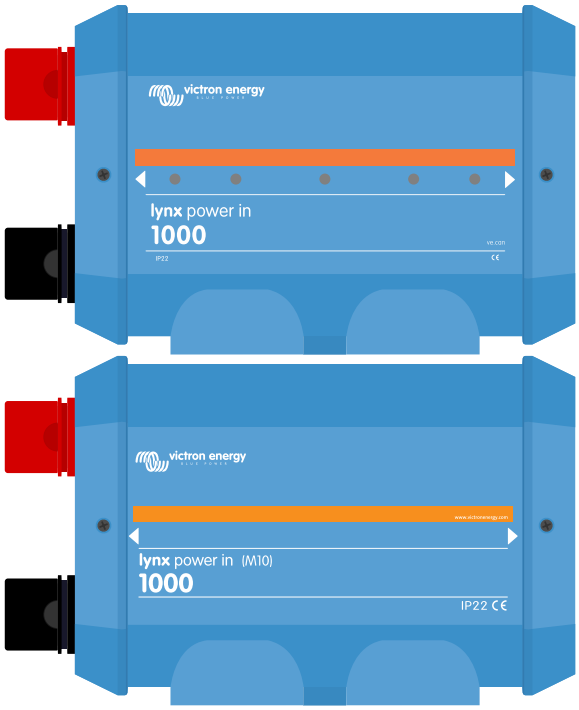
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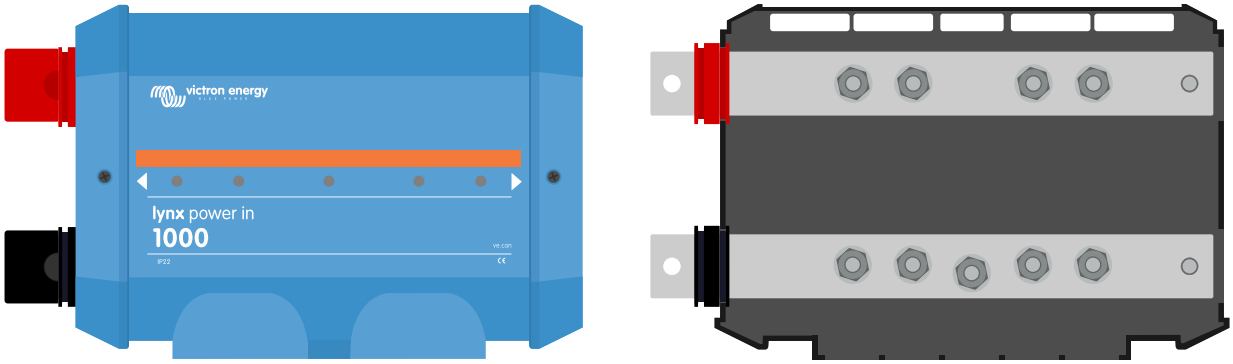
Lynx Power In M8 and M10

Rev 02 - 12/2023

2. Introduction

2.1. The Lynx Power In

The Lynx Power In contains a positive and negative busbar with 4 connections for batteries, loads or chargers and a ground connection. It is part of the Lynx Distribution system and is available in two versions, with M8 or M10 busbar. Note that M10 refers to the busbar connection joints where the modules are connected to each other. The fuse and cable connections are always M8.



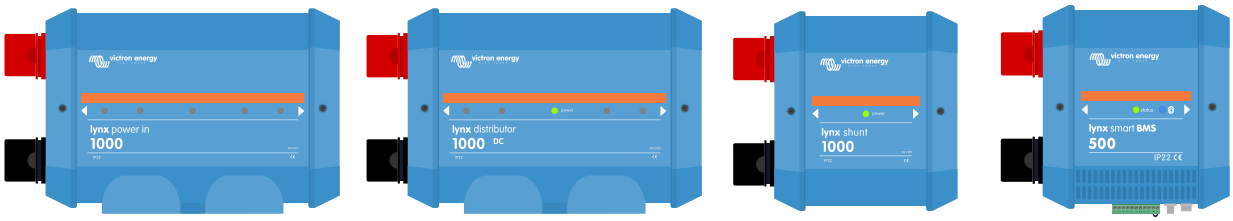
Lynx Power In - with and without cover

2.2. The Lynx Distribution System

The Lynx Distribution System is a modular busbar system that incorporates DC connections, distribution, fusing, battery monitoring and/or Lithium battery management. For more information, see the DC Distribution Systems product page.

The Lynx Distribution System consist of the following parts:

- **Lynx Power In** - A positive and negative busbar with four batteries or DC equipment connections, available in two versions, with M8 or M10 busbar.
- **Lynx Distributor** - A positive and negative busbar with four fused connections for batteries or DC equipment and fuse monitoring, available in two versions, with M8 or M10 busbar.
- **Lynx Shunt VE.Can** - A positive busbar with a space for a main system fuse and a negative busbar with a shunt for battery monitoring. It has VE.Can communication for monitoring and setup with a GX device.
- **Lynx Smart BMS** - For use together with Victron Energy Smart Lithium batteries. It contains a positive busbar with a contactor driven by a battery management system (BMS) and a negative busbar with a shunt for battery monitoring. It has Bluetooth communication for monitoring and setup via the VictronConnect App and VE.Can communication for monitoring with a GX device and the VRM portal. Available as a 500A model with M8 busbars or 1000A model with M10 busbars.



