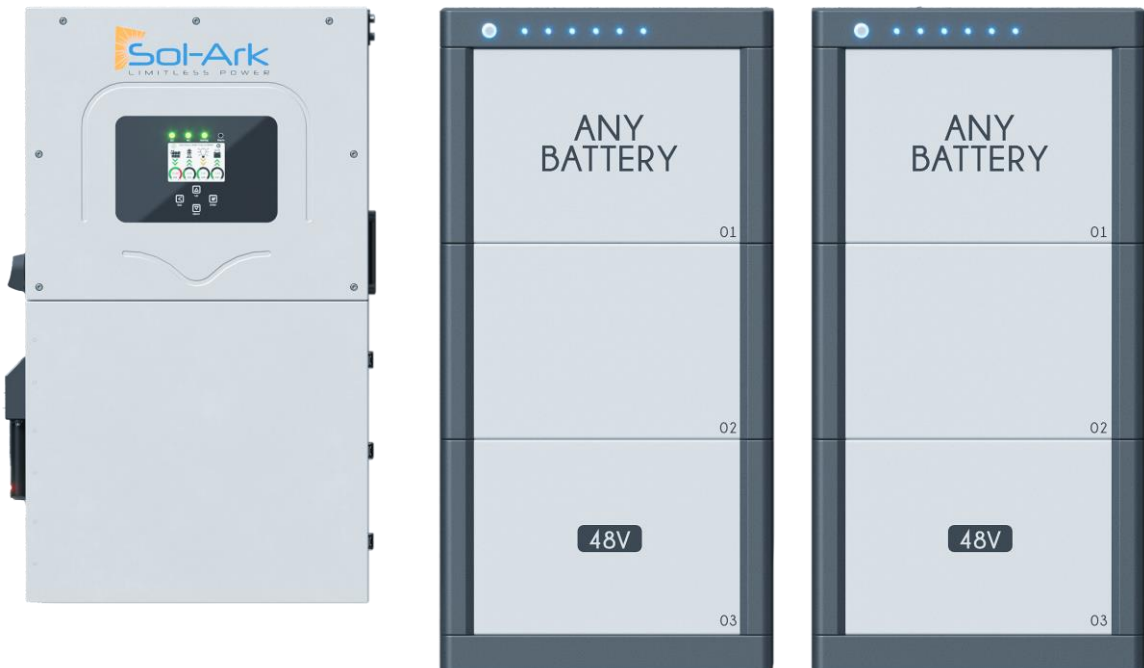# BATTERY INTEGRATION GUIDE
LOW VOLTAGE 48V – RESIDENTIAL

SK140-0026-005

Effective Date: March 12, 2025

Disclaimer

This Battery Integration Guide is intended to provide general assistance with the integration of third-party batteries and Sol-Ark manufactured hybrid inverters. It is not intended to substitute for, or to replace, the guidance or services of trained installers, engineers or other specialists that are responsible for system installation, design, testing and performance. It is also not intended to, and should not, replace or modify any of the technical, support or other information made available by the Battery manufacturer, including information related to safety and performance established by the Battery manufacturer. You are urged to consult with the Battery manufacturer and those persons responsible for installation, testing and system performance before undertaking any of the integration steps referred to in this Guide. In-depth configurations, step-by-step instructions, troubleshooting, and verification of operational parameters are not addressed in this Guide and are outside the scope of this Guide.

This Battery Integration Guide is provided "as is," without charge, and is intended solely for general informational purposes without any right or presumption of reliance. Sol-Ark does not guarantee the results obtained by use of this battery integration guide nor does Sol-Ark provide any warranty, whether express, implied or statutory, including warranties of merchantability, quality, fitness for a particular purpose, title, non-infringement of intellectual property rights, accuracy, system integration, timeliness or satisfactory quality, regarding any product other than sol-ark manufactured products. Sol-Ark is not responsible, and offers no warranty, for, or with respect to, any battery product that is not manufactured by Sol-Ark. Your sole and exclusive remedy for any defects, or other issues associated with, or related to, a battery product is limited and restricted solely to the manufacturer warranty provided by the manufacturer of that battery. Modifications, updates, or other changes made by the battery manufacturer to a battery product, including firmware, software or hardware modifications, updates or other changes, may affect information provided in this battery integration guide and may make it inapplicable. Any of those modifications, updates or other changes may also adversely affect use of the proposed battery with Sol-Ark products or may make any integration impractical, inadvisable or improper. You are solely responsible for any integration and should confirm with the battery manufacturer that no such modifications, updates or other changes have been made by the battery manufacturer.

This Battery Integration Guide assumes the accuracy and completeness of information made available to Sol-Ark as of the effective date on the first page of this guide, and Sol-Ark assumes no responsibility if that information was inaccurate or incomplete in any respect or if that information changes in any way after the effective date (including through software updates). This battery integration guide is not intended to, and does not, supersede any instructions or directions that you may have received from the manufacturer of the battery, and is only intended to supplement those instructions or directions. Sol-Ark is not liable for any damages resulting from your use of this battery integration guide and, to the fullest extent permitted by applicable law, hereby expressly and unconditionally disclaims liability for any and all indirect, incidental, exemplary, punitive or consequential damages.

If you are uncertain about implementing or using any of the information contained in, or made available by, this Guide, you are urged not to continue with this Guide and immediately to contact the Battery manufacturer or Sol-Ark product support. This Guide does not modify, extend or change the terms of any warranty that may be applicable to your Sol-Ark products, and you should carefully consult those warranty terms to ensure that you may not be voiding or violating those warranty terms if you undertake any of the actions referred to in this Guide. In addition, you should never undertake or engage in any integration, repair or evaluation process unless and until your product has been fully and completely powered down and you have confirmed that the product is not charged in any manner.

Any action related to the information included in this Guide shall be governed by the internal laws of the State of Texas, United States of America, without giving effect to any conflicts of laws principles. Any action, suit, or other legal proceeding that is commenced to resolve any matter related to this Guide shall be commenced solely and exclusively in a state court sitting in Collin County, Texas (or, if appropriate, a federal court located within Collin County in the Eastern District of Texas), and you hereby consent to the personal jurisdiction of those courts.

Please Note: Sol-Ark does not offer technical support related to battery communications for battery models not specifically listed in this Guide or for batteries with respect to which modifications, updates, or other changes have been made, as noted above, after the Effective Date of this Guide.

Sol-Ark assumes no responsibility for any of those modifications, updates, or other changes or to inform itself of any of those modifications, updates, or other changes. Damage caused to a Sol-Ark product as the result of the use or integration of battery communications that are not supported by Sol-Ark will void the warranty on your Sol-Ark product.[1]

This Guide is intended solely for **Low-Voltage Hybrid Sol-Ark Inverters** and should not be used or referenced for any other types of Sol-Ark inverters.

[1] Trademarks, logos, and tradenames of battery partners have been used under license and with permission and are subject to copyright by the owners thereof. Any information regarding battery performance, installation or other matters regarding integration and documentation used in this Guide has been provided to Sol-Ark by the manufacturer, and Sol-Ark has relied on the accuracy and completeness of that information and documentation. Sol-Ark assumes no responsibility to update this Guide to reflect any modifications, updates or changes to the information and documentation provided by any battery manufacturer, and you are urged to refer to the most recent information and documentation made available by any battery manufacturer before undertaking any installation or integration of a battery product.

Contact Us

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Contents

Sol-Ark Inverters in this Guide

This document covers battery integration with the following Sol-Ark low-voltage hybrid inverters:

- Sol-Ark 15K (Indoor/Outdoor)
- Sol-Ark 12K (Outdoor)
- Sol-Ark 12K (Indoor)
- Sol-Ark 8K (Outdoor)
- Sol-Ark 5K (Outdoor)

Latest Firmware

> For Modbus RS-485 communication reliability, update to the latest firmware version, with **C 1.4.3.F** or greater.

Sol-Ark Battery Partners

Sol-Ark seeks to ensure that its hybrid inverters work with batteries supplied by a diverse set of manufacturers within the residential market segment. This Guide is intended to specifically list batteries that have been certified to work with Sol-Ark hybrid inverters as the Effective Date. If not listed, the battery has not been certified to work with Sol-Ark hybrid inverters, or tested by Sol-Ark, but Sol-Ark inverters are designed to be battery agnostic and are generally intended to function with most 48V batteries.

Homeowners select batteries based on various considerations including pricing, support, warranty, and finances. You may need a battery rated for the outdoors or that can withstand an electromagnetic pulse (EMP). Decoupling storage and inverter power lets our customers select the power output and energy storage solution they need.

This Guide is divided into two sections, **Certified Storage Partners** and **Proven Storage Partners**.

Certified Storage Partners

These battery manufacturers have a history of installation compatibility with Sol-Ark.

- Sol-Ark has tested communications and electrical capability of our respective products.

- Sol-Ark collaborates on critical safety and regulatory requirements to ensure our customers are able to commission and permit our joint solutions.

