AERL LiFe² 5120S

Inverter Integration Over CAN Bus



LiFe²–5120S · Managed mode

Managed Battery Integration Guide

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Contents

	Foreword	3
01	**Managed Operation** What Managed mode does, Managed or Self-Managed	3
02	**Common Set-Up** Battery communication chain, COMM port pinout	5
03	**Victron Energy** Supported equipment, minimum battery modules, cable and pinout	8
04	**Deye** Supported equipment, cable and pinout, inverter settings	12
05	**Selectronic SP PRO** Supported equipment, cable and pinout, SP PRO set-up	14
06	**Solis** Supported equipment, cable and pinout, inverter settings	17
07	**Warranty and Support** Register the warranty, safety, support, change log	19
	Thank You for Choosing AERL	19

Document

Revision **1.0.0**	Effective **11 / 2026**	Audience **Qualified installers and integrators**	Battery **AERL LiFe² 5120S**
Inverters **Deye · Victron Energy · Selectronic · Solis**	Self-Managed (no comms) **LiFe² 5120S PCE Integration Guide**	Format **A4 · 20 pages**	

Foreword

This guide covers the communication link between the LiFe² 5120S and a supported inverter in Managed mode: cabling, battery and inverter settings, and how to confirm that the link works. All other inverter configuration and the system design are the integrator's responsibility.

Before you start, read the LiFe² 5120S Installation and Operation Manual and the inverter manufacturer's installation manual. For inverters without a communication link to the battery, and for the minimum number of battery modules for inverters not listed here, use the LiFe² 5120S PCE Integration Guide.

To size a complete LiFe² system (modules, cabinets and charge sources), see the AERL LiFe² 5120S System Sizing Guide, at aerl.com.au.

Settings can change with inverter firmware. They are correct at the date of publication. Use the latest firmware the inverter manufacturer offers.

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Managed Operation

01

What Managed mode does, Managed or Self-Managed

1.1 What Managed Mode Does

In Managed mode, the master battery's Battery Management System (BMS) talks to the inverter over CAN bus. The BMS sends its state of charge (SOC), its charge voltage limit, its charge and discharge current limits, and its alarms. The inverter charges and discharges within those limits and shows the battery's own SOC, so you do not program charge voltages or current limits by hand.

1.2 Managed or Self-Managed

	Managed (comms)	Self-Managed (no comms)
Link to the inverter	CAN bus from the master battery's COMM port	None
Charge settings	Sent by the battery	Programmed in the inverter by hand
SOC shown by the inverter	The battery's SOC	Calculated by the inverter
Status LED (master battery)	On steadily	Flashes slowly
Guide	This guide	LiFe² 5120S PCE Integration Guide

The LiFe² 5120S starts in Managed mode by default. If a battery has been switched to Self-Managed mode, it returns to Managed mode automatically when the communication cable between the inverter and the master battery is connected. To switch a battery to Self-Managed mode, double-press the **ON/OFF** button on the master battery with the battery on: the SOC LEDs flash 3 times to confirm, and the battery remembers the mode after a restart.

1.3 Supported Inverters

The LiFe² 5120S uses CAN bus for every inverter in this guide. The battery's CAN pair is on pins 4 and 5 of its COMM port; each inverter brand has its own pins, so check the cable for your inverter.

Inverter	Connects to	CAN_H / CAN_L at the inverter	Cable
Victron Energy (through a GX device)	GX device BMS-Can port	7 / 8	Victron VE.Can to CAN-bus BMS Type A cable
Deye	Inverter BMS port	4 / 5	Straight-through
Selectronic SP PRO	SP PRO comms card CAN socket	1 / 2	Selectronic BMS to SP PRO CAN bus cable
Solis	Inverter BMS port	4 / 5	Straight-through

Common Set-Up

Battery communication chain, COMM port pinout

02

2.1 Battery Communication Chain

The battery that connects to the inverter is the master battery. The LiFe² 5120S has no address or DIP switches to set: the battery whose **COMM** port is connected to the inverter manages the whole bank.