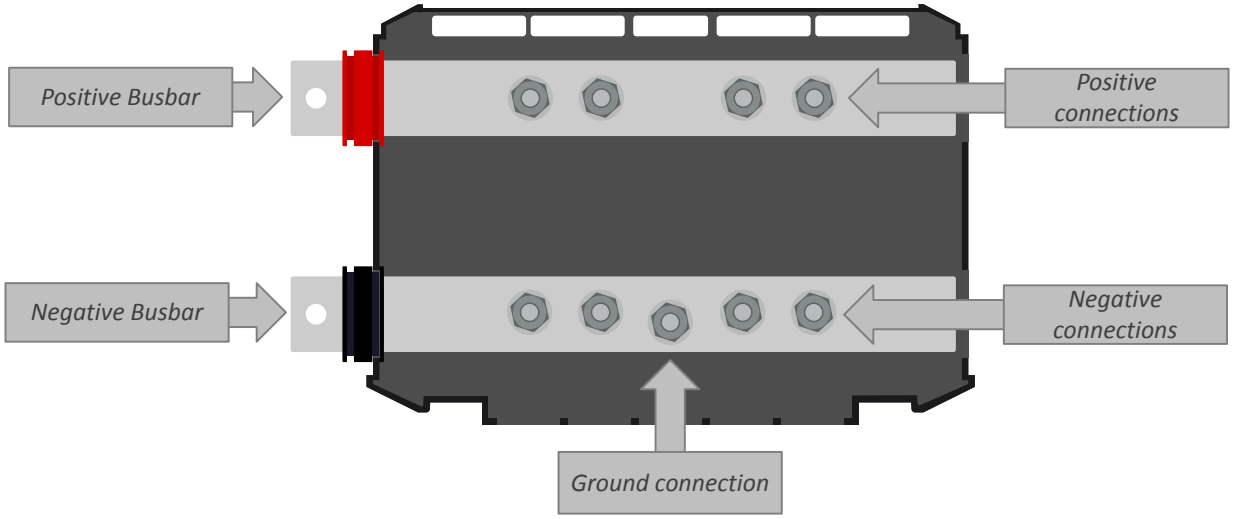
The Lynx modules: Lynx Power In, Lynx Distributor, Lynx Shunt VE.Can and Lynx Smart BMS

3. Features

3.1. Internal parts and wiring diagram Lynx Power In

The internal physical parts and the wiring diagram of the Lynx Power In indicating the following parts:

- Positive busbar
- Negative busbar
- Positive connections
- Negative connections
- Ground connection



The internal physical parts of the Lynx Power In

4. System Design

4.1. Lynx distribution system parts

A Lynx distribution system usually consists of a single Lynx Shunt VE.Can module or a single Lynx Smart BMS module.

The choice between a Lynx Shunt VE.Can or a Lynx Smart BMS depends on what type of batteries are used in the system. The Lynx Smart BMS can only be used with the Victron Energy Lithium Smart Batteries, while the Lynx Shunt VE.Can is suitable for all other batteries.

Then, single, multiple or a combination of Lynx Distributor modules and/or Lynx Power In modules are added.

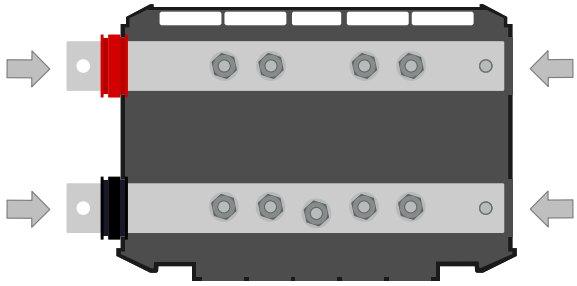
Together they form a continuous negative and positive busbar with DC connections and, depending on the configuration, integrated fuses, a battery monitor and/or lithium battery management.

It is also possible to just use Lynx Power In modules and/or Lynx Distributor modules without a Lynx Smart BMS module or a Lynx Shunt VE.Can modules. This for situations where battery monitoring or battery management is not needed.

4.1.1. Interconnecting Lynx modules

Each Lynx module can connect to other Lynx modules on the left side and on the right side.

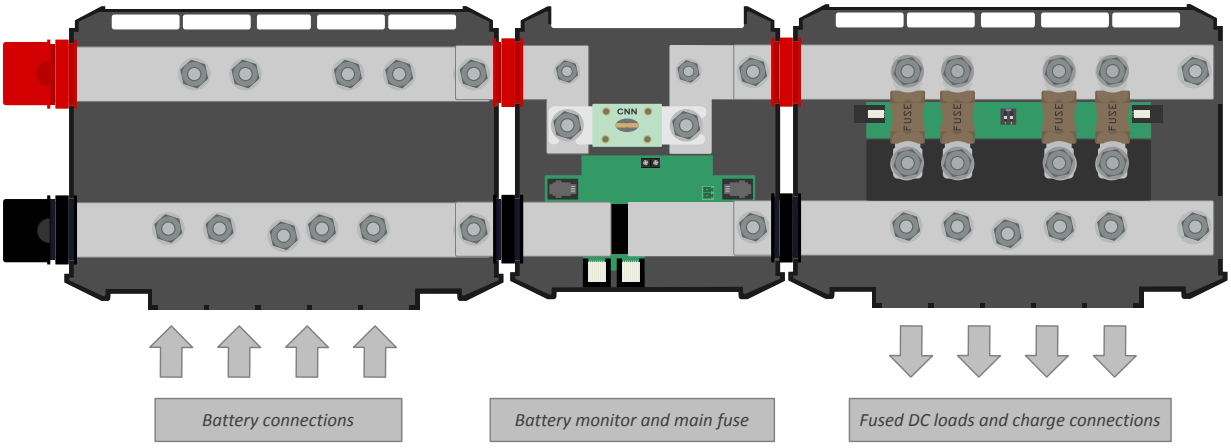
If the Lynx module is the first in line, the last in line or is used by itself, it is possible to connect batteries, loads or chargers directly to these connections. However, we do not generally recommend this because additional insulation and fusing are needed.