- Sol-Ark has an agreement to ensure ongoing product compatibility, and to ensure the highest level of product reliability, support, and customer service.

- Partners in this category have at least one battery model that has passed Sol-Ark's testing and certification process.

Sol-Ark's Certified Storage Partners are:

- **Briggs and Stratton Energy Solutions**
- **Deka by MK Battery**
- **Discover Energy Systems**
- **Dyness**
- **Homegrid**
- **Pylontech**
- **Pytes Energy**
- **Renon Power**
- **Storz Power**
- **Volthium**

Note: Even if listed above, Certified Storage Partner batteries may be modified, updated, or otherwise changed by the manufacturer, or performance and other characteristics may change, over time, and you are urged to refer to manufacturer information and documentation regarding any proposed pairing, installation, or integration of your battery. **Sol-Ark does not guarantee or warranty the performance of any battery or the system into which a battery and inverter may be integrated**.

Proven Storage Partners

These battery manufacturers have a history of battery installations with Sol-Ark inverters.

- These battery manufacturers are well-known suppliers, broadly accessible to installers. They provide reputable products and domestic customer support.

- Though Sol-Ark has experience collaborating with these partners, we have not completed a formal process or service level agreement that would ensure ongoing compatibility or product compliance to safety and regulatory standards.

- Sol-Ark will support service calls with basic battery diagnostic methods within our general configuration and troubleshooting methods (communications connection, electrical, and battery parameters).

Sol-Ark's Proven Storage Partners are:

- **Liniotech**

- **Powersync**

 While this Guide lists only those battery companies that have worked with Sol-Ark and with which Sol-Ark has collaborated as described above, Sol-Ark inverters have been designed and are intended to work with many other batteries.

General Hardware Configuration

> The outdoor-rated systems and Sol-Ark 15K inverters have a "Modbus RS-485" port, which is not for battery communications.

Sol-Ark 15K

The Sol-Ark 15K inverter communicates with the battery through a single RJ45 port labeled "Battery CANBus." This port combines the Modbus and CANBus pin configurations shown below. Both "Modbus RS485" and "Battery CANBus" ports can do Modbus communication.

The diagram shows the communication board inside the wiring area of the 15K inverter. Note that only the "Battery CANBus" port is used for battery communications. The pin configurations for Modbus and CANBus communication of this RJ45 are listed in the table below.
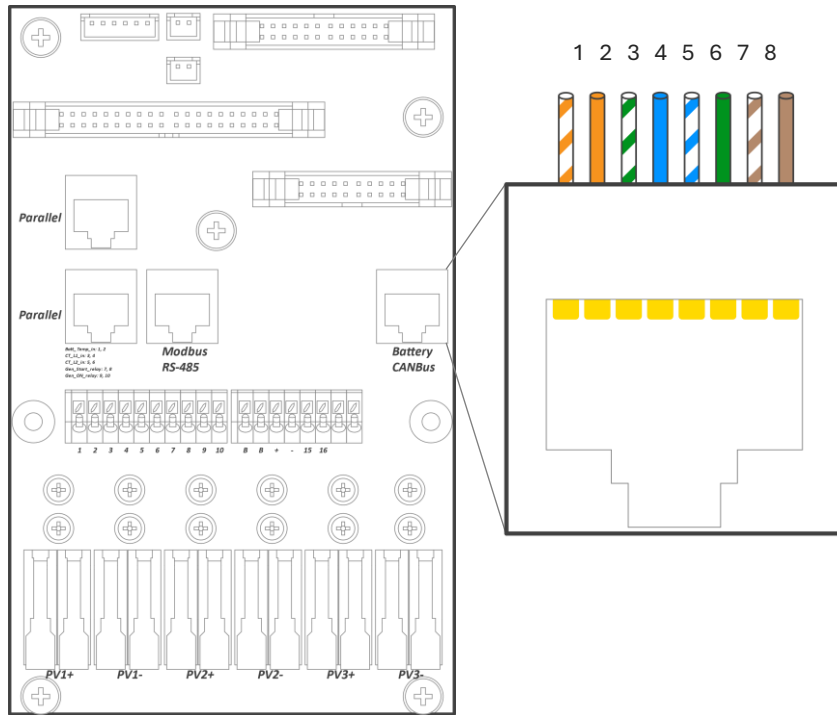
15K-2P-N con board and "Battery CANBus" communication port

Table I: RS-485 Pin Configurations of "Battery CANBus" Port for ModBus and CANBus Protocols

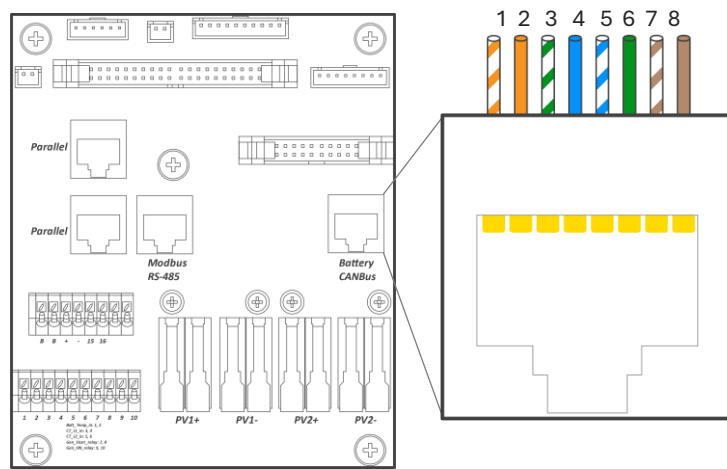| Pin	Modbus	CANBus
1	TX B- (either orange or brown)	TX A+ (either orange or brown)
2	TX A+	TX B-
3	GND (either 3 or 6)	GND (either 3 or 6)
4	--	--
5	--	--
6	GND	GND
7	TX A+	TX B-
8	TX B-	TX A+

Sol-Ark 12K / 8K / 5K (Outdoor)

The Sol-Ark Outdoor-Rated inverter (12K-2P, 8K-2P and 5K-2P) communicates with the battery through a single RJ45 port labeled "Battery CANBus." This port combines the Modbus and CANBus pin configurations shown below. Both "Modbus RS485" and "Battery CANBus" ports can do Modbus communication.

The diagram shows the communication board inside the wiring area of Sol-Ark 12K / 8K / 5K inverters. Note that only the "Battery CANBus" port is used for battery communications. Table II lists pin configurations for Modbus and CANBus communication of the RJ-45.

12K / 8K / 5K con board and "Battery CANBus" communication port

Table II: RA-485 Pin Configurations of "Battery CANBus" Port for ModBus and CANBus Protocols

| Pin	Modbus	CANBus
1	TX A+ (either orange or brown)	TX B- (either orange or brown)
2	TX B-	TX A+
3	GND (either 3 or 6)	GND (either 3 or 6)
4	--	--
5	--	--
6	GND	GND
7	TX B-	TX A+
8	TX A+	TX B-

Sol-Ark 12K (Indoor)

The Sol-Ark 12K Indoor can communicate through two RJ-45 ports labeled "CAN" and "RS-485." Battery communication is established through CANBus or Modbus communication protocols using the "CAN" and "RS-458" ports respectively.

The diagram shows the communication board inside the 12K Indoor inverter wiring area. Note that both the "CAN" and "RS-485" ports can be used for battery communications depending on the required protocol. The pin configurations for Modbus and CANBus communications are listed in Table III.
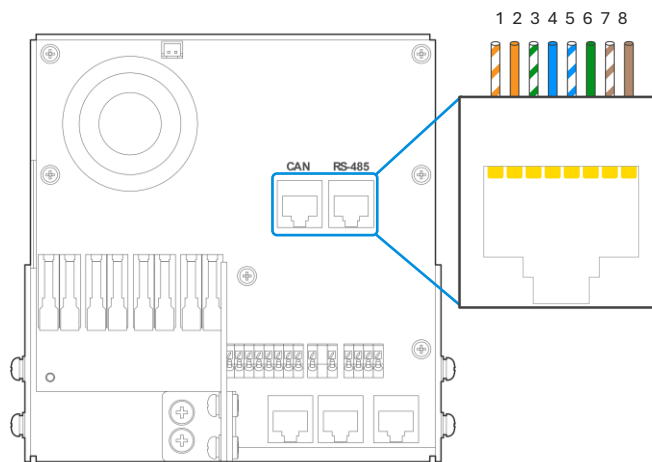
12K Indoor con board and battery "CAN" & "RS-458" communication ports