1. Connect **OUT** on the master battery to **IN** on the next battery with the supplied comms cable. Continue **OUT** to **IN** down the chain.
2. Across cabinets, run the chain from the **OUT** port of the bottom battery in the first cabinet to the **IN** port of the bottom battery in the second, then top to top between the second and third cabinets, and so on (LiFe² 5120S Installation and Operation Manual, §5.12).
3. Insert the termination plug into the **OUT** port of the last battery in the chain.
4. Connect the inverter comms cable to the **COMM** port of the master battery. Connect nothing else to **COMM** on the other batteries.

Up to 64 LiFe² 5120S modules can run in parallel on one chain.

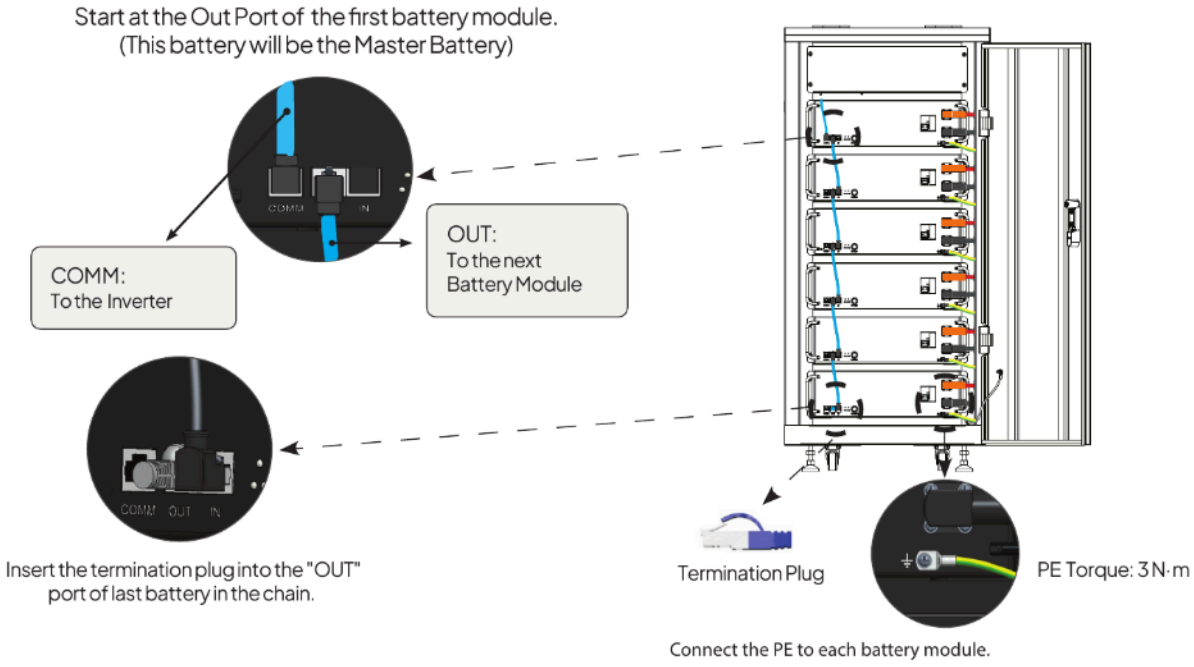


Figure 2.1 Communications chain: the inverter to COMM on the master battery, OUT to IN down the cabinet, and the termination plug in the OUT port of the last battery.

2.2 COMM Port Pinout

Pin	Signal
1	NC
2	NC
3	NC
4	CAN_H
5	CAN_L
6	NC
7	RS485B
8	RS485A

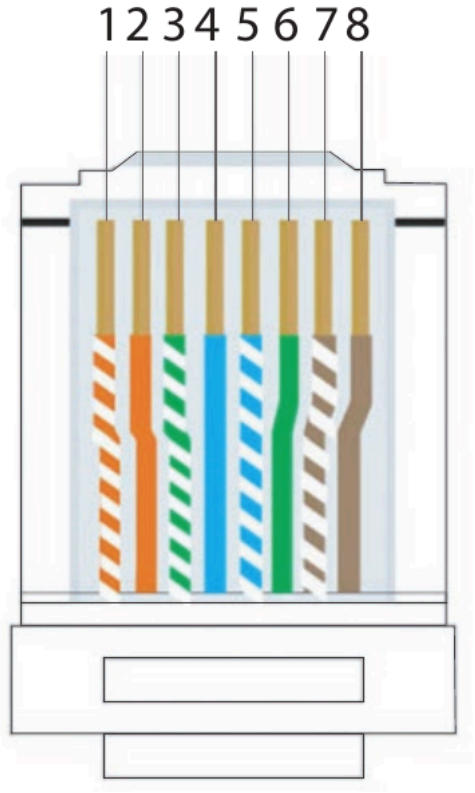


Figure 2.2 RJ45 pin numbering.

