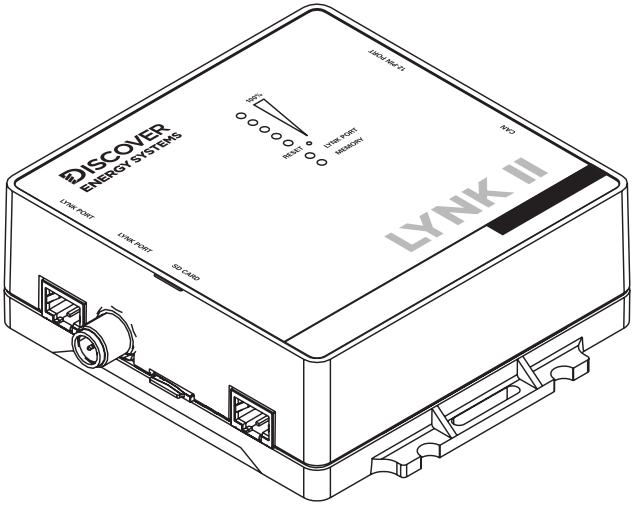
DISCOVER
ENERGY SYSTEMS



LYNK II

(950-0025)

805-0040 LYNK II VICTRON (SOLAR) MANUAL

Introduction

This Application Note provides information about integrating LYNK and AEbus network-enabled Discover Lithium Batteries using the LYNK II Communication Gateway with Victron inverter-chargers.

1.0 AUDIENCE, SAFETY, MESSAGES, AND WARNINGS

1.1 Audience

Configuration, installation, service, and operating tasks should only be performed by qualified personnel in consultation with local authorities having jurisdiction and authorized dealers. Qualified personnel should have training, knowledge, and experience in:

- Installing electrical equipment
- Applying applicable installation codes
- Analyzing and reducing hazards involved in performing electrical work
- Installing and configuring batteries
- Installing and configuring systems activated by relays

1.2 Warning, Caution, Notice, and Note Messages

Messages in this manual are formatted according to this structure.

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

Important information regarding hazardous conditions.

⚠ WARNING

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

⚠ CAUTION

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

NOTICE

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

NOTE

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

1.3 General Warnings

⚠ WARNING

ELECTRIC SHOCK AND FIRE HAZARD

- This equipment must only be installed as specified.
- Do not disassemble or modify the battery.
- If the battery case has been damaged, do not touch exposed contents.
- There are no user-serviceable parts inside.

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

⚠ WARNING

ELECTRIC SHOCK AND FIRE HAZARD

Do not lay tools or other metal parts on top of the battery or across the terminals.

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

⚠ CAUTION

ELECTRIC SHOCK HAZARD

- 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 Procedures" below when working with the battery.

Failure to follow these instructions may result in injury.

1.4 Safe Handling Procedures

Before using the battery and any power electronics, read all instructions and cautionary markings on all components and appropriate sections of their manuals.

- Use personal protective equipment when working with batteries.
- Do not dispose of the battery in a fire.
- Promptly dispose of or recycle used batteries following local regulations.
- Do not disassemble, open, crush, bend, deform, puncture or shred.
- Do not modify, re-manufacture, or attempt to insert foreign objects into the battery, immerse or expose the battery to water or other liquids, fire, explosion, or other hazards.
- Only use the battery for the system for which it is specified.
- Do not lift or carry the battery while in operation.
- When lifting a heavy battery, follow the appropriate standards.
- Only lift, move, or mount following local regulations.
- Take care when handling battery terminals and cabling.

- Only use the battery with a charging system that meets specifications. Using a battery or charger that does not meet specifications may present a risk of fire, explosion, leakage, or other hazards.
- Do not short-circuit a battery or allow metallic conductive objects to contact battery terminals.
- Replace the battery only with another battery that has been qualified for the system. Using an unqualified battery may present a risk of fire, explosion, leakage, or other hazards.
- Do not drop the device or battery. If the device or battery is dropped, especially on a hard surface, and the user suspects damage, take it to a service center for inspection.

1.5 Personal Protective Equipment

When handling or working near a battery:

- Use Personal Protective Equipment, including clothing, glasses, insulated gloves, and boots.
- Do not wear rings, watches, bracelets, or necklaces.

2.0 Documentation

This Application Note provides information about integrating LYNK and AEbus network-enabled Discover Lithium Batteries using the LYNK II Communication Gateway with Victron inverter-chargers.

Before installation and configuration, consult the relevant product documentation, including Manuals, Application Notes, and Installation and Configuration Guides.

Victron Energy Documentation

Visit https://www.victronenergy.com/ for the most recent version of published documents.

Discover Energy Systems Documentation

Visit https://discoverlithium.com for the most recent version of published documents, including Discover Lithium battery user manuals and the LYNK II Installation and Operation Manual (805-0033).

3.0 Overview

This manual provides general settings and is not a comprehensive guide to the programming and configuration of a specific installation. An installation may have unique conditions or use cases that require modification or adaptations of values. Installers must be capable of reviewing and adapting to the specifics of an installation and its specific use case and optimizing settings where needed.

