

24V 180Ah Lithium-Ion Battery and Lynx Ion

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24V 180Ah Lithium-Ion Battery



Lynx Ion



Ion control: Main screen



Ion control: History screen



Ion control: Lynx Ion Status

The advantages of a Lithium-ion battery over conventional lead-acid batteries

- High energy density: more energy with less weight;
- High charge currents (shortens the charge period);
- High discharge currents (enabling for example electrical cooking on a small battery bank);
- Long battery life (up to six times the battery life of a conventional battery);
- High efficiency between charging and discharging (very little energy loss due to heat development);
- Higher continuous power available.

Why Lithium-Iron-Phosphate?

Lithium-Iron-Phosphate (LiFePO₄ or LFP) is the safest of the mainstream Li-ion battery types. The nominal voltage of a LFP cell is 3,2V (lead-acid: 2V / cell). A 25,6V LFP battery consists of 8 cells connected in series.

The advantages of the Victron Lynx Lithium-ion battery system

The modular system used adds the following advantages:

- The Victron Lithium-Ion Battery System is easy to install due to its modularity. No complicated wiring diagrams are required.
- Detailed information is available on the waterproof Ion Control display.
- The 350A relay in the Lynx-Ion provides maximum safety: in case the chargers or loads do not respond to the commands from the Lynx-Ion, the main safety relay will open to prevent permanent damage to the batteries.
- For typical marine installations there is an extra small output, so you can still power the bilge pump and disconnect all other house loads by opening the 350 A relay.

Complete system

A complete system consists of:

- One or more **24V 180Ah Lithium-Ion batteries**.
- (optional) The **Lynx Power In**, a modular dc bus bar.
- The **Lynx Ion** is the Battery Management System (BMS) that controls the batteries. A 350 Ampere safety contactor is inside the Lynx Ion.
- The **Lynx Shunt VE.Can**, a battery monitor including the main fuse. Note that the fuse needs to be purchased separately.
- (optional) The **Lynx Distributor**, a DC distribution system with fuses.
- (optional) The **Ion Control**, a digital control panel.

24V 180Ah Lithium-Ion Batteries

The base of the Victron Lithium-Ion Battery System is formed by individual 24V / 180Ah Lithium-ion batteries. They have a built-in Cell Management System (BMS) which protects the battery on a cell level. It monitors individual cell voltage and system temperature, and actively balances the individual cells. All measured parameters are sent to the Lynx Ion which monitors the system as a whole.

Lynx Ion

The Lynx Ion is the BMS. It contains the 350A safety contactor, and controls the cell-balancing, charging and discharging of the system. The Lynx Ion will protect the battery pack from both overcharging and depletion. When an overcharge is imminent, it will signal the charging devices to decrease or stop charging. This is done with the VE.Can bus (NMEA2000) compatible, and also via the two available open/close contacts. Same when the battery is nearing empty, and there is no charging capability available. It will signal big loads to switch off.

For both overcharging and depletion there is a last safety resort, the built-in 350 A contactor. In case signalling etcetera does not stop the imminent overcharge or depletion, it will open the contactor.

NMEA2000 Canbus

Communication with the outside world is done via the VE.Can protocol.

Ion Control

See the separate **Ion Control** datasheet for more information on the display.

Lithium-ion 24V 180Ah 4.75kWh battery

Technology	Lithium iron phosphote (LiFePo4)
Nominal voltage	26,4V
Nominal capacity	180Ah
Nominal power	4,75kWh
Weight	55kg
Power/Weight ratio	86Wh/kg
Dimensions (lxwxh)	625 x 195 x 355mm
Charge cut-off voltage at 0.05C	28,8V
Discharge cut-off voltage	20V
Recommended charge/discharge current	54A (0,3C)
Maximum charge current (1C)	180A
Maximum discharge current (1.5C)	270A
Pulse discharge current (10s)	1000A
Cycle Life @80% DOD (0.3C)	2000
Series configuration	Yes, up to 2 (more in series on request)
Parallel configuration	Yes, easy up to 4 (more parallel on request)
Operating temp. charge	0~45°C
Operating temp. discharge	-20~55°C
Storage temp.	-20~45°C

Lynx Ion

Maximum number batteries in series	2
Maximum number batteries in parallel	8
Enclosure	
Weight	1,4kg
Dimensions (lxwxh)	190 x 180 x 80mm
IO	
Safety contactor	350A
Bilge pump contactor maximum current	10A
External relay contactor maximum current	10A
Charged-signal contact	1A @ 60VDC
Discharged-signal contact	1A @ 60VDC
Standards	
Emission	EN 50081-1
Immunity	EN 50082-1

Block diagram Lithium-Ion Battery System