2.3 Inverter Comms Cable

- Use shielded Cat 5 cable or better, no longer than 5 m.
- Keep CAN_H and CAN_L on one twisted pair.
- Use the pin mapping for your inverter (Chapters 03–06). The battery's CAN pins are 4 and 5; inverters that use other pins need a cable that re-maps them.
- If you make up a cable yourself, check every pin for continuity before you fit it.
- Run comms cables away from DC and AC power cables.

2.4 CAN Termination

The link between the master battery and the inverter needs 120 Ω at each end:

- **Battery end:** terminated inside the master battery's **COMM** port. Fit nothing.
- **Inverter end:** terminate as the inverter's chapter in this guide describes.

The termination plug in the last battery's **OUT** port terminates the battery-to-battery chain, which is a separate bus.

For AERL Cloud monitoring, fit an AERL Nexus Gateway inline between the master battery and the inverter, with no termination plug in the Nexus (LiFe² AERL Cloud Integration Guide).

2.5 Start-Up Order

Follow the start-up sequence in the LiFe² 5120S Installation and Operation Manual (§6.3), with the comms cable already connected:

1. Turn on the DC breakers between the battery cabinet(s) and the inverter.
2. Turn on the battery module breakers.
3. Press the **ON/OFF** button on the master battery for 1 second.
4. Turn on the PV and AC isolators (if any) and start the inverter.
5. Set up the inverter as its chapter in this guide describes.

2.6 Confirm Managed Operation

The link is working when:

- the **Status** LED on the master battery is on steadily (it flashes slowly in Self-Managed mode);
- the inverter shows the battery's SOC, and it matches the battery's SOC LEDs;
- the inverter shows the battery's charge and discharge limits (where it displays them);
- the system charges and discharges normally.

Charge the system to 100% SOC when you first start it, and at least every 30 days in Managed operation, to keep the SOC accurate.

2.7 Troubleshooting the Battery Side

Symptom	Check
No communication with the inverter	The comms cable is in **COMM** on the master battery, not **IN** or **OUT**. Only the master battery connects to the inverter. The cable is undamaged, fully seated and uses the pin mapping for your inverter.
Some batteries missing or not working	Each **OUT** connects to the next battery's **IN**. The termination plug is in **OUT** of the last battery. Try another link cable.
Status LED flashes slowly	The battery is in Self-Managed mode. Check the comms cable to the inverter; the battery returns to Managed mode when it is connected.
Error LED on	Note the battery state and contact AERL support.
Still not working	Restart in order: shut down the inverter; turn off the DC breaker between battery and inverter; hold **ON/OFF** on the master battery for 3 seconds; wait until all LEDs are off, then 3 minutes more; turn the DC breaker on; press **ON/OFF** for 1 second; start the inverter.

Victron Energy

Supported equipment, minimum battery modules, cable and pinout

03

3.1 Supported Equipment

- **GX device:** required (for example the Cerbo GX). The battery connects to the GX device, not to the inverter/charger.
- **Inverter/chargers:** all 48 V Multis, MultiPlus, Quattros and RS models. VE.Bus models need firmware 469 or later and connect to the GX device's VE.Bus port. Inverter RS and Multi RS models need firmware 1.16 or later and connect to a VE.Can port on a separate VE.Can (250 kbit/s) bus.
- **Solar chargers:** all 48 V BlueSolar and SmartSolar MPPT chargers. Connect each to the GX device (VE.Direct or VE.Can): the connection is mandatory, because it regulates charge current and voltage.
- The Color Control GX has only one CAN port, so it cannot serve both the battery and VE.Can solar chargers. Use a GX device with two CAN ports.

Install the latest firmware on the GX device and the Victron products.