Table III: Pin Configurations of "CAN" and "RS-485 Ports for CANBus and ModBus Protocols
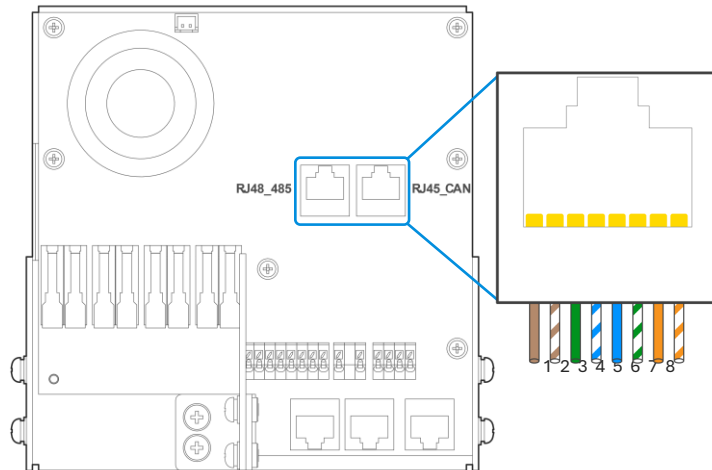
Pin	CAN (CANBus)	RS-485 (Modbus)
1	--	RS-485 B-
2		RS-485 A+
3	GND	GND
4	CAN Hi	--
5	CAN Lo	--
6	GND	GND
7	--	RS485 A+
8	--	RS485 B-

Sol-Ark 8K (Indoor)

The Sol-Ark 8K Indoor can communicate through two RJ-45 ports labeled "RJ45_485" and "RJ45_CAN." Battery communication is established through CANBus or Modbus communication protocols through the "RJ45_485" and "RJ45_CAN" ports respectively.

The diagram shows the communication board inside the wiring area of the 8K Indoor inverter. Note that both the "RJ45_485" and "RJ45_CAN" ports can be used for battery communications depending on the required protocol. The pin configurations for Modbus and CANBus communications are listed in Table IV below.

8K Indoor con board and battery "RJ45_485" & "RJ45_CAN" communication ports
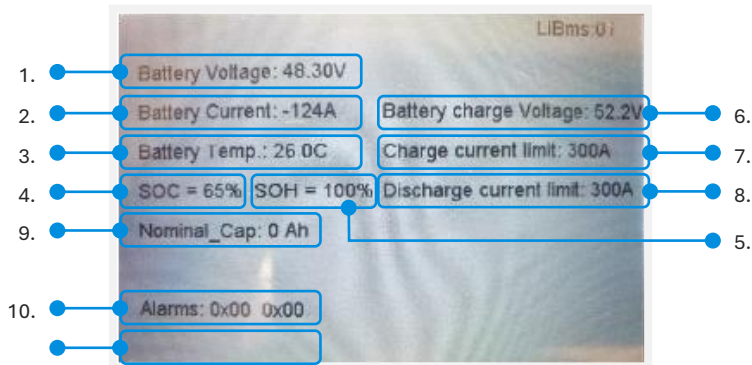
Table IV: Pin Configurations of "RJ45" and "RJ45_CAN" ports for ModBus and CANBus protocols

Pin	RJ45_485 (Modbus)	RJ45_CAN (CANBus)
1	RS-485 B-	--
2	RS-485 A+	
3	GND	GND
4	--	CAN Hi
5	--	CAN Lo
6	GND	GND
7	RS485 A+	--
8	RS485 B-	--

CANBus Battery Screen

This is what the **Li Batt Info** screen looks like when communications are enabled for CANBus batteries ("BMS Lithium Batt 00").

1. **Battery Voltage**
   Real-time voltage measured between the battery terminals.

2. **Battery Voltage**
   Real-time current flowing into or out of battery's + terminal. (negative / positive sign respectively).

3. **Battery Temp**:
   Real-time temperature measured at the BMS.

4. **SOC**
   State of charge remaining in the battery according to the BMS.

5. **SOH**
   State of health of the battery according to the BMS.

6. **Battery Charge Voltage**
   The inverter should charge the battery to the maximum voltage.

7. **Charge Current Limit**
   Maximum current allowed to the battery.

8. **Discharge Current Limit**
   Maximum current allowed out of the battery.

9. **Nominal_Cap**
   Amp-hour design capacity of the battery (not used on all batteries).

10. **Alarms**
    Displays any alarm codes from the battery (manufacturer-specific).

11. **Force Charge Request**
    Command sent by the BMS telling the inverter to charge the battery from any available power source regardless of inverter settings. This is not shown in the image, but it's located below the "Alarms" field.

Modbus/RS-485 Battery Screen

Sol-Ark recommends that if establishing communication via Modbus RS485, be sure to have the inverter firmware upgraded to the latest available version, with Comm v143F or higher, and the latest primary and follower MCU versions.

The image shows the "**Li Batt Info**" screen when communicating via Modbus/RS-485 (all other "BMS Lithium Batt" modes).

1. **Battery Voltage**: Real-time voltage measured between the battery terminals.

2. **Battery Current**: Real-time current flowing into or out of battery's + terminal. (negative / positive sign respectively).

3. **Battery Temp**: Real-time temperature measured at the BMS.

4. **SOC**: State of charge remaining in the battery according to the BMS.

5. **Total Capacity**: Total Amp-Hour capacity connected to the inverter. Not present for all batteries.

6. **Battery Charge Voltage**: The inverter should charge the battery to the target charge voltage.

7. **Battery Empty Voltage**: Minimum voltage the inverter should discharge the battery to.

8. **Charge Current Limit**: Maximum allowable current into the battery.

9. **Discharge Current Limit**: Maximum allowable current out of the battery.

10. **Alarms**: Displays any alarm codes from the battery (manufacturer specific).

11. **Battery Data Chart**: This table lists individual information from each connected battery up to a maximum of 12 batteries. Not all manufacturers utilize this feature.

Line 1 is never populated for any manufacturer. The first battery is always displayed on line 2.

Connecting Batteries

When creating a custom RJ45 cable, use a CAT5/CAT6, also known as ethernet cable. Unless otherwise stated, cut open the cable and cut off the unnecessary wires.

Most custom cables are NOT reversible; therefore, keep track of which end of the custom cable connects to the battery and the Sol-Ark.

> ⓘ If you're crimping new connectors to create a cable, be careful not to over-tighten the crimping tool, as this can recess the connectors and lead to a poor or intermittent connection.

Certified Storage Partners

This section includes the battery manufacturers that Sol-Ark has certified to work with our inverters as of the Effective Date and the compatible battery model.

Modifications, updates, or other changes made by the battery manufacturer to a battery product, including firmware, software, or hardware modifications, updates, or other changes, may affect information provided in this battery integration guide and may make it inapplicable, including to models referenced below. Any of those modifications, updates, or other changes may also adversely affect use of the proposed battery with sol-ark products or may make any integration impractical, inadvisable, or improper. You are solely responsible for any integration and should confirm with the battery manufacturer that no such modifications, updates, or other changes have been made by the battery manufacturer.

Manufacturer[2]	Compatible Battery Model	BMS Lith Batt	Custom cable required?
Briggs and Stratton	AmpliPHI 3.8 SimpliPHI™ 6.6 ESS	00	No
Deka by MK Battery	Deka-Duration-DD5300	00	Yes
Discover Energy Systems	• AES LiFePO4:44-24-2800, | 44-48-3000, 42-48-6650 • AES PROFESSIONAL: DLP-GC2-12V, DLP-GC2-24V, DLP-GC2-36V, DLP-GC2-48V • AES RACKMOUNT: 48-48-5120, 48-48-5120-H	00	Yes (outdoor-rated units only)
Dyness	B4850	00	Yes (outdoor-rated models only)
EndurEnergy	ESP-5100	00	No
Homegrid	Stack'd	00	Yes
Pylontech	US3000C	00	Yes
Pytes Energy	E-BOX 48100R	00	No
Renon Power	Xtreme LV Series	00	Yes
Storz Power	LFP48100-5KWH	01 (RS485)	Yes
Volthium Energy	51.2-100-R-H	00	No

[2] Trademarks, logos and tradenames of battery manufacturers are used with permission.

Briggs & Stratton AmpliPHI 3.8 and SimpliPHI™ 6.6 Energy Storage System (ESS)

Follow these instructions for setting up Briggs&Stratton batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by Briggs&Stratton for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

Briggs & Stratton Installation Manual

Communications Installation and Setup Instructions

Custom RJ45 cable

No custom cable is needed.

Battery IDs and connections

1. Connect all batteries using the included RJ45 cables, using the two ports nearest to each other to bridge the batteries together (GREEN in the picture below).

2. Use the included 120 Ohm terminators on both ends of the resulting chain.

Inverter programming and connections

1. Use the battery from the beginning or the end of the chain. Connect an RJ45 cable from the separate RJ45 port (RED in the picture below):

   Indoor-rated inverters

   - You may use an off-the-shelf ethernet cable. No custom cable is needed.

   - Connect to the CAN port.

   Outdoor-rated inverters

   - You may use an off-the-shelf ethernet cable. No custom cable is needed.

   - Connect to the "Battery CANBus" port.