The key steps required to install and configure the LYNK II Communication Gateway with compatible Discover Lithium batteries and power conversion equipment are as follows:

- Review and confirm equipment compatibility and correct sizing.
- Configure the LYNK II CAN out pins to match the CAN in pins of the power conversion equipment.
- Mount the LYNK II, connect the Discover battery communication network to either the LYNK Port or AEbus Port and then connect the CAN Out Port to the power conversion equipment's communication network.
- Terminate all networks correctly.
- Set the LYNK II using LYNK ACCESS software to the correct protocol to enable closed-loop communication between the Discover batteries and the power conversion equipment.
- Set up the closed-loop configuration parameters on the power conversion equipment.
- Set up user preferences and enable the use case using the power conversion control system.

3.1 System Overview

The LYNK II Communication Gateway unlocks the full potential of a Discover Lithium battery by enabling the internal Battery Management System (BMS) to provide real-time data in a closed-loop configuration to other devices. This configuration allows hybrid inverter-chargers and solar charge controller systems to optimize control over the charging process in solar applications. LYNK II also enables the remote monitoring of Discover Lithium battery SOC and data logging of multiple sites using the data monitoring services offered by off-grid inverter systems.

Discover Lithium batteries must be set up to work with power conversion and monitoring devices in either an open-loop or closed-loop configuration.

In an open-loop configuration, charge and discharge settings are set up manually through the controller for the power conversion device at the time of installation.

In a closed-loop configuration, the BMS of the Discover Lithium battery sends the battery status over a network data connection with the power conversion device. Power conversion devices use the Discover Lithium battery BMS data to fine-tune the output of their charger and deliver other functional controls based on battery voltage, temperature, and percent State-of-Charge.

If communication is interrupted between the BMS and Victron inverter-charger, the Victron inverter-charger stops charging until communication is re-established.

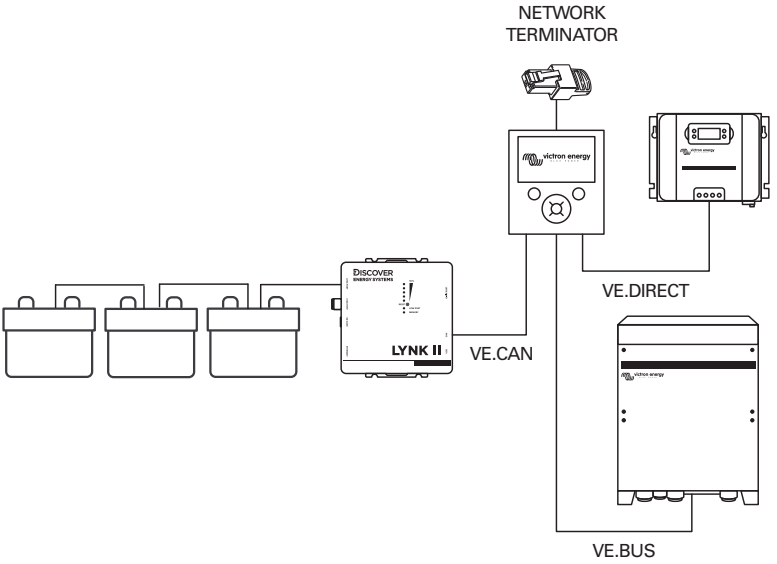


Figure 1. Example LYNK II with Victron Energy devices

3.2 Compatibility

LYNK II Communication Gateway is compatible with the following:

Discover Lithium Batteries

- AES RACKMOUNT: 48-48-5120, 48-48-5120-H

Victron Products

Control Panels:

- Cerbo GX
- Color Control GX
- Ekrano GX
- Venus GX

Used in conjunction with:

- Quattro/Quattro II Inverter-Charger
- Multiplus/Multiplus II Inverter-Charger
- SmartSolar MPPT

3.3 Minimum Battery System Capacity

Battery charge and discharge rates are managed automatically by the Discover Lithium Battery and Victron Energy device. Using large solar arrays with battery banks that are too small can exceed the operating limits of the battery to charge and possibly lead to the BMS triggering over-current protection. Either curtail the charging below the operational limit of installed batteries, or the battery capacity must accept the maximum charge current of the system. Derive this value by adding the charge capacities of all inverter-chargers and solar charge controllers in the system. Additionally, battery peak capacity must support the surge requirements demanded by the load attached to the inverter. Match all inverter peak power values with the sum of all battery peak battery current values.

Inverter Peak Amps DC = (Inverter Surge W) / (Inverter Efficiency) / (48V: Low Battery Cut-Off)

Discharge Continuous Amps DC = (Inverter Continuous W) / (Inverter Efficiency) / (48V: Low Battery Cut-Off)

120 V Models	Inverter Peak Amps DC	Discharge Continuous Max Amps DC	Charger Continuous Max Amps DC	AES RACKMOUNT 48-48-5120 / 48-48-5120-H Minimum per inverter
Quattro 48/3000/35 (1)	133	54	35	1
Quattro 48/5000/70 (2)	220	88	70	1 (3)
Quattro 48/10000/140 (4)	434	174	140	2 (3)
MultiPlus-II 48/3000/35 (5)	121	53	35	1
MultiPlus-II 48/5000/70 (6)	195	87	70	1

(1) Calculated based on max 6000W at 120 VAC peak output, 2400W at 120VAC continuous output, efficiency 94.0 %, and 35A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(2) Calculated based on max 10000W at 120 VAC peak output, 4000W at 120VAC continuous output, efficiency 95.0 %, and 70A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(3) Depending on the application, another battery may be required as the battery peak and inverter peak values are on the edge.