3.2 Minimum Battery Modules

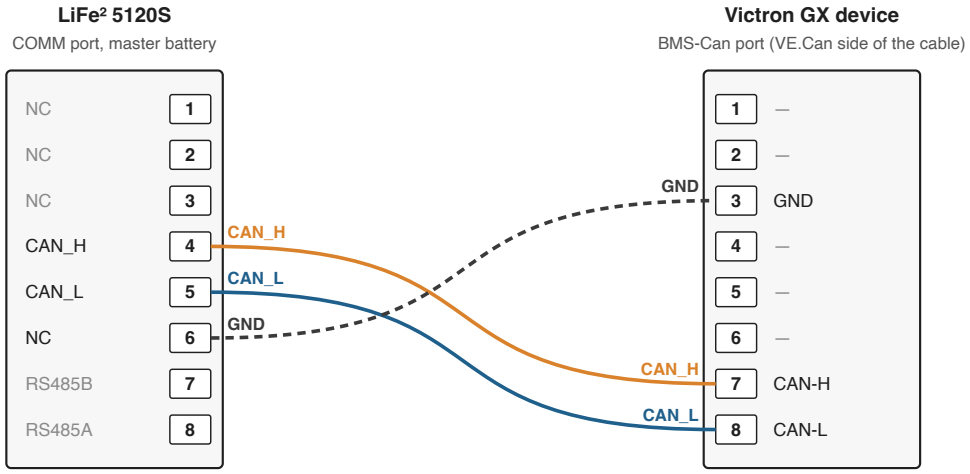
The minimum number of LiFe² 5120S modules for each Victron inverter/charger, per inverter, single phase or three phase, on-grid or off-grid:

Inverter/charger	Single phase, on-grid	Single phase, off-grid	Three phase, on-grid	Three phase, off-grid
MultiPlus 48/500/6	1	1	1	1
MultiPlus 48/800/9	1	1	1	1
MultiPlus 48/1200/13	1	1	1	1
MultiPlus 48/1600/20	1	1	1	2
MultiPlus 48/2000/25	1	1	1	2
MultiPlus 48/2000/25-50 120V	1	1	1	2
MultiPlus 48/3000/35	1	1	2	3
MultiPlus 48/5000/70	1	2	2	4
MultiPlus-II (GX) 48/3000/35-32	1	1	1	3
MultiPlus-II (GX) 48/5000/70-50	1	2	2	4
MultiPlus-II 120V 48/3000/35-50	1	2	1	3
MultiPlus-II 120V 48/5000/70-95	1	2	2	4
MultiPlus-II 48/3000/35-32	1	1	1	3

Inverter/charger	Single phase, on-grid	Single phase, off-grid	Three phase, on-grid	Three phase, off-grid
MultiPlus-II 48/5000/70-50	1	2	2	4
MultiPlus-II 48/8000/110-100	1	3	3	7
MultiPlus-II 48/10000/140-100	2	3	3	8
MultiPlus-II 48/15000/200-100	2	4	4	12
Quattro 48/3000/35-50/50 120V	1	1	2	3
Quattro 48/5000/70-100/100 120V	1	2	2	4
Quattro 48/10000/140-100/100 120V	2	3	3	8
Quattro 48/5000/70-100/100	1	2	2	4
Quattro 48/8000/110-100/100	1	3	2	7
Quattro 48/10000/140-100/100	2	3	4	8
Quattro 48/15000/200-100/100	2	4	4	12
Quattro 48/15000/200-100/100 277V	2	4	4	12
Quattro-II 48/5000/70-50	1	2	2	4
RS Smart Solar 48/6000	1	2	2	4
Multi RS Solar 48/6000	1	2	2	4
Multi RS Solar 48/6000 Dual Tracker	1	2	2	4
EasySolar-II 48/3000/35-32 MPPT 250/70 GX	1	1	2	3
EasySolar-II 48/5000/70-50 MPPT 250/100 GX	1	2	2	4

3.3 Cable and Pinout

Use the Victron **VE.Can to CAN-bus BMS Type A cable** (ASS030710118). Plug the end labelled **CAN-bus BMS** into **COMM** on the master battery and the end labelled **VE.Can** into the GX device's **BMS-Can** port.



VE.Can to CAN-bus BMS Type A cable. Pin 6 at the battery end is not used by the LiFe² 5120S.

Figure 3.1 LiFe² COMM to Victron GX: battery pin 4 (CAN_H) to pin 7, pin 5 (CAN_L) to pin 8. The Type A cable also links battery pin 6 to GX pin 3 (GND).