2. Program the inverter with this battery's appropriate charge/discharge settings.

3. Enable "BMS Lithium Batt" and set its value to "00."

4. (Optional) Turn on "BMS_Err_Stop" if you if you want the system to fault on battery communications loss.

RJ45 port used for Connecting to the Inverter

RJ45 ports used for daisy chaining networking
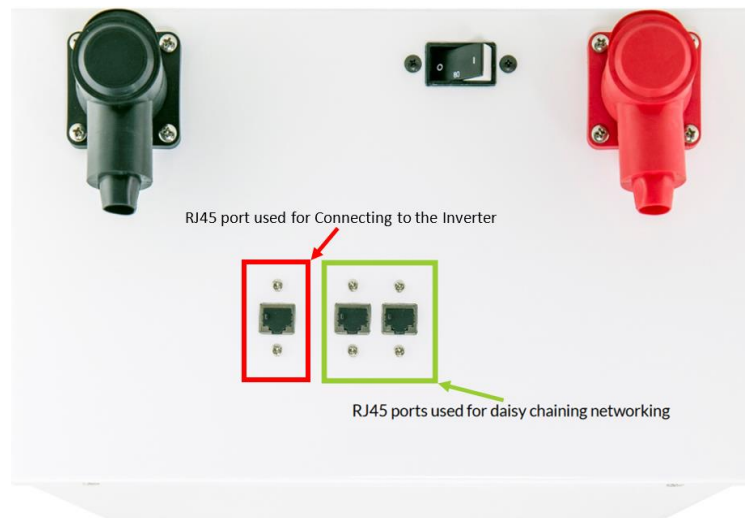
Deka Duration – DD5300 (Low Voltage configuration)

Follow these instructions for setting up Deka batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by Deka for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

[Deka documentation](#)

⚟ Communications with this battery requires a custom cable.

- Make sure that you are not wiring to the High Voltage connection terminals of the Deka-DD5300 battery.

- See the Installation & Operation (I&O) manual of the battery manufacturer and verify the proper communications configuration of CANBus connections and dip switch settings.

Communications Installation and Setup Instructions

Custom RJ45 cable

1. Create a custom RJ45 cable that connects battery port pins 1 (white-orange), 2 (solid orange), and 3 (white-green) to inverter port pins 4, 5, and 2 (indoor-rated models) or 6 (outdoor-rated models), respectively.

Battery-inverter communication connections

| Wire color	Battery (CAN-A port	Inverter port
White-orange	1	4
Solid orange	2	5
White-green	3	2 (indoor only) or 6 (outdoor only)

Battery IDs and connections

1. Turn on the mechanical POWER SWITCH to enable the BMS on all battery modules.

2. Press and hold the RUN button for 2 seconds only on the MASTER battery module, and allow other modules to turn themselves on automatically.

   After the battery modules start, the LED status indicator should turn solid green.

Inverter programming and connections

1. Connect the cable to the "CAN-A" port on the Deka-DD5300 and the "Battery CANBus" port (outdoor-rated models) or the "CAN" port (indoor-rated models) on the Sol-Ark.

2. Program the inverter with this battery's appropriate charge/discharge settings.

3. Enable "BMS Lithium Batt" and set its value to "00."

4. (Optional) Turn on "BMS_Err_Stop" if you want the system to fault on the loss of battery communications.
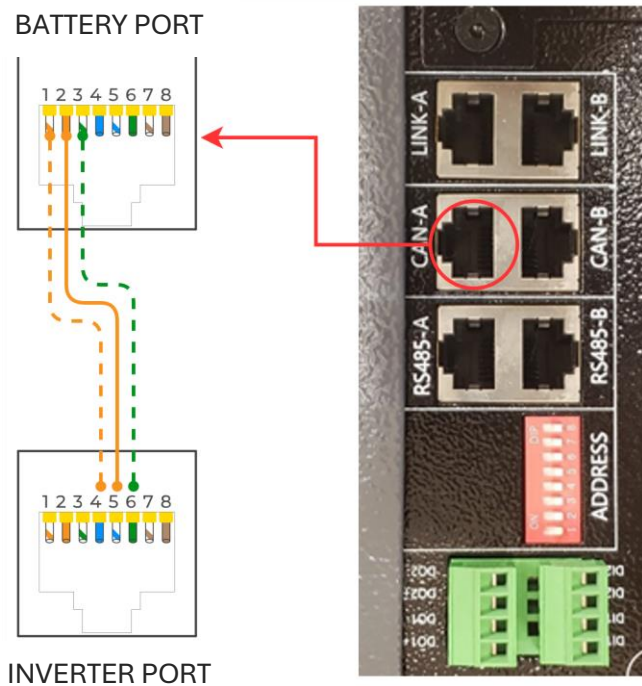
Discover Energy Systems AES RACKMOUNT 48-48-5120-H

Follow these instructions for setting up Discover batteries and Sol-Ark inverters.

Be sure to **consult the comprehensive technical documentation** provided by **Discover** for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.
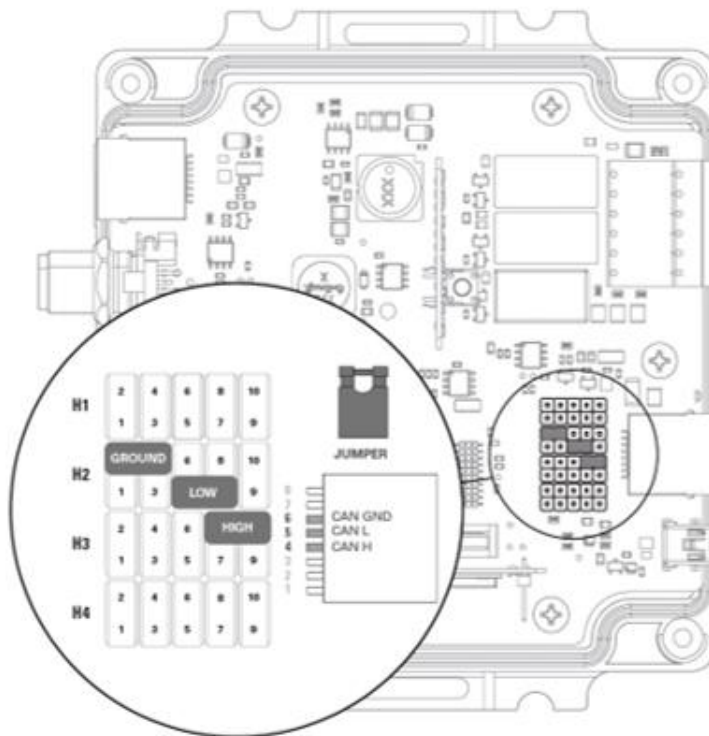
[Discover- LYNK documentation](#)

You need the Discover Lynk device to adapt the battery's AEBus to CANBus for use with the Sol-Ark. The Lynk requires the proper adapter for the Sol-Ark's pin configuration (Part number 950-0016-SLRK).

Communications with this battery requires a custom cable (outdoor-rated models only).

Sol-Ark Outdoor CAN Pin Assignment

Communications Installation and Setup Instructions

Custom RJ45 cable (outdoor-rated inverters only)

Battery-IDs and connections

No custom cable is needed.

Battery IDs and connections

1. Configure the proper pin assignments of the LYNK II header board for Sol-Ark per the manufacturer's manual.

2. Daisy-chain all modules (if in parallel) together using CAT5e or higher cables between LYNK ports.

3. Connect the LYNK port of a battery at one end of the chain to the LYNK port of the LYNK II.

   If using the SLIMLINE enclosure, follow the manufacturer instructions for connecting the LYNK ports and the LYNK II.

4. Download and use the LYNK ACCESS software from the Discover Battery website to configure the LYNK II with the pre-configured Sol-Ark protocol.

Inverter programming and connections

1. Connect the cable between the LYNK II "CAN" port and the inverter's "Battery CANBus" port (outdoor only).

2. Power on the battery stack by first switching the breaker to the ON (closed) position, then briefly pressing the Power button to the ON position. If in parallel, turn on the Power Button first, then switch the breakers to the ON position.

   If using the SLIMLINE enclosure, follow the manufacturer instructions for turning on the battery stack.

3. Program the inverter with this battery's appropriate charge/discharge settings.

4. Enable "BMS Lithium Batt" and set its value to "00."

5. (Optional) Turn on "BMS_Err_Stop" if you if you want the system to fault on battery communications loss.

Dyness – B4850 and Powerbox Pro

Follow these instructions for setting up Dyness batteries and Sol-Ark inverters.

Be sure to **consult the comprehensive technical documentation** provided by **Dyness** for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

[Dyness documentation](#)

Communications with this battery requires a custom cable (outdoor-rated models only)

B4850 Communications Installation and Setup Instructions

Custom RJ45 cable (outdoor-rated inverters only)

1. Create a custom RJ45 cable that connects battery port pins 4 (solid blue), 5 (white-blue), and 2 (solid orange) to inverter port pins 4, 5, and 2 or 6, respectively.