Lynx connections: The arrows indicate where the other Lynx modules can connect

The example below shows a Lynx system consisting of a Lynx Power In, Lynx Shunt VE.Can and Lynx Distributor. Together, they form a continuous busbar with unfused battery connections, battery monitor, main system fuse and fused load connections.

Figure 1. Example of Interconnected Lynx modules without their covers (Lynx Shunt VE.Can)



Interconnected Lynx modules: Lynx Power In, Lynx Shunt VE.Can and Lynx Distributor

The example below shows a Lynx system consisting of a Lynx distributor, Lynx Smart BMS and another Lynx Distributor. Together, they form a continuous busbar with fused battery and load connections, battery monitor, BMS system and contactor.

5. Installation

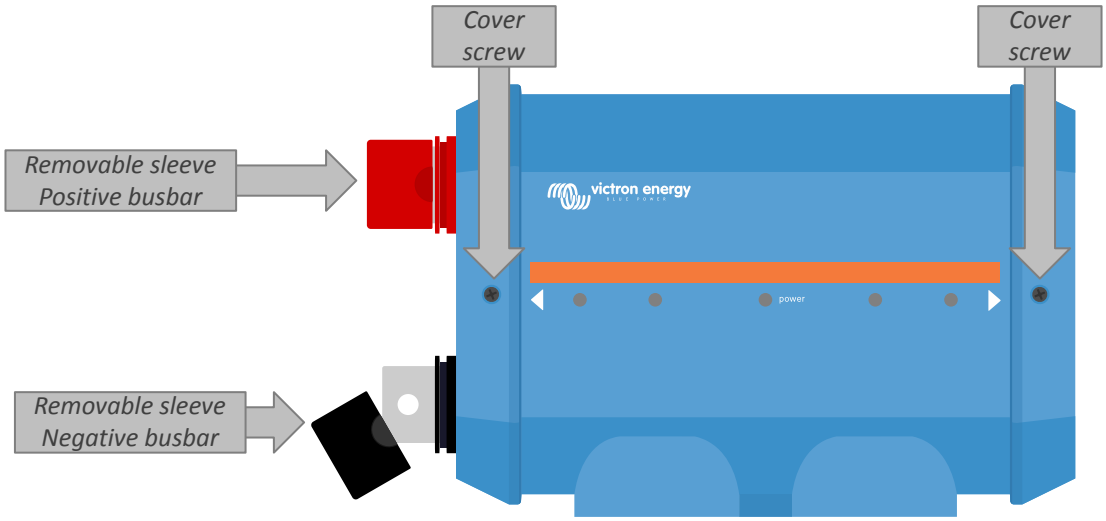
5.1. Mechanical connections

5.1.1. Lynx module connection features

The Lynx module can be opened up by unscrewing the 2 cover screws.

The contacts on the left side are covered by a removable rubber sleeve.

Red is the positive and black is the negative busbar.



Location of front cover screws and the removable sleeves

5.1.2. Mounting and interconnecting Lynx modules

This paragraph explains how to attach several Lynx modules to each other and how to mount the Lynx assembly into its final location.

For a mechanical drawing of the housing with dimensions and the location of the mounting holes, see the appendix of this manual.

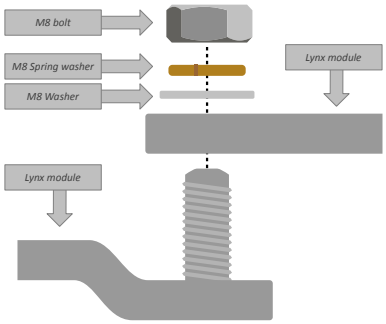
These are the points to take into consideration when interconnecting and mounting Lynx modules:

- If Lynx modules are going to be connected to the right and if the Lynx module is fitted with a plastic barrier on the right side, remove the black plastic barrier. If the Lynx module is located as the most right module, leave the black plastic barrier in place.
- If Lynx modules are going to be connected to the left, remove the red and black rubber sleeves. If the Lynx module is located as the most left module, leave the red and black rubber sleeves in place.
- If the Lynx system contains a Lynx Smart BMS or Lynx Shunt VE.Can, the left side is the battery and the right side is the DC system side.
- Connect all Lynx modules to each other using the M8 (M10) holes and bolts on the left and right. Take care that the modules correctly slot into the rubber joiner recesses.
- Place the washer, spring washer and nut on the bolts and tighten the bolts using a torque of:

  M8 Model: 14Nm

  M10 Model: 33Nm (17Nm for units with a serial number before HQ2340XXXX)
- Mount the Lynx assembly in its final location using the 5mm mounting holes.