Terminate the GX device end with a VE.Can terminator (supplied with the GX device). The battery end is terminated inside the master battery. Do not put the battery on the same CAN bus as VE.Can devices.

3.4 GX Device Settings

Setting (Remote Console)	Value
Settings → Connectivity → ***port the battery is on*** **→ CAN-bus profile**	**CAN-bus BMS LV (500 kbit/s)** (a BMS-Can port runs at 500 kbit/s)
Settings → System Setup → Charge Control → DVCC	Leave as the GX device sets it. With a compatible CAN-bus battery connected, the GX device sets DVCC and locks it.
Settings → System Setup → Batteries → Battery monitor	**Automatic**, or select the LiFe² battery, so that the GX device shows the battery's own SOC
ESS (grid-connected systems)	Set in the GX device's ESS settings to suit the site

The battery's charge voltage and current limits replace the charge settings in VEConfigure and VictronConnect: the Multis, Quattros, RS models and solar chargers charge to the limits the battery sends, so charge voltages set there have no effect.

3.5 Confirm It Is Working

1	The battery appears in the GX device's Device List (it shows as **Pylontech**, on the GX and in VRM), with its SOC, voltage and current.
2	The overview shows the battery's SOC, matching the battery's SOC LEDs.
3	On VRM, the battery appears in the installation's device list.
4	The Status LED on the master battery is on steadily.

3.6 Troubleshooting

Symptom	Check
Battery not in the Device List	The cable is a Type A cable, **CAN-bus BMS** end at the battery. It is in the BMS-Can port (or a VE.Can port set to CAN-bus BMS LV (500 kbit/s)), not a VE.Bus port. The terminator is fitted at the GX device.
Wrong protocol or speed	Set the CAN-bus profile to **CAN-bus BMS LV (500 kbit/s)**. A port left at VE.Can (250 kbit/s) cannot read the battery.
"BMS connection lost" alarm, inverter shuts down	The inverter/charger stopped receiving the battery's limits. A low battery voltage alarm may appear at the same time: it is caused by the lost communication, not low voltage. Restore the connection, then restart the inverter/charger (GX device: the VE.Bus device's Advanced menu).
Solar chargers not following the battery	Each solar charger connects to the GX device (VE.Direct or VE.Can). On a VE.Can bus they need their own CAN port, separate from the battery.

Deye

Supported equipment, cable and pinout, inverter settings

04

4.1 Supported Equipment

Deye's approved battery list covers this battery on CAN, with Lithium Mode **00**, for these low-voltage hybrid inverters:

Single phase	Three phase
SUN-(3.6–8)K-SG05LP1-EU and -AU	SUN-(5–12)K-SG04LP3-EU
SUN-(3–6)K-SG03LP1-EU	SUN-(5–12)K-SG04LP3-AU
SUN-(3–6)K-SG04LP1-EU and -AU	
SUN-(7.6–8)K-SG01LP1-EU, SUN-(12–16)K-SG01LP1-EU	
SUN-(5–8)K-SG01LP1-US	

4.2 Cable and Pinout

Connect the inverter's BMS port (labelled **BMS 485/CAN** on single-phase models, **BMS** on three-phase models) to **COMM** on the master battery. Both ends carry CAN on pins 4 and 5, so a straight-through shielded Cat 5 cable works. Use CAN only: the RS485 pins on the two ports do not match.