Battery-inverter communication connections

Wire color	Battery (CAN-OUT) port	Inverter port
Solid blue	4	4
White-blue	5	5
Solid orange	2	2 or 6

Battery IDs and connections

1. Check the correct battery interconnection and connect to the inverter as specified in the Dyness user manual.

2. Set the switch in position 3 on the DIP selection switches to the "ON" position for the battery connected to the inverter.

Inverter programming and connections

1. Use the appropriate RJ45 cable to connect one of the batteries to the inverter:

   Indoor-rated inverters

   - You may use an off-the-shelf ethernet cable. No custom cable is needed.

   - Connect to the CAN port.

   Outdoor-rated inverters

   - Use the custom cable described in the beginning of these instructions.

   - Connect to the "Battery CANBus" port

2. Program the inverter with this battery's appropriate charge/discharge settings.

3. Enable "BMS Lithium Batt" and set its value to "00."

4. (Optional) Turn on "BMS_Err_Stop" if you if you want the system to fault on battery communications loss.
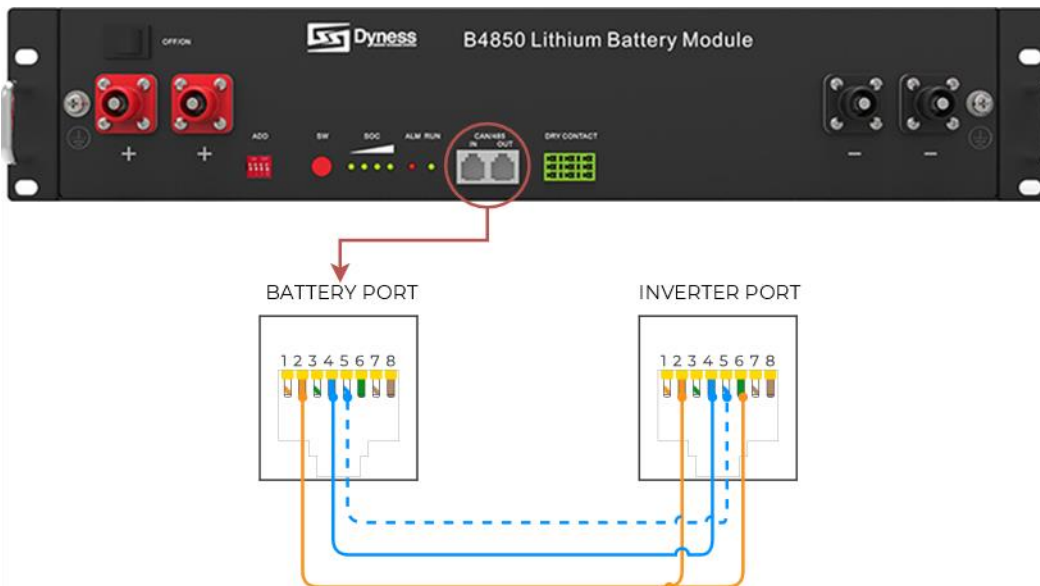
PowerBoxPro Communications Installation and Setup Instructions

Custom RJ45 cable (outdoor-rated inverters only)

Create a custom RJ45 cable that connects battery port pins 4 (solid blue) and 5 (white-blue) to inverter port pins 4 and 5, respectively.

Battery-inverter communication connections

Wire color	Battery (CAN-OUT) port	Inverter port
Solid blue	4	4
White-blue	5	5

Battery IDs and connections

1. Check the correct battery interconnection and connect to the inverter as specified in the Dyness user manual.

2. Set the switch in position 3 on the DIP selection switches to the "ON" position for the battery master module.

Inverter programming and connections

1. Use the appropriate RJ45 cable to connect one of the batteries to the inverter:

   Indoor-rated inverters

   - You can use an off-the-shelf ethernet cable. No custom cable is needed.

   - Connect to the CAN port.

   Outdoor-rated inverters

   - Use the custom cable described at the beginning of these instructions.
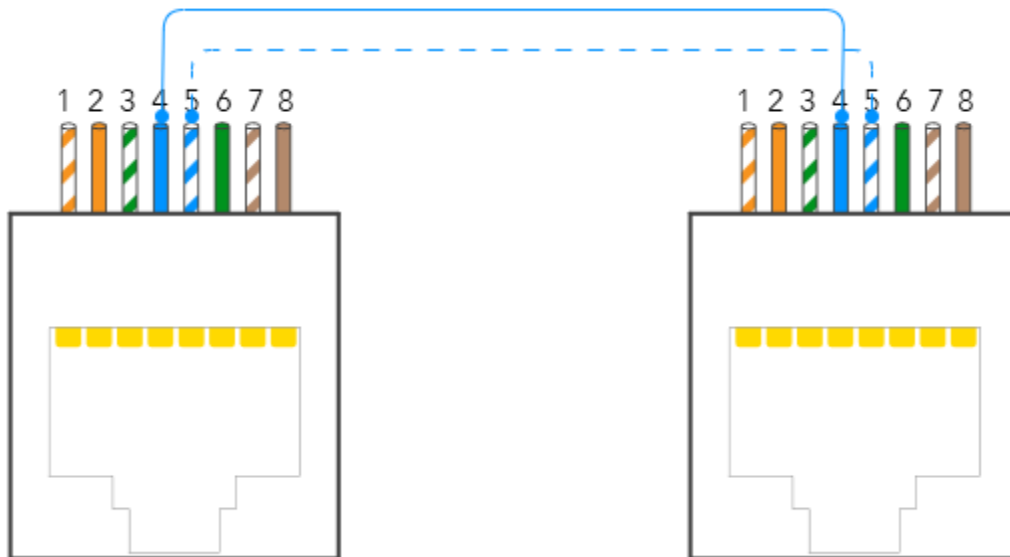
   - Connect to the "Battery CANBus" port

2. Program the inverter with this battery's appropriate charge/discharge settings.

3. Enable "**BMS Lithium Batt**" and set its value to **00**.

4. (Optional) Turn on "**BMS_Err_Stop**" if you if you want the system to fault on battery communications loss.
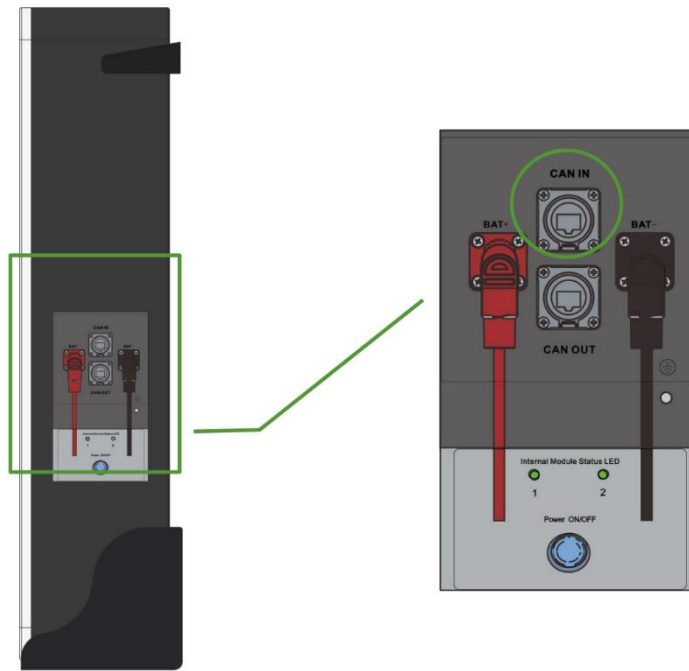
BATTERY PORT   INVERTER PORT

EndurEnergy – ESP-5100

Follow these instructions for setting up EndurEnergy batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by EndurEnergy for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

[EndurEnergy documentation](#)

Communications Installation and Setup Instructions

### Custom RJ45 cable

No custom cable is needed.

Battery IDs and connections

1. Connect all EndurEnergy ESP-5100 batteries together with the provided RJ45 cable using "M/S" ports. (Can use up to 8 batteries in 48V low voltage configuration)

2. Set all the dip switches according to the battery manual and double-check all dip switches on all batteries in the battery bank.

Inverter programming and connections

1. Connect a standard CAT5/6 cable to the "Inverter" port on the ESP-5100 Master battery, and the "Battery CANBus" port (or the "CAN" port for indoor-only models) on the Sol-Ark.

2. Program the inverter with the appropriate charge/discharge settings according to the specific battery manual and cable arrangement.

3. Enable "BMS Lithium Batt" and set its value to "00".

4. (Optional) Turn on "BMS_Err_Stop" if you want the system to fault on the loss of battery communications.