Figure 2. Connection sequence when connecting two Lynx modules



Correct placement of the M8 (M10) washer, spring washer and nut.

5.2. Electrical connections

5.2.1. Connect DC wires

This chapter might not apply if the Lynx module is connected to other Lynx modules like this can be the case for the Lynx Smart BMS or the Lynx Shunt VE.Can.

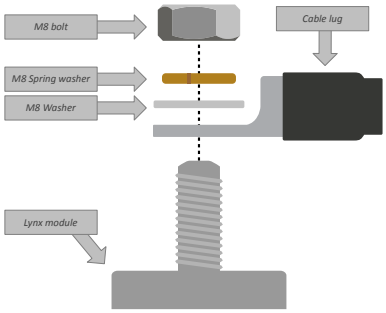
For all DC connections, the following applies:

- All cables and wires connected to the Lynx module need to have been fitted with M8 cable lugs.
- Pay attention to the correct placement of the cable lug, washer, spring washer and nut on each bolt when attaching the cable to the bolt.
- Tighten the nuts using a torque of:

  M8 Model: 14Nm

  M10 Model: M10 nuts: 33Nm (17Nm for units with a serial number before HQ2340XXXX) - M8 nuts: 14Nm

Figure 3. Correct mounting sequence DC wires



Correct placement of the M8 Cable lug, washer, spring washer and nut

5.2.2. Ground and Negative connections

Connect the ground wire

This only applies if the system requires a ground connection. There should only be one ground connection per system. The ground connection should be made after the Lynx Smart BMS, Lynx Shunt VE.Can or battery monitor shunt. For more information on system grounding, see the Wiring Unlimited book.

8. Technical specifications Lynx Power In

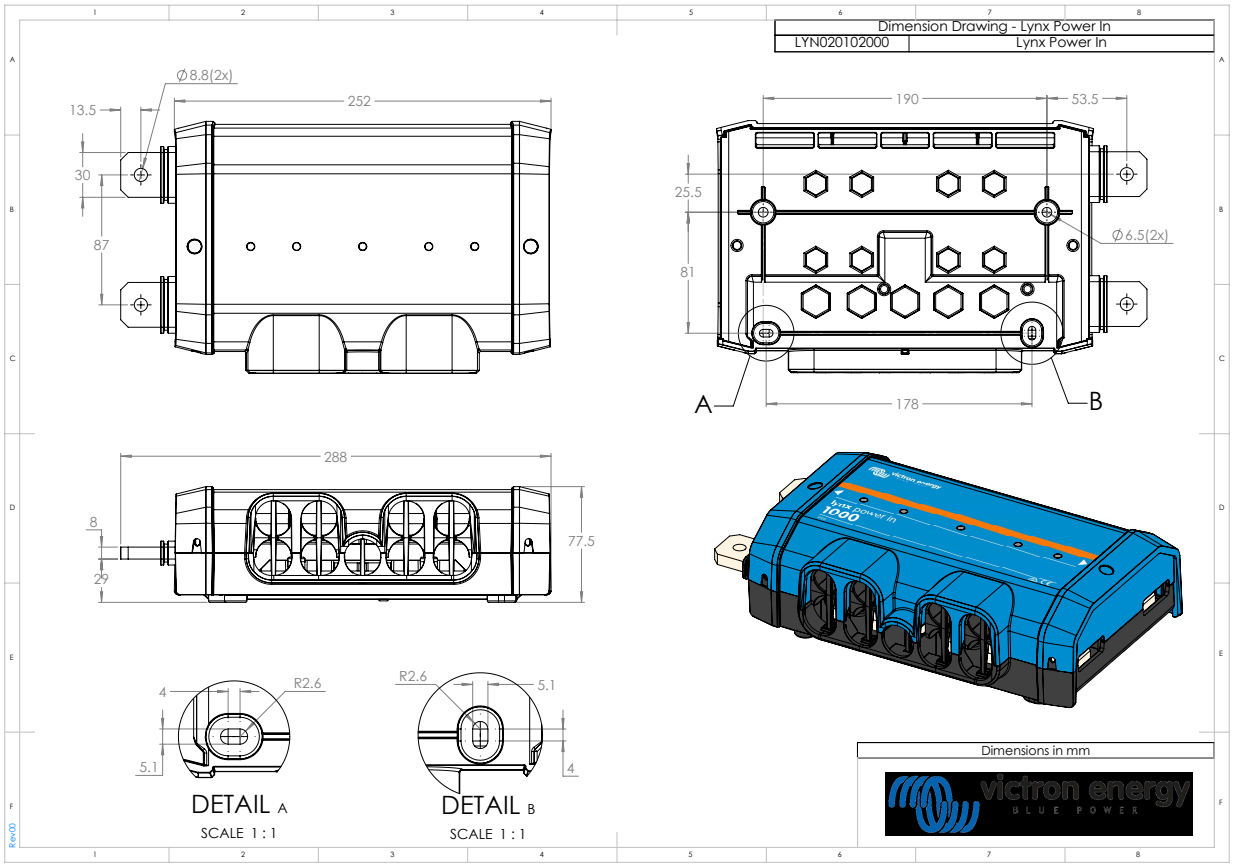
Power	
Voltage range	9 - 60Vdc
Current rating	1000Adc continuous