(4) Calculated based on max 20000W at 120 VAC peak output, 8000W at 120VAC continuous output, efficiency 96.0 %, and 70A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(5) Calculated based on max 5500W at 120 VAC peak output, 2400W at 120VAC continuous output, efficiency 95.0 %, and 35A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(6) Calculated based on max 9000W at 120 VAC peak output, 4000W at 120VAC continuous output, efficiency 96.0 %, and 70A DC max charging, as published in Victron Data Sheet as of 24-05-01.

Inverter Peak Amps DC = (Inverter Surge W) / (Inverter Efficiency) / (48V: Low Battery Cut-Off)

Discharge Continuous Amps DC = (Inverter Continuous W) / (Inverter Efficiency) / (48V: Low Battery Cut-Off)

230 V Models	Inverter Peak Amps DC	Discharge Continuous Max Amps DC	Charger Continuous Max Amps DC	AES RACKMOUNT 48-48-5120 / 48-48-5120-H Minimum per inverter
Quattro 48/5000/70 (1)	220	88	70	1 (2)
Quattro 48/8000/110 (3)	347	139	110	2
Quattro 48/10000/140 (4)	434	174	140	2 (2)
Quattro 48/15000/200 (5)	542	260	200	3
Quattro-II 48/5000/70 (6)	195	87	70	1
MultiPlus 48/2000/25 (7)	77	35	25	1
MultiPlus 48/3000/35 (8)	132	53	35	1
MultiPlus 48/5000/70 (9)	219	88	70	1 (2)
MultiPlus-II (GX) 48/3000/35 (10)	121	53	35	1
MultiPlus-II (GX) 48/5000/70 (11)	195	87	70	1
MultiPlus-II 48/8000/110 (12)	329	140	110	2
MultiPlus-II 48/10000/140 (13)	391	174	140	2
MultiPlus-II 48/15000/200 (14)	592	263	200	3
Multi RS Solar 48/6000 Dual Tracker (15)	199	117	100	2
EasySolar-II 48/3000/35 MPPT 250/70 GX (16)	121	53	35	1
EasySolar-II 48/5000/70 MPPT 250/100 GX (17)	195	87	70	1

(1) Calculated based on max 10000W at 230 VAC peak output, 4000W at 230VAC continuous output, efficiency 95.0 %, and 70A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(2) Depending on the application, another battery may be required as the battery peak and inverter peak values are on the edge.

(3) Calculated based on max 16000W at 230 VAC peak output, 6400W at 230VAC continuous output, efficiency 96.0 %, and 110A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(4) Calculated based on max 20000W at 230 VAC peak output, 8000W at 230VAC continuous output, efficiency 96.0 %, and 140A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(5) Calculated based on max 25000W at 230 VAC peak output, 12000W at 230VAC continuous output, efficiency 96.0 %, and 200A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(6) Calculated based on max 9000W at 230 VAC peak output, 4000W at 230VAC continuous output, efficiency 96.0 %, and 70A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(7) Calculated based on max 3500W at 230 VAC peak output, 1600W at 230VAC continuous output, efficiency 95.0 %, and 25A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(8) Calculated based on max 6000W at 230 VAC peak output, 2400W at 230VAC continuous output, efficiency 95.0 %, and 25A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(9) Calculated based on max 10000W at 230 VAC peak output, 4000W at 230VAC continuous output,

efficiency 95.0 %, and 25A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(10) Calculated based on max 5500W at 230 VAC peak output, 2400W at 230VAC continuous output, efficiency 95.0 %, and 35A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(11) Calculated based on max 9000W at 230 VAC peak output, 4000W at 230VAC continuous output, efficiency 96.0 %, and 70A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(12) Calculated based on max 15000W at 230 VAC peak output, 6400W at 230VAC continuous output, efficiency 95.0 %, and 110A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(13) Calculated based on max 18000W at 230 VAC peak output, 8000W at 230VAC continuous output, efficiency 96.0 %, and 35A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(14) Calculated based on max 27000W at 230 VAC peak output, 12000W at 230VAC continuous output, efficiency 95.0 %, and 35A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(15) Calculated based on max 9000W at 230 VAC peak output, 5300W at 230VAC continuous output, efficiency 94.0 %, and 100A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(16) Calculated based on max 5500W at 230 VAC peak output, 2400W at 230VAC continuous output, efficiency 95.0 %, and 100A DC max charging, as published in Victron Data Sheet as of 24-05-01.

(17) Calculated based on max 9000W at 230 VAC peak output, 4000W at 230VAC continuous output, efficiency 96.0 %, and 100A DC max charging, as published in Victron Data Sheet as of 24-05-01.