BATTERY PORT

1 2 3 4 5 6 7 8

INVERTER PORT

1 2 3 4 5 6 7 8
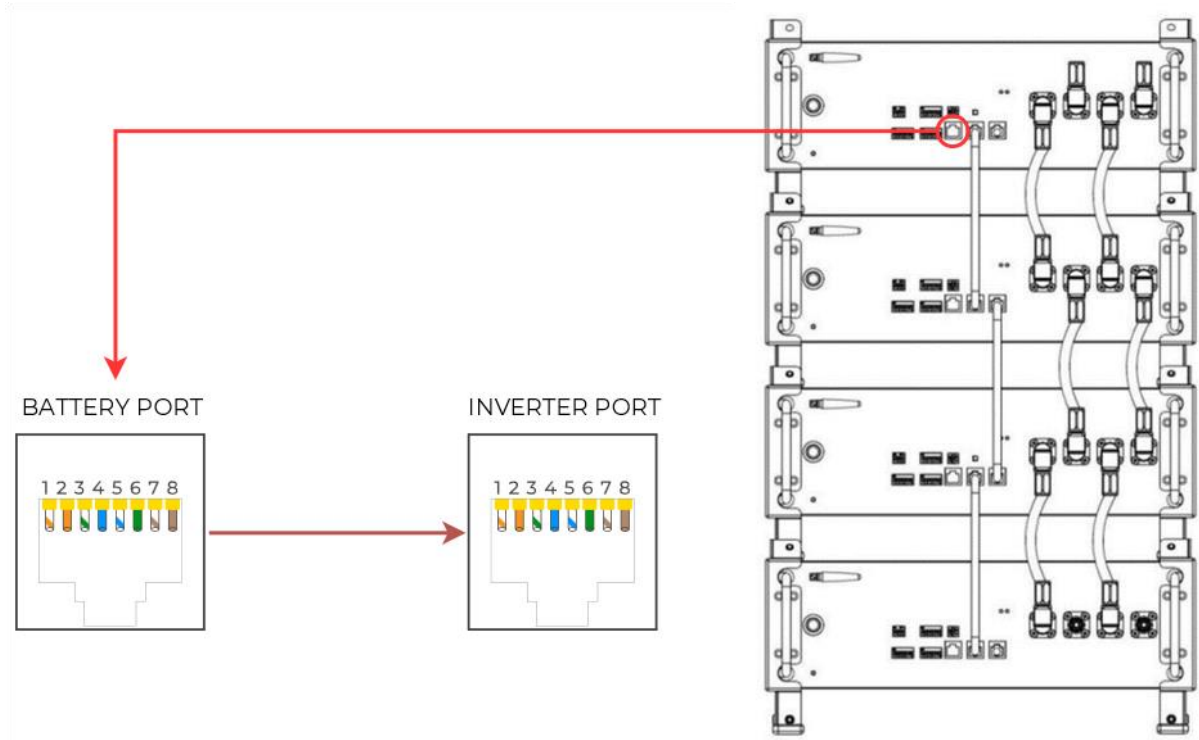
Homegrid – Stack'd

Follow these instructions for setting up Homegrid batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by Homegrid for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

[Homegrid Stack'd documentation](#)

You need a custom RJ45 cable for this setup.

Communications Installation and Setup Instructions

Custom RJ45 cable

1. Create a custom cable that connects pins 6, 7, and 8 ONLY (solid-orange, white-green, and solid-blue) to the battery.

2. Pin 6 (solid-green) needs to connect to pin 6 on the inverter.

3. Pin 7 (white-brown) needs to connect to pin 5 on the inverter.

4. Pin 8 (solid-brown) needs to connect to pin 4 on the inverter.
   On indoor models, pin 6 (solid-green) needs to connect to pin 2 on the inverter.

Battery-inverter communication connections

| Wire color	Battery (CAN) port	Inverter port
Solid green	6	6
White-brown	7	5
Solid brown	8	4

Battery IDs and connections

1. Set the DIP switches on each battery according to the manufacturer's manual.

2. Connect all top modules (if in parallel) together with RJ45 cable between their "Link A" and "Link B" ports. It does not matter which port is connected to which.

3. Power on the battery units by turning on each module from the bottom to the top, followed by that stack's top module.

Inverter programming and connections

1. Connect the cable between the master battery's top module and the inverter's "Battery CANBus" (outdoor-rated models) or "CAN" (indoor-rated models) port.

2. Program the inverter with this battery's appropriate charge/discharge settings.

3. Enable "BMS Lithium Batt" and set this value to "00".

4. (Optional) Turn on "BMS_Err_Stop" if you want the system to fault on battery communications loss.

5. If communication still needs to be established, contact HomeGrid to ensure that the unit is on the latest firmware and configured for communication with Sol-Ark inverters.
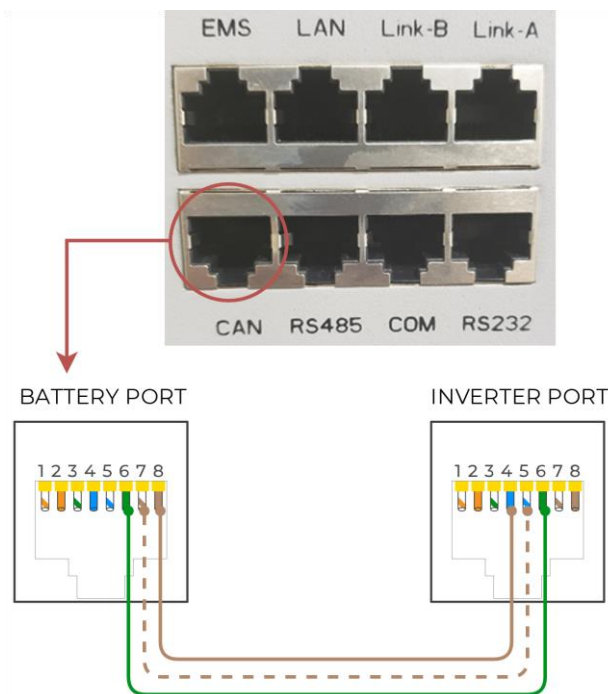
Pylontech – US3000C

Follow these instructions for setting up Pylontech batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by Pylontech for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

[Pylontech documentation](#)

You need a custom RJ45 cable for this setup.

Communications Installation and Setup Instructions

Custom RJ45 cable

1. Create a custom cable that connects battery pins 4 (solid blue), 5 (white-blue), and 6 (solid-green) to inverter port pins 4, 5, and 6 respectively.

2. On indoor models, pin 6 (solid-green) needs to connect to pin two (2) on the inverter.

Battery-inverter communication connections

| Wire color	Battery (A/CAN) port	Inverter port
Solid blue	4	4
White-blue	5	5
Solid green	6	2 (indoor only) or 6 (outdoor only)

Battery IDs and connections

1. Connect all batteries with the RJ45 cable from Link Port 1 to Link Port 0. The first battery with Link Port 0 empty would be the master battery. (Can use up to 16 batteries with 1 master battery and 15 slave batteries)

2. Set the ADD switch according to the battery manual if more than one string of batteries is in the battery bank.

Inverter programming and connections

1. Connect the cable to the "A/CAN" port on the Pylontech master battery and the "Battery CANBus" port (outdoor-rated models) or the "CAN" port (indoor-rated models) on the Sol-Ark.

2. Program the inverter with the appropriate charge/discharge settings according to the specific battery manual.

3. Enable "BMS Lithium Batt" and set its value to "00".

4. (Optional) Turn on "BMS_Err_Stop" if you want the system to fault on the loss of battery communications (Pylontech recommend leaving the "BMS_Err_Stop" on to protect their batteries).
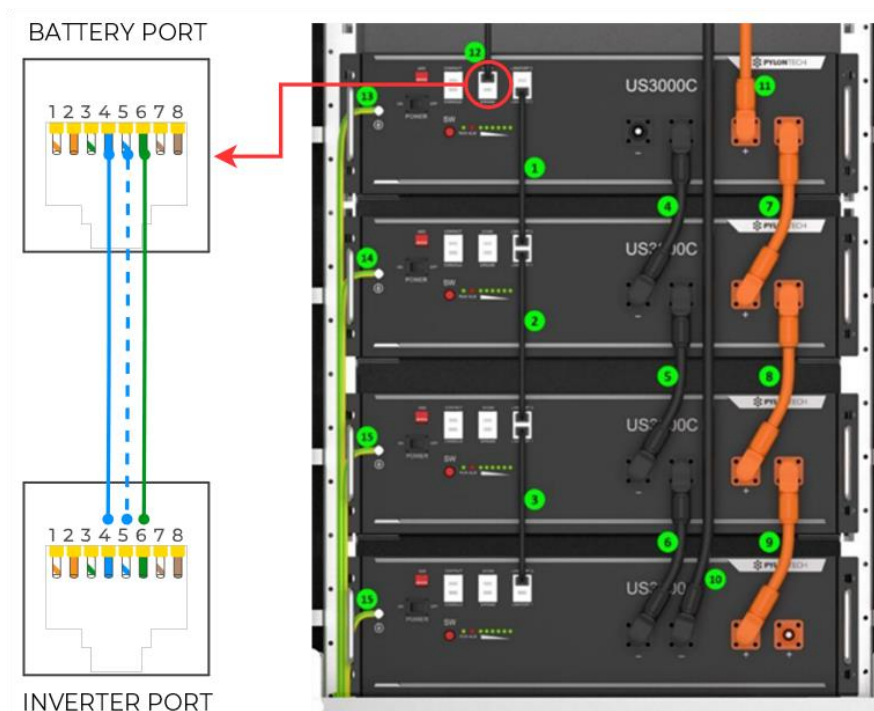
Pytes – V5