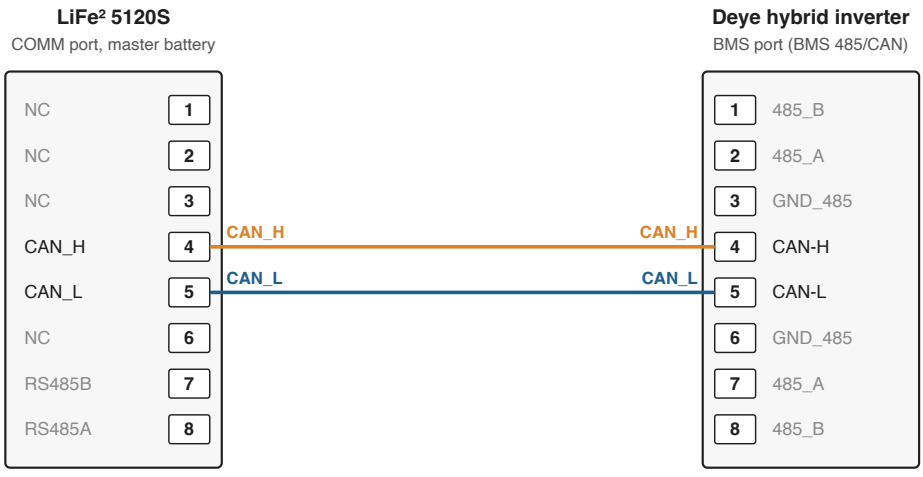


Figure 4.1 LiFe² COMM to the Deye BMS port: pin 4 (CAN_H) to pin 4, pin 5 (CAN_L) to pin 5.

4.3 Inverter Settings

On the inverter display, open **System Setup → Battery Setting**.

Page	Setting	Value
Batt Mode	Batt Mode	**Lithium**
Batt Mode	Batt Capacity	Total Ah of the LiFe² 5120S modules installed (100 Ah per module)
Batt Mode	Max A Charge, Max A Discharge	To suit the system. The inverter also stays within the limits the battery sends.
Batt Set3	Lithium Mode	**00**
Batt Set3	Shutdown	**20%** (default; adjust to suit the site)
Batt Set3	Low Batt, Restart	Above the Shutdown level, to suit the site

Under **System Setup → Advanced Function**, **BMS_Err_Stop** sets what happens if communication with the battery is lost: when it is active, the inverter stops and reports a fault.

4.4 Confirm It Is Working

1. The main screen shows no **comm./FXX** indication on the battery.
2. The **Li-BMS** page (from the battery detail page) shows the battery's Total SOC, charging voltage and the charging and discharging currents the battery allows.
3. The SOC on the inverter matches the battery's SOC LEDs.

4.5 Troubleshooting

Symptom	Check
comm./FXX on the main screen; Li-BMS page empty	The cable is in the inverter's BMS port and in **COMM** on the master battery. Lithium Mode is **00**. Batt Mode is **Lithium**.
Fault F58 (BMS communication fault)	Communication with the battery was lost while **BMS_Err_Stop** is active. Check the cable, then restart the system in order.
Wrong protocol	Lithium Mode must be **00** for this battery. Other numbers are other batteries' protocols.
Communication drops when the cable is moved	Replace the cable; check pins 4 and 5 for continuity end to end.

Selectronic SP PRO

Supported equipment, cable and pinout, SP PRO set-up

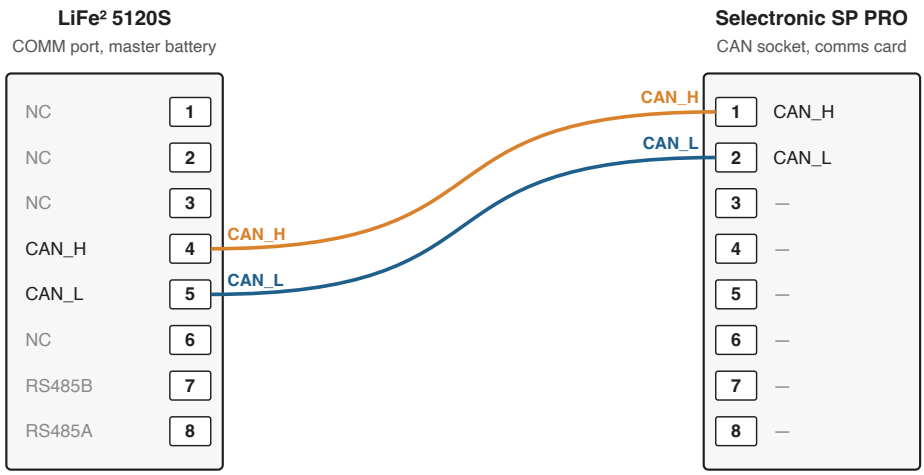
05

5.1 Supported Equipment

- **SP PRO Series 2i**, 48 V models SPMC480, SPMC481 and SPMC482: ready for managed batteries.
- **SP PRO Series II**, 48 V: needs Selectronic's Managed Battery Upgrade Kit (order code 005295).
- SP PRO Series I is not supported.
- SP PRO firmware 16.11 or later, comms card firmware 5.31 or later and SP LINK 16.11 or later. SP LINK 16.11 includes both firmware versions.
- **Multi-phase systems:** connect the CAN bus to the L1 SP PRO only. The other inverters receive battery data from L1.