Connections	
Busbar	M8 or M10

Physical	
Enclosure material	ABS
Enclosure dimensions (hxwxd)	290 x 170 x 80mm
Unit weight	2.1 kg
Busbar material	Tinned copper
Busbar dimensions (hxw)	8 x 30mm

Environmental	
Operating temperature range	-40°C to +60°
Storage temperature range	-40°C to +60°
Humidity	Max. 95% (non-condensing)
Protection class	IP22

9. Enclosure dimensions Lynx Power In M8 and M10



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Lynx Distributor M8 and M10

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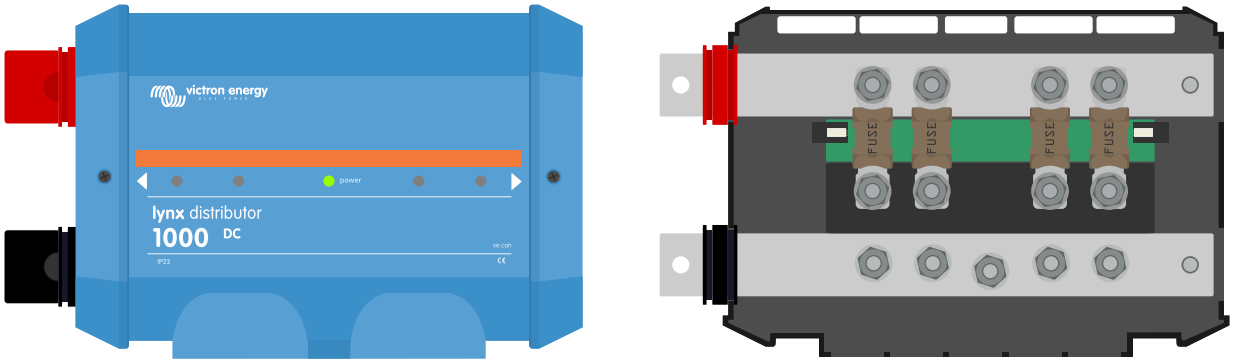
2. Introduction

2.1. The Lynx Distributor

The Lynx Distributor contains a positive and a negative busbar. The positive busbar has four fuse-protected connections with fuse monitoring. The negative busbar has four connections and a ground connection. It is part of the Lynx Distribution system and is available in two versions, with M8 or M10 busbar. Note that M10 refers to the busbar connection joints where the modules are connected to each other. The fuse and cable connections are always M8.

The Lynx Distributor has a power LED and four fuse status indication LEDs.

If connected to a Lynx Smart BMS, up to 4 Lynx Distributors can send fuse status information to the Lynx Smart BMS. This feature is not available when connected to a Lynx Shunt VE.Can.



The Lynx Distributor - with and without cover

The Lynx Distributor ships together with a 40cm RJ10 cable. This cable provides power to the Lynx Distributor and is also used to transmit data if connected to a Lynx Smart BMS.



The RJ10 cable

The Lynx Distributor is designed to hold MEGA fuses. These need to be purchased separately.

For more information, see the Fuses & fuse holders product page.



A selection of MEGA fuses with a variety of current ratings

2.2. VictronConnect App

If the Lynx Distributor is connected to a Lynx Smart BMS, it can be monitored and set up with the VictronConnect App.

For more information, see the VictronConnect App download page and the VictronConnect manual.



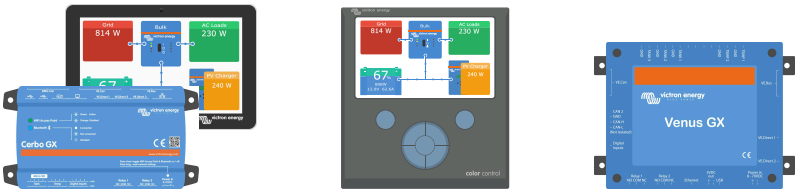
2.3. GX device

Up to 4 connected Lynx Distributors can be monitored with a GX device if connected to a Lynx Smart BMS.

For more information on the GX device, see the GX device product page.

The GX device can be connected to the VRM portal, allowing remote monitoring.

For more information on the VRM portal, see the VRM page.



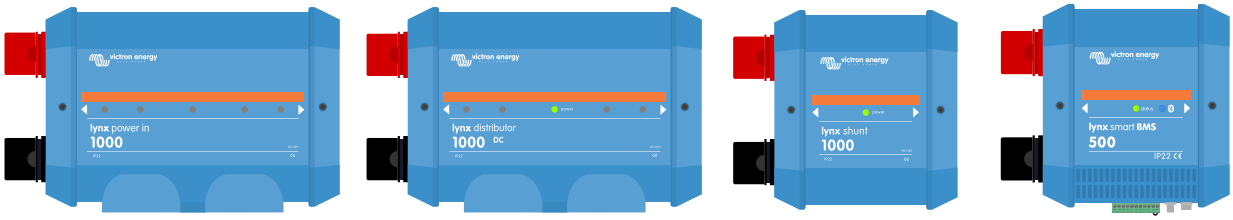
GX devices: Cerbo GX & GX Touch, CCGX and Venus GX

2.4. The Lynx Distribution System

The Lynx Distribution System is a modular busbar system that incorporates DC connections, distribution, fusing, battery monitoring and/or Lithium battery management. For more information, see the DC Distribution Systems product page.