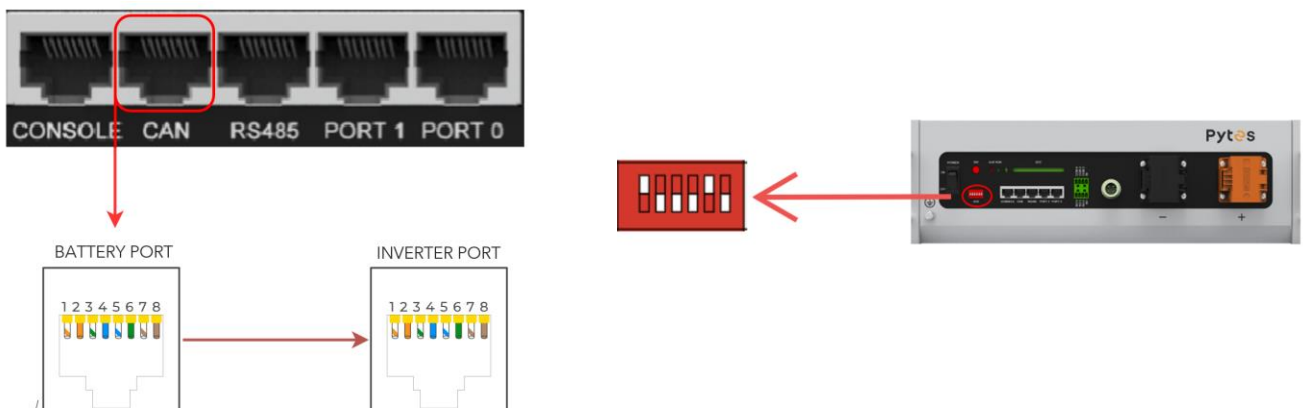Follow these instructions for setting up Pytes batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by Pytes for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

[Pytes documentation](#)

Communications Installation and Setup Instructions

1. A standard ethernet cable can be used for communication.

2. Set the DIP switch according to the battery manual. Switch 1 and 5 must be on. See the diagram below for the configuration of the master battery.

3. Connect the cable to the "CAN" port on the PYTES V5° battery and the "Battery CAN Bus" port (or the "CAN" port for indoor-only units) on the Sol-Ark.

4. Program the inverter with the appropriate charge/discharge settings according to the specific battery manual and cable arrangement.

5. Enable "BMS Lithium Batt" and set its value to "00".

6. (Optional) Turn on "BMS_Err_Stop" if you want the system to fault on the loss of battery communications (PYTES recommends leaving on "BMS_Err_Stop" to protect their batteries better).

   Note: The same process applies to the **Pytes E-BOX-48100R**.

RENON – Xtreme LV Series

Follow these instructions for setting up RENON batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by RENON POWER for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

RENON documentation

You need a custom RJ45 cable for this setup.

Communications Installation and Setup Instructions

Custom RJ45 cable

Create a custom RJ45 cable that connects battery port pins 6 (solid green), 7 (white-brown), and 8 (solid brown) to inverter port pins 6, 4, and 5 respectively.

Battery-inverter communication connections

| Wire color	Battery (INV1) port	Inverter port
Solid green	6	6
White-brown	7	4
Solid brown	8	5

Battery IDs and connections

1. Set the DIP switches for the "Inverter Dial Switch" on the master battery to the up position for switches 1 and 2.

2. Set the Address Dial Switch and Function Dial Switch on each stack per the manufacturer's manual.

3. Connect all top modules (if in parallel) together using an RJ45 cable between Link A and Link B ports (Link B on the master battery, Link A on the slave).

4. Power on the battery stack by pressing the Power button. If in parallel, turn on the slave units first, then the master last.

Inverter programming and connections

1. Connect the cable between the master battery's Main Control Module "INV 1" port and the inverter's "Battery CANBus" port (outdoor-rated models).

2. Program the inverter with the battery's appropriate charge and discharge settings.

3. Enable "BMS Lithium Batt" and set this value to "00."

4. (Optional) Turn on "BMS_Err_Stop" if you if you want the system to fault in case of battery communications lost.

5. If communication still needs to be established, contact Renon to verify the unit has the latest firmware and is configured for communication with Sol-Ark inverters.

BATTERY PORT   INVERTER PORT
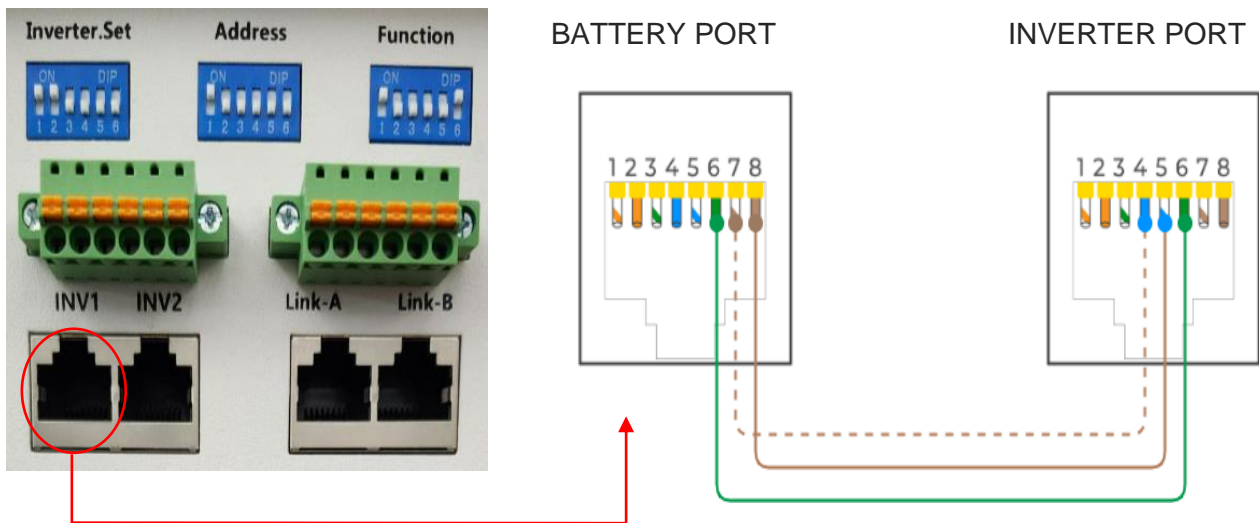
STORZ POWER – LFP48100-5KWH

Follow these instructions for setting up Storz Power batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by Storz Power for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

[Storz Power documentation](#)

Make a custom cable as shown below or get it from Storz Power. Communications installation and setup instructions are updated for newer battery models on the Storz Power website

Comm Installation and Setup Instructions

Custom RJ45 cable

Create two custom cables:

1. **Custom cable #1**: On one end of the RJ45 cable, cut all cables except for pins 4 (solid blue) and 5 (white-blue).

Custom cable #1: Battery-inverter communication connections

Wire color	Battery (RS485) port	Inverter port
Solid blue	4	2
White-blue	5	1
Solid green	6	6

2. **Custom cable #2**: On one end of the RJ45 cable, cut all cables except for pins 7 (white-brown) and 8 (solid brown).

Custom cable #2: Battery 1-battery 2 communication connections

Wire color	Battery 1 (RS485) port	Battery 2 (RS485) port
White-brown	7	7
Solid brown	8	8

The sides with custom pinouts will be connected to the Quick Link.

Custom RJ45 cable (Modbus RS485 mode – legacy)

Create a custom cable that connects battery port pins 1 (white-orange) and 2 (solid orange) to inverter port pins 1 or 8 and 2 or 7, respectively.

Battery-inverter communication connections

| Wire color	Battery (RS485) port	Inverter port
White-orange	1	1 or 8
Solid orange	2	2 or 7

Battery IDs and connections

1. Use the DIP switches on the batteries such that the battery connected to the inverter is set as follower 1 (0001), and each unit behind it shall increase the follower ID by one to be assigned. Each DIP switch (1-4) represents a binary digit (bit) in the follower ID with a value of 1 or 0.