Inverter Peak Amps DC = (Inverter Surge W) / (Inverter Efficiency) / (48V: Low Battery Cut-Off)
Discharge Continuous Amps DC = (Inverter Continuous W) / (Inverter Efficiency) / (48V: Low Battery Cut-Off)

277 V Model	Inverter Peak Amps DC	Discharge Continuous Max Amps DC	Charger Continuous Max Amps DC	AES RACKMOUNT 48-48-5120 / 48-48-5120-H Minimum per inverter
Quattro 48/15000/200 (1)	542	260	200	3

(1) Calculated based on max 25000W at 277 VAC peak output, 12000W at 277VAC continuous output, efficiency 96.0 %, and 200A DC max charging, as published in Victron Data Sheet as of 24-05-01.

4.0 CAN Hardware Termination and CAN Out Pin Configurations

4.1 LYNK II CAN Termination

NOTICE

Disconnect power and all connections to the LYNK II Communication Gateway before configuring header boards and jumpers.

Jumpers configure termination for the AEbus and LYNK Network and the CAN Out pin assignments. Follow the LYNK II Installation and Operation Manual (805-0033) to access and configure the header board with jumpers.

Detailed pin configurations are included in the LYNK II manual and are repeated here for convenience.

NOTE

The LYNK II Communication Gateway terminates the AEbus and LYNK Network by default. Do not remove the termination jumper inside the LYNK II Communication Gateway unless instructed by Discover Energy Systems.

4.2 LYNK II CAN Out - RJ45 Pin Assignments for Victron Devices using VE.can

Assign CAN signals (CAN H, CAN L, CAN GND) to pins of the RJ45 connector by adjusting the jumpers on the header board.

4.2.1 VE.CAN Pin Assignments

CAN Out RJ45 Pin	Header Jumper	RJ45 Pin
CAN L	H1 - 6-8	8
CAN H	H1 - 7-9	7
CAN GND	H3 - 1-3	3

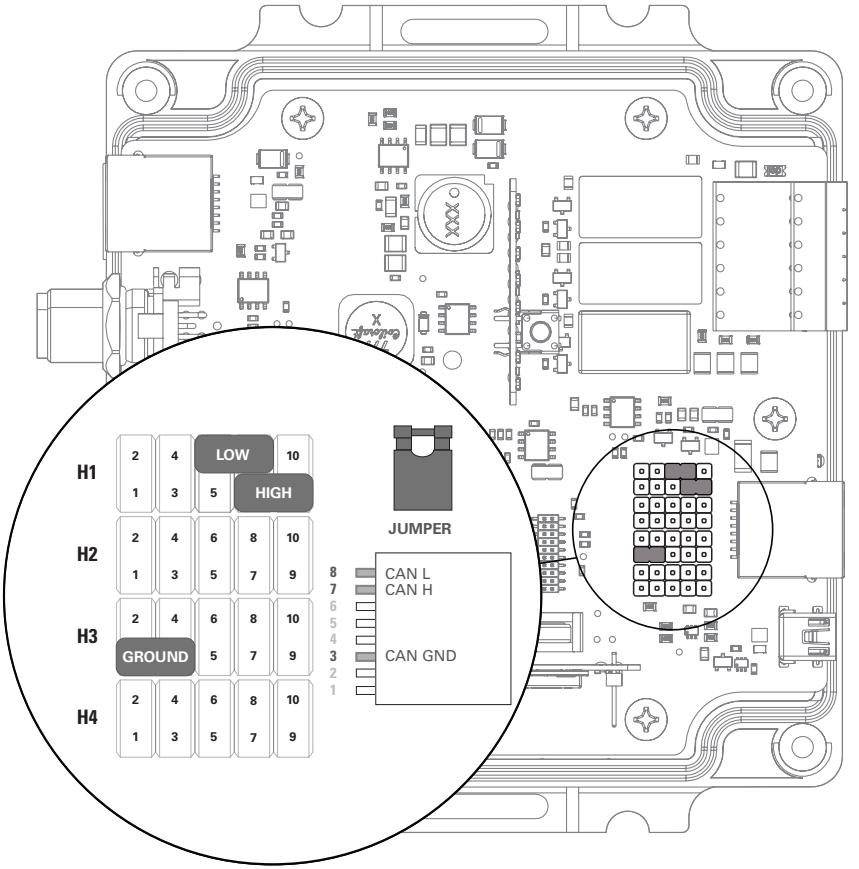


Figure 2. LYNK II Pin assignments for communication with Victron Energy devices

5.0 Installing and Connecting LYNK II to the VE.Can Network

5.1 Networking Discover Lithium Batteries with LYNK II

NOTICE

- Turn OFF all devices before connecting cables.
- Do not plug an AEbus RJ45 network cable or terminator into the 10/100 Ethernet port of the LYNK II.
- Do not connect a CAT5e or higher cable from the AEbus, LYNK, or Ethernet ports of the LYNK II to a WAN or MODEM port of a network router.
- Mixing the LYNK Network with other networks may result in equipment malfunction and damage.