5.2 Cable and Pinout

The SP PRO carries CAN on pins 1 and 2 of its comms card CAN socket; the battery uses pins 4 and 5. Use Selectronic's **BMS to SP PRO CAN bus** cable, which re-maps the pins and works either way round. A standard straight-through patch lead does not work.



BMS to SP PRO CAN bus cable: battery pins 4 / 5 to SP PRO pins 1 / 2. A straight-through lead does not work.

Figure 5.1 LiFe² COMM to the SP PRO CAN socket: battery pin 4 (CAN_H) to SP PRO pin 1, battery pin 5 (CAN_L) to SP PRO pin 2.

The SP PRO is one end of the CAN bus: set the CAN termination DIP switch on its comms card to **ON**. The master battery terminates the other end internally.

5.3 SP PRO Set-Up

1. Leave the SP PRO battery temperature sensor connected and coiled up inside the SP PRO. With a managed battery, the SP PRO reads the battery temperature from the BMS.
2. Connect the CAN cable from the SP PRO comms card CAN socket (L1 SP PRO in a multi-phase system) to **COMM** on the master battery.
3. Start the battery, then the SP PRO, and wait until the SP PRO front panel LEDs are stable.
4. In SP LINK, run the **Site Configuration Wizard**. Select the battery **AERL LiFe2-5120S**. SP LINK then applies the battery settings; there are no charge settings to enter by hand.
5. Save the site (**File → Site Information → Save**), connect to the SP PRO and click **Configure SP PRO** on the Configuration Settings tab.
6. Turn the battery DC supply to the SP PRO off, wait 20 seconds, and turn it back on.

5.4 Confirm It Is Working

1. On the SP PRO comms card, the right LED is on steadily and the left LED flashes about once a second. The left LED can take up to 60 seconds to start flashing after power-on.
2. The CAN bus Comms LED flashes. If it stays on, there is a CAN communication problem.
3. In SP LINK, **Data View → Battery Management** shows valid values read from the battery: SOC, charge voltage limit, charge current limit and discharge current limit.
4. **Data View → Technical Data → Battery Temperature** shows the temperature reported by the battery.

5.5 Troubleshooting

Symptom	Check
SP PRO beeping; CAN bus Comms LED on steadily	No CAN communication. Check the cable is the BMS to SP PRO CAN bus cable (pins 1 / 2 at the SP PRO, 4 / 5 at the battery), not a straight-through lead, and that it is in **COMM** on the master battery.
Battery Management values blank or invalid	The managed battery type is selected and saved to the SP PRO (steps 4–5). The SP PRO firmware is 16.11 or later and the comms card firmware 5.31 or later. Restart the battery DC supply (step 6).
Some Module Status readings greyed out	Normal: they do not apply to this battery type.
Multi-phase system not reading the battery	The CAN cable goes to the L1 SP PRO only.
Intermittent communication	The comms card CAN termination DIP switch is **ON**.

Solis

Supported equipment, cable and pinout, inverter settings

06

6.1 Supported Equipment

This chapter covers the Solis low-voltage (48 V) hybrid and off-grid inverters with a CAN BMS port:

- S6-EH1P(3–8)K-L-PRO, S6-EH1P(3–6)K-L-EU and -AU (set up with the SolisCloud app);
- S6-EO1P(4–5)K-48 (front-panel display);
- S5-EH1P(3–6)K-L (front-panel display).

6.2 Cable and Pinout

The Solis BMS port carries CAN on pins 4 (CAN-H, blue) and 5 (CAN-L, blue/white), as the battery does, so a straight-through shielded Cat 5 cable works. Check the pin sequence of any made-up cable before you connect it.