The Lynx Distribution System consist of the following parts:

- **Lynx Power In** - A positive and negative busbar with four batteries or DC equipment connections, available in two versions, with M8 or M10 busbar.
- **Lynx Distributor** - A positive and negative busbar with four fused connections for batteries or DC equipment and fuse monitoring, available in two versions, with M8 or M10 busbar.
- **Lynx Shunt VE.Can** - A positive busbar with a space for a main system fuse and a negative busbar with a shunt for battery monitoring. It has VE.Can communication for monitoring and setup with a GX device.
- **Lynx Smart BMS** - For use together with Victron Energy Smart Lithium batteries. It contains a positive busbar with a contactor driven by a battery management system (BMS) and a negative busbar with a shunt for battery monitoring. It has Bluetooth communication for monitoring and setup via the VictronConnect App and VE.Can communication for monitoring with a GX device and the VRM portal. Available as a 500A model with M8 busbars or 1000A model with M10 busbars.



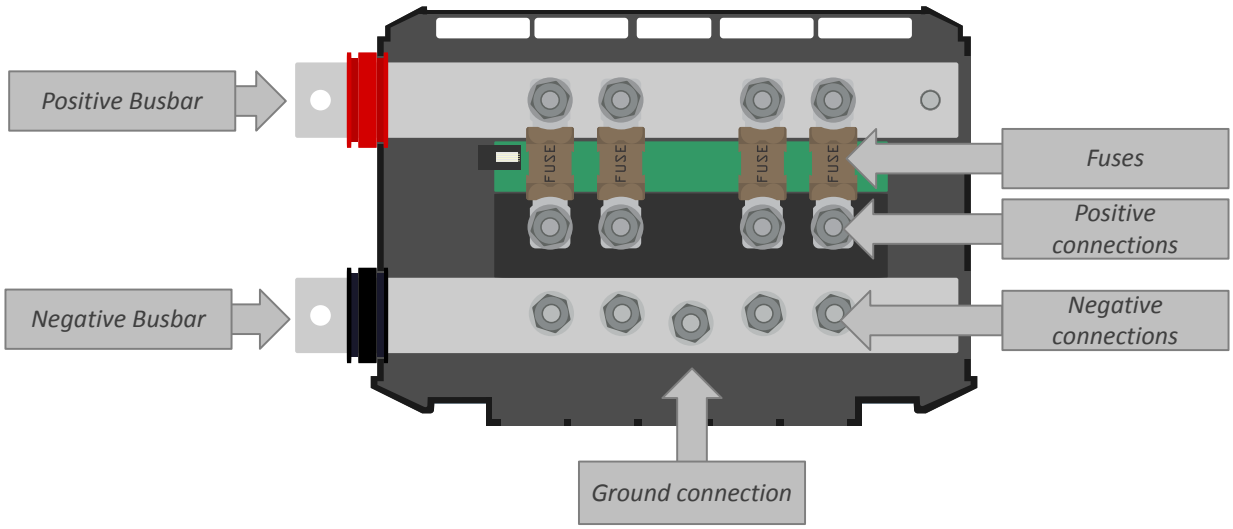
The Lynx modules: Lynx Power In, Lynx Distributor, Lynx Shunt VE.Can and Lynx Smart BMS

3. Features

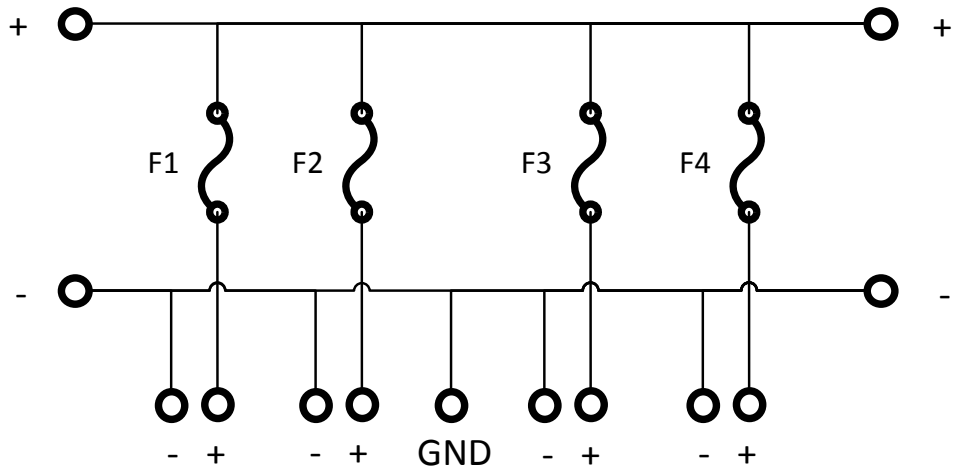
3.1. Internal parts and wiring diagram Lynx Distributor

The internal physical parts and the wiring diagram of the Lynx Distributor indicating the following parts:

- Positive busbar
- Negative busbar
- Fuses
- Positive connections
- Negative connections
- Ground connection



The Internal physical parts of the Lynx Distributor



The internal wiring diagram of the Lynx Distributor

3.2. Fuse detection

The Lynx Distributor monitors each fuse and will detect a blown fuse.

When a fuse blows, the red fuse LED will illuminate, the power LED will turn red, and an alarm message is sent to a connected Lynx Smart BMS.