NOTICE

Unless specified by Discover Energy Systems, do not connect power electronics directly to the LYNK network or AEbus network.

Refer to the LYNK II Installation and Operation Manual (805-0033) for instructions on network layouts, connections, and terminators of compatible Discover Lithium battery models. Some key points are repeated here for convenience.

- Connect at least one battery to the LYNK Port on the LYNK II.
- A network of batteries will communicate as one battery.
- May connect no more than one network of batteries to the LYNK II.
- Proper system function requires network termination – some batteries and devices may auto-terminate.
- LYNK II requires power from one of three possible sources (13-90 VDC power supply, a USB device, or AEbus Port or LYNK Port enabled Discover Lithium battery).
- Discover Lithium batteries must be set to ON to supply power and communicate with LYNK II.

AES RACKMOUNT

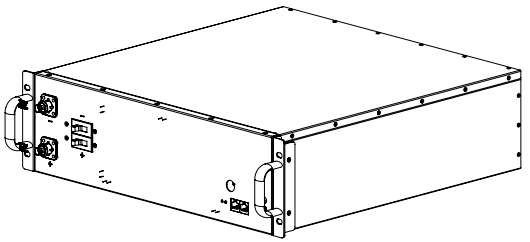


Figure 3. AES RACKMOUNT Battery Module

LYNK II and AES RACKMOUNT battery modules are both internally terminated. When installing LYNK II with AES RACKMOUNT battery modules, no external termination is required.

5.2 Connecting LYNK II to the VE.Can Network

Before connecting LYNK II to the VE.Can network ensure that the Victron GX device uses firmware version 2.89 or later. Also, ensure the CAN out pins on the LYNK II are configured correctly. Refer to 4.0 CAN Hardware Termination and CAN Out Pin Configurations.

Insert one end of a CAT5e or higher communication cable into the LYNK II CAN out port and the other end into one of the two VE.Can ports (A-B) on the back of the Victron device. As the LYNK II is internally terminated, the external terminator provided with the GX is not required.

NOTE
Ensure that the Victron GX device is using firmware version 2.89 or later.

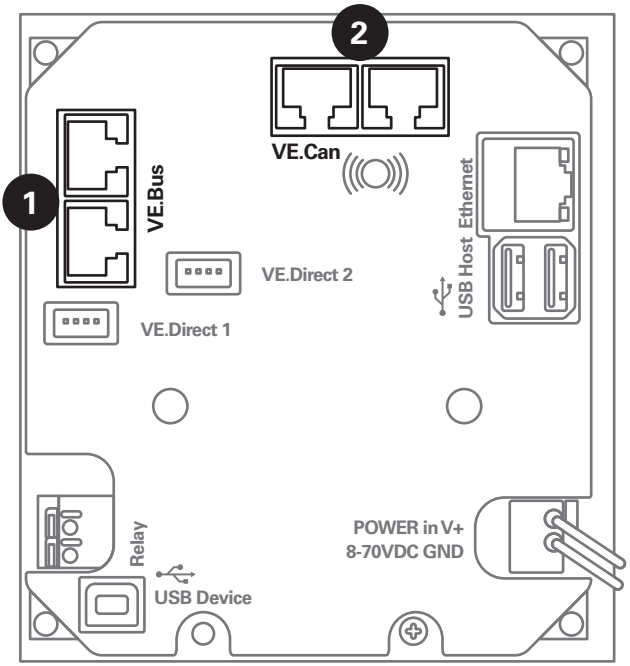


Figure 4. Victron GX device

1. VE.Bus: RJ45 socket for connecting to the Victron inverter.
2. VE.Can: RJ45 socket for connection to LYNK II CAN Out.
   - Insert a terminator in the other VE.Can port to terminate the CAN network.

6.0 Enabling LYNK II to Communicate with Victron Devices

When the LYNK II is in a closed-loop network using the CANopen protocol, LYNK II will transmit real-time parameters from the Discover Lithium battery, including voltage, current, temperature, state of charge, and fault conditions to a Victron Energy device. LYNK II also transmits charge voltage and current requests from the Discover Lithium battery to the Victron device.

LYNK ACCESS software for 64-bit Windows 10 / 11 is required to configure LYNK II settings for closed-loop CAN communication with Victron Energy devices.

If there is a break in communication between the Victron Energy device and the LYNK II, the Victron device stops charging. Charging only resumes after communication between the Victron device and the LYNK II communication gateway is restored. If communication cannot be restored, you may have to set the system to open loop until an installation professional is available.

As a precautionary measure, it is recommended to program the inverter-charger with the correct voltage-based parameters before setting up the system to operate in a closed-loop configuration. If closed-loop communication fails, after the open loop parameters have been configured, turn the Victron device OFF and ON with the On/Off/Charger Only switch to enable the open-loop settings.

6.1 Victron Open-Loop Configuration

Whenever possible, using a closed-loop configuration is recommended with Discover batteries and Victron devices. However, using an open-loop configuration may be required if the closed-loop communication system encounters an issue, such as a failure of the LYNK II gateway, cables or connections, or the Victron device.