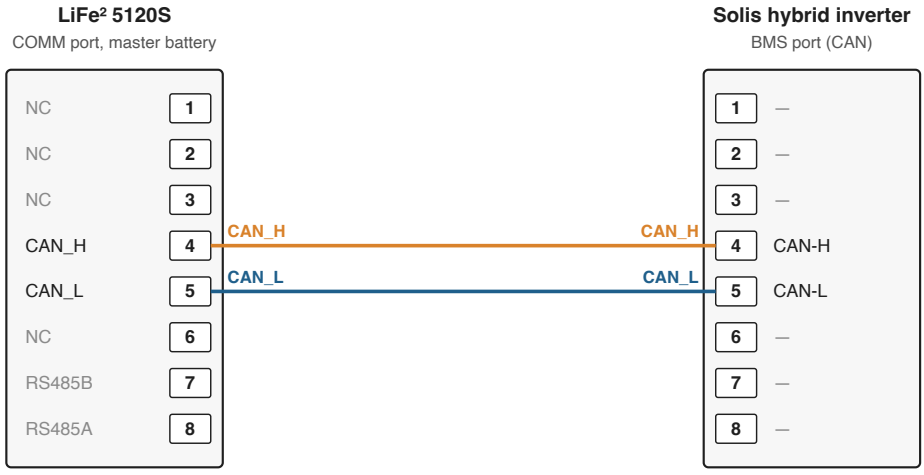


Figure 6.1 LiFe² COMM to the Solis BMS port: pin 4 (CAN_H) to pin 4, pin 5 (CAN_L) to pin 5.

6.3 Inverter Settings

S6-EH1P-L models (SolisCloud app): open **More Tools → Local Operation → Connect with Bluetooth**, log in as **Installer**, then go to **Setting → Battery Setting**.

Setting	Value
Battery Type	**Lithium Battery**
Battery Model	**Lithium Battery LV** (at the bottom of the list). Do not select **Lithium Battery LV(RS485)**.
Over-discharge SOC	**20%** (default; adjust to suit the site)
Force-charge SOC	**10%** (Solis default; keep it below the Over-discharge SOC)

S6-EO1P(4–5)K-48: Advanced Settings (password 0010) → **3. Battery Settings** → **Battery Select**: **Lithium battery** (the communicating option; the "without comm" options are for Self-Managed batteries). Set **Overdischar SOC** to **20%** and **Force SOC Set** to **10%** (defaults; adjust to suit the site).

S5-EH1P-L: Advanced Settings (password 0010) → **Storage Energy Set** → **Battery Select**: **Lithium Battery LV**. Set **OverDischg SOC** to **20%** and **ForceCharge SOC** to **10%** (defaults; adjust to suit the site).

6.4 Confirm It Is Working

After setup, check that the inverter's battery status shows the battery communicating:

1. S5 and S6-EO1P models: the display shows **CAN OK** (not **CAN Fail**).
2. S6-EH1P-L models: in the SolisCloud app, **Other Parameters (From BMS)** shows **BMS Status: Normal**, with the BMS charge and discharge current limits.
3. The inverter shows the battery's SOC, matching the battery's SOC LEDs.

6.5 Troubleshooting

Alarm	Check
CAN Fail	CAN communication with the battery is lost. Check the cable (pins 4 and 5 at both ends) and that it is in **COMM** on the master battery. Check that the Battery Model is **Lithium Battery LV**, not the RS485 variant.
BatName-FAIL	Wrong battery selection. Check **Battery Setting → Battery Model** (or **Battery Select**).
NO-Battery	The battery is not connected, or it is off. Check the DC breakers and that the battery is on.

Warranty and Support

Register the warranty, safety, support, change log

07

7.1 Register the Warranty

The LiFe² 5120S warranty is 5 years. Register the battery within 60 days of installation to extend it to 10 years: register at **aerl.com.au/warranty-registration**. Conditions apply: see the LiFe² Warranty Statement, at aerl.com.au.

7.2 Safety

- Installation, commissioning and maintenance must be carried out by a suitably qualified person, following the LiFe² 5120S Installation and Operation Manual and local regulations.
- Isolate the battery and the inverter before you connect or disconnect any cable. Do not unplug a cable while the battery is operating.
- Install a 2-pole DC breaker or MCCB between the battery and the inverter, on both conductors (AS/NZS 5139).

7.3 Support

Before you contact AERL, note the inverter model and firmware, the number of LiFe² 5120S modules, and what the inverter and the battery LEDs show. Contact AERL support on 1800 950 865 or support@aerl.com.au.

7.4 Change Log

Revision	Date	Change
1.0.0	11 / 2026	First issue.

Thank You for Choosing AERL

If you have any questions or need support, contact AERL.

Sincerely,

The AERL Team

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