4. Communication and interfacing

4.1. Lynx Distributor fuse monitoring

Up to 4 Lynx Distributors can be connected to a Lynx Smart BMS. They communicate via the RJ10 cable. The Lynx Distributors communicate fuse and operational status to the Lynx Smart BMS. The Lynx Smart BMS can be used to read out the Lynx Distributors and generate alarms in case a fuse is blown or communication is lost.

For this functionality, the Lynx Distributor must have serial number HQ1909 or later. Earlier produced Lynx Distributors do not communicate fuse status.

4.2. The VictronConnect App

The VictronConnect App communicates via Bluetooth. It is used for changing settings, monitoring the Lynx Smart BMS and up to 4 connected Lynx Distributors. For more information on the VictronConnect App see the VictronConnect manual.

4.3. GX Device

If the Lynx Distributor is connected to a Lynx Smart BMS and the Lynx Smart BMS is connected to a GX device via VE.Can, the GX device show Lynx Distributor operational data and the status of each fuse. If the GX device is connected to the internet, the Lynx Distributor can also be monitored remotely via the VRM portal.

5.2. System sizing

5.2.1. Current rating Lynx modules

The Lynx Distributor, Lynx Shunt VE.Can and the Lynx Power In are rated for a nominal current of 1000A for 12, 24 or 48 System voltages.

See the table below for an idea of how much power the Lynx modules are rated at different voltages. The power rating will indicate how big the connected inverter/charger system can be. Remember that if inverters or inverter/chargers are used, the batteries will power both the AC and DC systems. Also, be aware that a Lynx Smart BMS or a Lynx Ion (now discontinued) can have a lower current rating.

	12V	24V	48V
1000A	12kW	24kW	48kW

5.2.2. Fusing

The Lynx Distributor has spaces for 4 fuses, one for each DC circuit. These spaces have been designed to fit MEGA fuses. For 12V and 24V systems use 36V-rated MEGA fuses and for 48V systems use 58V-rated MEGA fuses. For more information, see the Fuses & Fuse holders product page.

Always use fuses with the correct voltage and current rating. Match the fuse rating to the maximum voltages and currents that potentially can occur in the fused circuit. For more information on fuse ratings and fuse current calculations see the Wiring Unlimited book.



The total value of the fuses of all circuits should not be more than the current rating of the Lynx module or the Lynx model with the lowest current rating in case of multiple Lynx modules are used.

5.2.3. Cabling

The current rating of the wires or cables used to connect the Lynx Distributor to batteries and/or the DC loads, has to be rated for the maximum currents that can occur in the connected circuits. Use cabling with a sufficient core surface area to match the maximum current rating of the circuit.

For more information on cabling and cable thickness calculations, see our book, Wiring Unlimited.

6. Installation

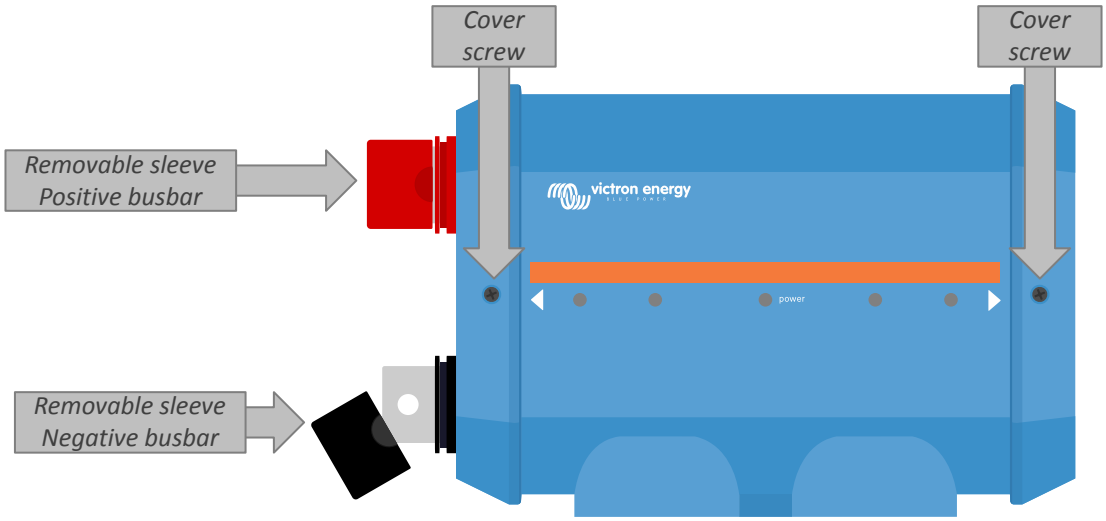
6.1. Mechanical connections

6.1.1. Lynx module connection features

The Lynx module can be opened up by unscrewing the 2 cover screws.

The contacts on the left side are covered by a removable rubber sleeve.

Red is the positive and black is the negative busbar.



Location of front cover screws and the removable sleeves

6.1.2. Mounting and interconnecting Lynx modules

This paragraph explains how to attach several Lynx modules to each other and how to mount the Lynx assembly into its final location.

For a mechanical drawing of the housing with dimensions and the location of the mounting holes, see the appendix of this manual.