In such cases, you may have to set the system to open loop until the issue is resolved. The following describes how to set up open loop on Victron devices.

6.1.1 Setting up Open Loop on Victron Devices

You will need the latest firmware on all connected devices. The following presumes familiarity with VE Configure software. After setting the voltage-based open-loop parameters using the VE Configure 3 software, ‘send’ all parameters to the inverter-charger and GX device and then restart the GX device.

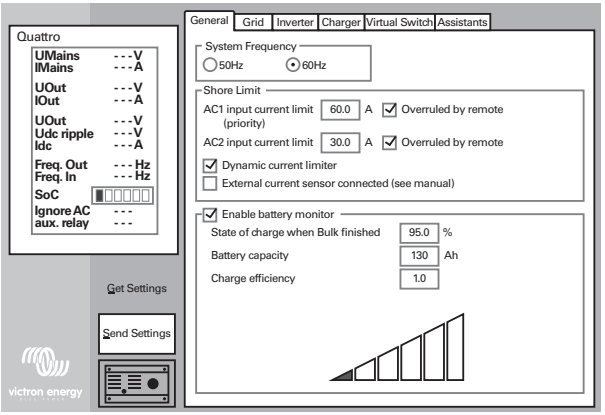


Figure 5. VE Configure 3 Software

6.1.2 Victron Inverter-Charger Open-loop Configuration Procedure

Refer to the latest Discover Energy Systems documentation for battery values and the latest Victron documentation for details on menu navigation and the setup procedure.

1. Set the Discover Lithium batteries to ON and set the inverter to ON.
2. Connect your computer to the Victron GX device or inverter.
3. On the computer, start the VE Configure 3 software configuration tool.
4. Enable and disable parameter values according to the tables below.
5. Send the parameters to the Victron inverter-charger and GX device.
6. Toggle the On/Off/Charger Only switch to turn the inverter OFF and ON.

VE Configure 3 > General Tab

General Tab	48-48-5120 / 48-48-5120-H
[AC1] Overruled by remote (1)	Enable
[AC2] Overruled by remote (1)	Enable
Dynamic current limiter	Enable
External current sensor connected	Disable
Enable battery monitor	Enable
State of charge when Bulk finished (2)	95%
Battery capacity	Number of batteries x 100 Ah
Charge efficiency (2)	1.00

(1) Enable is recommended.

(2) Precautionary settings ignored during normal operation and communication with Discover lithium batteries.

VE Configure 3 > Inverter Tab

Inverter Tab	48-48-5120
DC input low shutdown (1)	48.0 V
DC input low restart (2)	52.0 V
DC input low pre-alarm (3)	49.5 V
Enable AES (4)	Disable

(1) The lowest operating voltage allowed. Increase voltage as required.

(2) Restart voltage after DC input low shutdown. Recommend setting to the minimum value (minimum varies according to the DC Input low shutdown value).

(3) 49.5 V / 24.75 V value (approximately 10% SOC) will trigger a low battery warning. Increase or decrease as preferred.

(4) 'Enable AES' has no relation to the AES RACKMOUNT battery. Refer to Victron manuals for information on the AES setting and function.

VE Configure 3 > Charger Tab

Charger Tab	48-48-5120 / 48-48-5120-H
Enable charger	Enable
Battery Type (1)	Blank
Lithium batteries (1)	Enable
Charge curve (1)	Select: Fixed
Absorption Voltage (1)	55.2 V
Float Voltage (1)	53.6 V
Charge Current	Installed x 95 A
Repeated absorption time (1) (2)	1.0 < 3.0 Hr
Repeated absorption interval (1)	7.0 Days
Absorption time (1) (2)	1.0 < 3.0 Hr

(1) Precautionary settings ignored during normal operation and communication with Discover lithium batteries.

(2) The recommended minimum is 1.0 hour. Multiple batteries may require a longer time to achieve a smooth completion of charge.

NOTE
Confirm the Float Voltage after installation of any Victron 'Assistants', and if necessary, set the Float Voltage back to 26.8 V / 53.6 V.

6.1.3 Victron MPPT Charge Controller Open-loop Configuration Procedure

During normal operation, the MPPT charge characteristics are governed by the Victron GX device in a closed-loop configuration based on data and charge requests provided by the connected Discover Lithium battery.

When closed-loop communication has failed, the MPPT needs to be reset and reconfigured to use open-loop communication. Simply cycling the power does not reset the charger.

To remove the charger from a closed-loop system and use it in a system without a BMS:

1. Chargers with LCD display: From the setup menu, change the BMS setting from Y to N.

   Other chargers: Using VictronConnect, reset the charger to factory defaults.

2. Reconfigure the charger with the recommended open-loop (voltage-based) settings for the Victron MPPT in the table below.

The Victron Connect Bluetooth App is used to configure, monitor, and diagnose Victron MPPT Charge Controller products equipped with Bluetooth.