2. Decimal counting from 0 to 15 in binary format as a 4-bit nibble (half byte):

3.   0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 dec

4. 0000 0001 0010 0011 0100 0101 0110 0111 1000 1001 1010 1011 1100 1101 1110 1111 binary

   For example: to set the DIP switch to decimal 13 = 1101 binary: [1: ON, 2: ON, 3: OFF, 4: ON]

5. Connect all batteries with the RJ45 cable such that they are all in parallel.

   - For CAN communications, connect battery Custom Cable #2 between the battery set to Master (ID: 00) and Battery 2 (ID: 01).

Inverter programming and connections

1. Connect this cable between the battery to the inverter's

   a. (CAN mode): "Battery CANBus" port using Custom Cable #1, with the battery set to ID:00

   b. (RS485 mode): "Battery CANBus" port (outdoor-rated models) or "RS-485" port (indoor-rated models), with the battery set to ID:01 xxx should we also say this below on 3b ?? xxx

2. Program the inverter with this battery's appropriate charge/discharge settings.

3. Enable "BMS Lithium Batt" and set its value to:

   a. (CAN mode): "00"

   b. (RS485 mode): "01"

4. (Optional) Turn on "BMS_Err_Stop" if you want the system to fault on the loss of battery communications. This may happen more frequently since the Storz Power batteries do not feature ground connections.

BATTERY PORT

INVERTER PORT
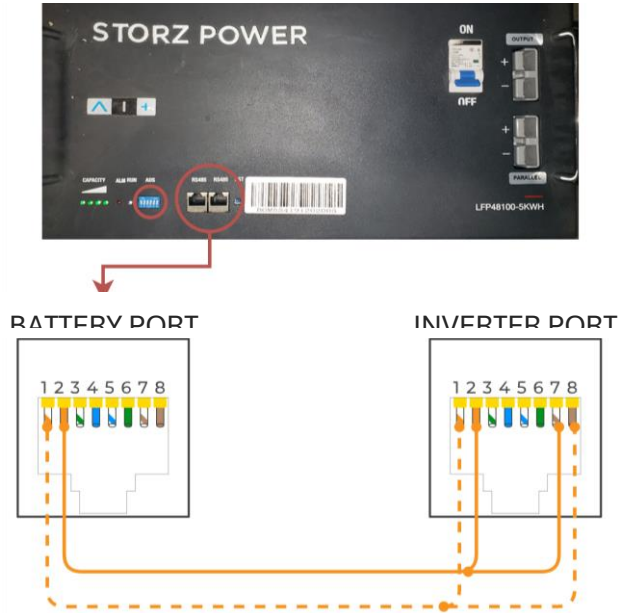
Volthium Energy – 51.2-100-R-H

Follow these instructions for setting up Volthium Energy batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by Volthium Energy for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

<p align="center">Volthium Energy documentation</p>

Communications Installation and Setup Instructions

Custom RJ45 cable

No custom cable is needed.

Battery IDs and connections

1. Connect all batteries together with the provided RJ45 cables using the "Battery-Comm" ports. Either port can be used for each battery. Up to 15 batteries can be connected in parallel.

2. Set the DIP switches such that the battery communicating with the inverter is set as ID 1, and each unit behind it increases the follower ID by 1.

   Note: Skip ID 2 (0010).

   • Each DIP switch (1-4) represents a bit in the follower ID value, from right to left. For example: 13 (decimal) =1101 binary = [1: UP, 2: UP, 3: DOWN, 4: UP].

   • Decimal counting from 0 to 15 in binary format as a 4-bit nibble (half byte):

   0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 dec

   0000 0001 0010 0011 0100 0101 0110 0111 1000 1001 1010 1011 1100 1101 1110 1111 binary

Inverter programming and connections

1. Connect a standard CAT5/6 cable between the "CAN" port on the Master battery and the "Battery CANBus" port (outdoor-rated models) or the "CAN" port (indoor-rated models) on the Sol-Ark.

2. Turn on the power buttons of the batteries.

3. Turn on the breakers of the batteries and inverter.

4. Use a thin tool to press in the "RST" button in any of the batteries to turn all of them on. You can now turn on the inverter if it is not on already.

5. Program the inverter with the appropriate charge/discharge settings according to the specific battery manual and cable arrangement.

6. Enable "BMS Lithium Batt" and set its value to "00".

7. Optional) Turn on "BMS_Err_Stop" if you want the system to fault on loss of battery communications.
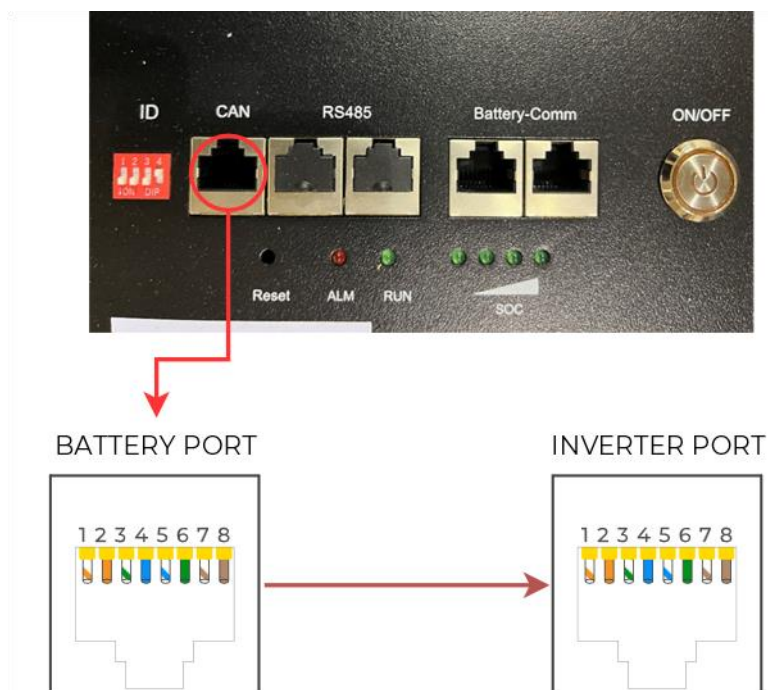
Proven Storage Partners

These battery manufacturers have been proven to work with Sol-Ark inverters, but they have not yet been certified by Sol-Ark.

Manufacturer	Compatible Battery Model	BMS Lith Batt	Custom cable required?
Liniotech	LTN051280A-B-GBP2	00	No
Powersync	LFP3250-LV512100	00	Yes

Liniotech – LTN051280A-B-GBP2

Follow these instructions for setting up Liniotech batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by Liniotech for specifications and settings to ensure optimal performance and safety.

[Liniotech website](#)

Communications Installation and Setup Instructions

Custom RJ45 cable

No custom cable is needed.

Battery IDs and connections

1. Connect all batteries using the included RJ45 cables.

   Use ports RS485A and RS485B, as shown here, to bridge the batteries together.

2. Set the DIP switch according to the battery manual. The master battery must be set as shown below, with #**5** switched to **ON**.
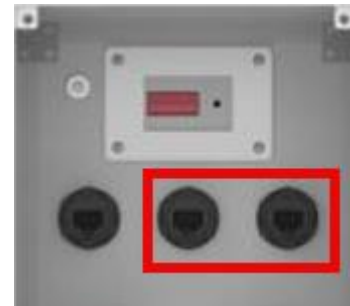
Inverter programming and connections

1. Use the RJ45 cable to connect the **CAN IN** of the battery to the **CAN** communication port of the inverter, as shown at right.

2. Program the inverter with this battery's appropriate charge/discharge settings.

3. Enable **BMS Lithium Batt** and set its value to **00**.

4. (Optional) Turn on **BMS_Err_Stop** if you want the system to fault on battery communications loss.

POWERSYNC – LFP3250-LV480100SP

Follow these instructions for setting up PowerSync batteries and Sol-Ark inverters.

Be sure to consult the comprehensive technical documentation provided by PowerSync for specifications and settings to ensure optimal performance and safety. Visit the manufacturer's website and consult the relevant documentation below.

[PowerSync documentation](#)

Communications Installation and Setup Instructions

Custom RJ45 cable

No custom cable is needed.

Battery IDs and connections

1. Set the DIP switches on the battery per the manual and your battery configuration.

2. Connect all batteries with the included short RJ45 cables, connecting each battery via their RS485 ports.

Inverter programming and connections

1. CAN mode cable: Using a standard RJ45 connector-based CAT5/CAT6 Ethernet cable (all leads straight through), connect the master battery's "CAN" port to the inverter's "Battery CANBus" port (outdoor-rated only) or the "CAN" port (indoor-rated models).

2. Turn on the batteries using the breaker labeled "Master Switch."

3. Program the inverter with this battery's appropriate charge/discharge settings.

4. Enable "BMS Lithium Batt" and set its value to "00."

5. (Optional) Turn on "BMS_Err_Stop" if you if you want the system to fault on battery communications loss.

BATTERY PORT   INVERTER PORT

1 2 3 4 5 6 7 8   1 2 3 4 5 6 7 8