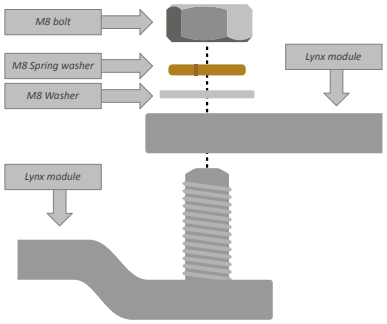
These are the points to take into consideration when interconnecting and mounting Lynx modules:

- If Lynx modules are going to be connected to the right and if the Lynx module is fitted with a plastic barrier on the right side, remove the black plastic barrier. If the Lynx module is located as the most right module, leave the black plastic barrier in place.
- If Lynx modules are going to be connected to the left, remove the red and black rubber sleeves. If the Lynx module is located as the most left module, leave the red and black rubber sleeves in place.
- If the Lynx system contains a Lynx Smart BMS or Lynx Shunt VE.Can, the left side is the battery and the right side is the DC system side.
- Connect all Lynx modules to each other using the M8 (M10) holes and bolts on the left and right. Take care that the modules correctly slot into the rubber joiner recesses.
- Place the washer, spring washer and nut on the bolts and tighten the bolts using a torque of:

  M8 Model: 14Nm

  M10 Model: 33Nm (17Nm for units with a serial number before HQ2340XXXX)
- Mount the Lynx assembly in its final location using the 5mm mounting holes.

Figure 3. Connection sequence when connecting two Lynx modules



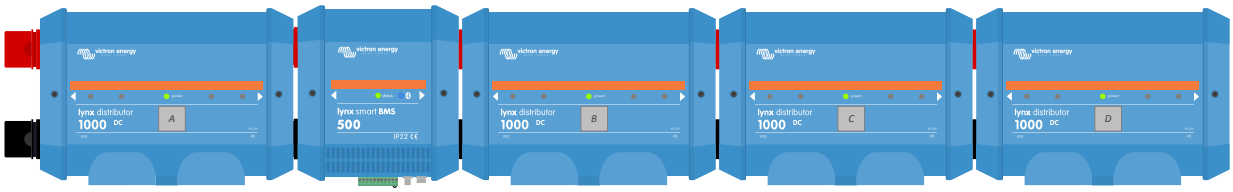
Correct placement of the M8 (M10) washer, spring washer and nut.

6.1.3. Addressing Lynx Distributor

These instructions only apply if the system contains a Lynx Smart BMS together with multiple Lynx Distributors and the serial number of the Lynx Distributors is HQ1909 or above.

· Name the Lynx Distributors from left to right: A, B, C, and D. Do this so that the fuse alarms correspond with the Lynx Distributor names.

Figure 4. Example of Lynx Distributor configuration and labelling



Set the 2-way DIP switch in each Lynx Distributor to correspond with its name. Up to 4 Lynx Distributors can be programmed this way. See the table below for how to set the DIP switches for each unit. By default, both DIP switches are set to off (A).

Figure 5. Location of the Lynx Distributor 2-way DIP switch

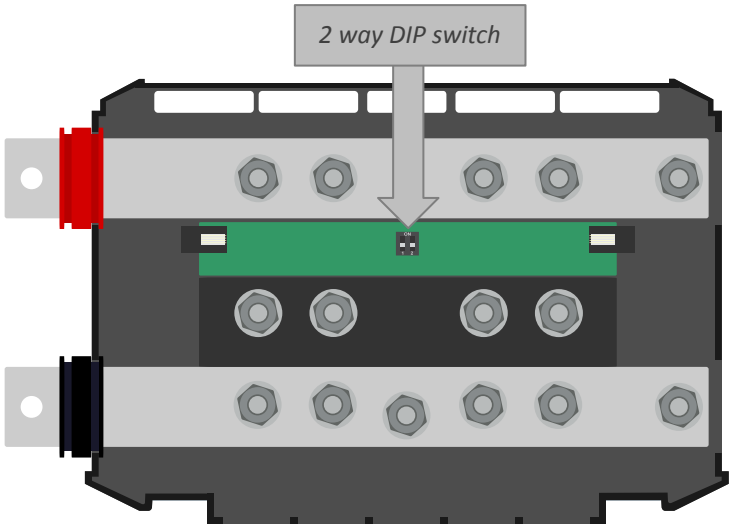


Table 1. Lynx Distributor DIP switch programming table

Distributor name	Switch 1	Switch 2	Configuration
A	Off	Off	
B	On	Off	
C	Off	On	
D	On	On	

10. Technical specifications Lynx Distributor

Power	
Voltage range	9 - 60Vdc
Supported system voltages	12, 24 or 48V
Reverse polarity protection	Yes (1)
Current rating	1000Adc continuous
Power consumption (2)	Maximum 100mA (with all LEDs illuminated)
(1) The RJ10 cable connection is not protected against reverse polarity (2) Powered from Lynx Shunt VE.Can or Lynx Smart BMS	

Connections	
Busbar	M8 or M10
Fuses	M8
Power(3) and data(4)	40 cm RJ10 cable (included)
(3) Powered from Lynx Shunt VE.Can or Lynx Smart BMS (4) Data can only be received by a Lynx Smart BMS	

Physical	
Enclosure material	ABS
Enclosure dimensions (hxlxw)	290 x 170 x 80 mm
Unit weight	2.2 kg
Busbar material	Tinned copper
Busbar material (hxw)	8 x 30mm

Environmental	
Operating temperature range	-40°C to +60°
Storage temperature range	-40°C to +60°
Humidity	Max. 95% (non-condensing)
Protection class	IP22

11. Enclosure dimensions Lynx Distributor M8 and M10