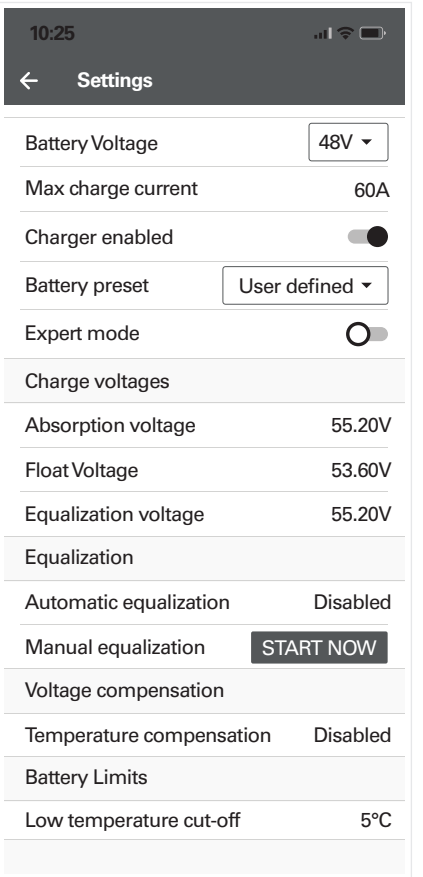


Figure 6. Victron Connect (Bluetooth App)

Victron Connect Bluetooth App > Device List > Victron MPPT > Settings > Battery

MPPT Battery Settings Menu	48-48-5120 / 48-48-5120-H
Battery voltage	48 V
Max charge current (1)	Installed x 95 A
Charger enabled	Enabled
Battery preset	User Defined
Expert mode	Disabled
Absorption voltage	55.2 V
Float voltage	53.6 V
Equalization voltage	55.2 V
Automatic equalization	Disabled
Temperature compensation	Disabled
Low temperature cut-off	< 4°C (39.2°F)
Maximum absorption time (2)	1.0 < 3.0 Hr

(1) May be set to a lower value if necessitated by charger controller size.

(2) When editing battery presets, set the duration of the absorption period, which occurs after the bulk charge interval. The recommended minimum is 1.0 hour. Multiple batteries may require a longer time to achieve a smooth completion of charge.

6.2 Setting the LYNK II Communication Protocol for Victron Energy Devices

6.2.1 Victron Protocol Configuration Procedure

1. Download the current version of LYNK ACCESS software from the Discover Energy Systems website to get the most up-to-date suite of available protocol configurations.
2. Using a USB cable with a Type-B mini-plug, connect the 64-bit Windows 10/11 device with the LYNK ACCESS software to the USB port on the LYNK II communication gateway. Ensure the LYNK II is powered and connected to the correct Victron COM port (VE.Can).

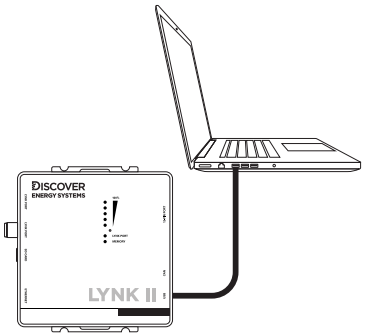


Figure 7. Connect LYNK II to USB Port

3. Open LYNK ACCESS and confirm that only one LYNK device is connected to the computer.
4. Select the LYNK tab for optional configuration and settings. Select the blue gear icon in the upper right area of the CAN Settings tile.
5. Select the pre-configured Victron protocol and the baud rate (250 or 500 kbps) to complete the closed-loop configuration for LYNK II, then click SAVE.

NOTE

- In most cases, the communication speed for the Victron protocol should be 250 kbps to match the networked Victron devices. However, if communication cannot be established at that speed, the Victron device may require a communication speed of 500 kbps.
- Saving configuration changes in LYNK ACCESS automatically forces the LYNK II to restart.

6.3 Victron Closed-Loop Configuration

6.3.1 Victron Closed-loop Configuration Procedure

Refer to the latest Discover Energy Systems documentation for battery values and the latest Victron documentation for menu navigation and details on the setup procedure.

1. Set the Discover Lithium batteries to ON and the Victron GX device to ON.
2. Using a touch screen or other user interface of the GX device, set the VE.Can port and CAN-Bus BMS communication rate to 250 kbit/s to match the communication speed set up on the LYNK II communication gateway.

Device List > Settings > Services > VE.Can port > CAN-bus profile

- Select **VE.Can & CAN-bus BMS (250 kbit/s)**
  (Select Victron solar inverters may operate with **CAN-bus BMS 500 kbit/s**)

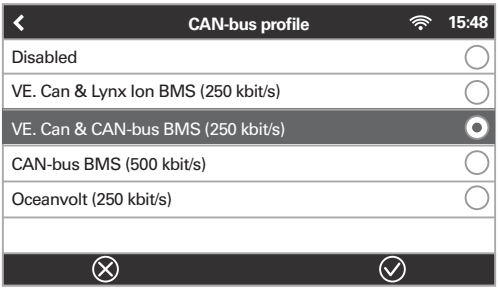


Figure 8. CAN-bus Profile

3. Return to the Device List, and the Discover Lithium Battery should now appear as one of the devices.

Device List

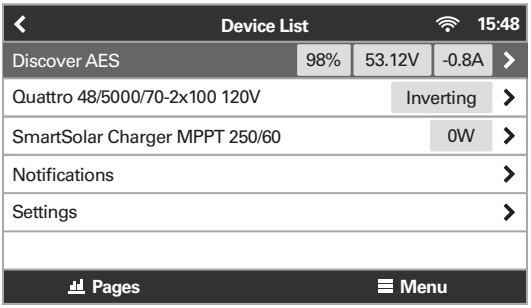


Figure 9. Device List

NOTE
If Discover does not appear on the Device List, confirm that the CAT5e or higher communication cable is a normal patch type, not a cross-over type. Use manufactured cables to avoid bad crimps and reduce the risk of a poor connection.

4. To confirm that all batteries in the network are communicating with the Victron system, review the actual battery parameters. If multiple batteries are connected, a single entry shows the total limit of all the batteries.

Device List > Discover AES > Parameters

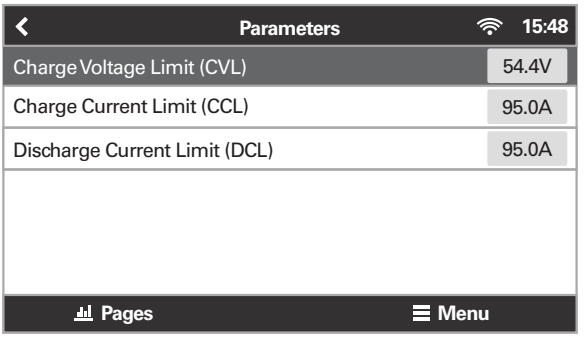


Figure 10. Battery Parameters

6.3.2 Configurable Closed-Loop Settings

During normal operation, the battery's charge parameter limits are set by the BMS and communicated by the Victron GX device to the inverter-charger and MPPT.

To optimize the performance of a Victron system, manually set the following DVCC menu items using the Victron GX device and reboot the system.

Device List > Settings > DVCC

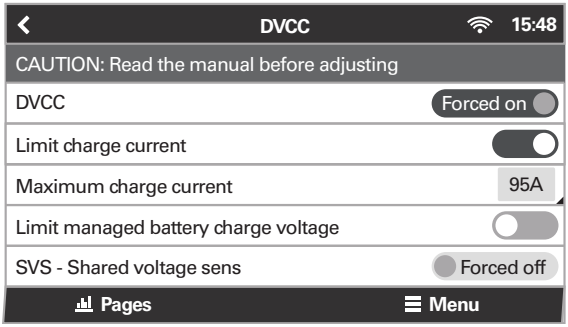


Figure 11. DVCC Menus 1/2

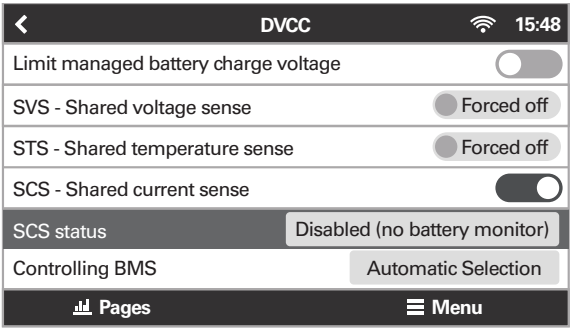


Figure 12. DVCC Menus 2/2

DVCC Menu	Setting
DVCC (Distributed Voltage and Current Control)	Forced on
Limit charge current	ON [1]
Maximum charge current	Installed number of Discover Lithium batteries x their rated Maximum Charge current, or a lower value if system curtailment is required.
Limit managed battery charge voltage	Disable
SVS - Shared voltage sense	Forced off [2]
STS - Shared temperature sense	Forced off
SCS - Shared current sense	ON
SCS status	(Displays the current status)
Controlling BMS	Automatic Selection

[1] Limit charge current works across the whole system. MPPTs are automatically prioritized over the mains. In cases where the BMS requests a maximum charge current different from the user-configurable setting, it uses the lesser of the two.

[2] SVS should be set to OFF (Victron support has reported instances of conflicts when SVS is set to ON with a Lithium BMS).

6.3.3 Saving the Configurable Closed-Loop Settings

Device List > Settings > General > Reboot?

After all DVCC menu items have been set, reboot the system to complete the closed-loop configuration.

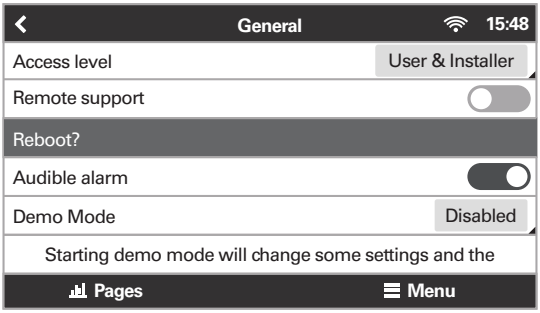


Figure 13. Rebooting the System

NOTE
To avoid conflicting network information and data, do not use a Victron BMV battery monitor when using the LYNK II Communication Gateway.