Rev. 040324

Marine Lithium User Manual

24V/48V/96V Serie

www.endurancemotive.com

Índex

ATTENTION

Before using the battery, read this manual carefully and make sure you understand all the information. Keep the instructions for future consultations and the manual within reach of everyone who will use the battery. The installation can only be carried out by personnel authorized by Endurance Motive S.A.

1. Definitions.

Battery cell	It's the smallest component of a battery, a chemical unit.
Battery	Set of cells, BMS and housing.
BMS	Battery management system; BMS is the electronic system that monitors the parameters of the battery cell to keep it within the operating specifications.
CAN-BUS	Controller area network bus; the CAN bus is a standard serial data bus that provides data communication between two or more devices.
Gateway	Device dedicated to translate between battery and external devices.
DC Bus	Electrical circuit associated with the DC part of the system.
Resistor	An electronic component designed to introduce a specified electrical resistance between two points in an electrical circuit.
COM integrator	Component charger/invertir Victron
Contactors	Electric device that can close or open circuits under charge or under vacuum involving intensity charges that could produce some detrimental effect for the operator.
Balancing	Balancing (balancing or equalizing) is the action of injecting and extracting current to get all cells to have exactly the same voltage.
SOC	State of charge; it is the remaining capacity in a cell or battery module in percentage (%).
Resting state	State in which the battery system does not consume and does not charge.
Impedance	It is the obstacle that electricity encounters when passing through a circuit.

2. Safety instructions

2.1 Definition of safety icons.

DANGER

A dangerous situation that, if not avoided, can cause death or serious injury.

ATTENTION

Dangerous situation that, if not avoided, could cause mild or moderate injuries.

LIMITATION

Limitation of use to be taken into account for the safe use of the equipment.

ELECTRICAL HAZARD

Possibility of electrical hazards if instructions are not followed properly.

2.2 User safety and health.

- Use personal protective equipment when working on a battery.
- Use insulated tools when working on a battery system.
- Ensure that local health and safety standards are followed to work with battery systems.
- There is a risk of electrocution and burns when working in high voltage systems without adequate protective equipment and without special training.

2.3 Qualification and training.

Personnel responsible for the assembly, operation, inspection and maintenance of the battery system should be appropriately qualified. The user undertaking must perform the following tasks:

- Define the responsibilities and competence of all personnel working on the battery system.
- Provide instruction and training.
- Ensure that staff have fully understood the content of the operating and safety instructions.
- Check local safety standards and guidelines, which take greater precedence over manufacturer specifications in case of regulatory conflicts.
- Working with higher voltage requires specific training and certification.

The instructions and training can be carried out by Endurance Motive on behalf of the user company.

2.4 Risks of non-compliance.

El Failure to comply with all safety precautions may result in the following conditions:

- Death or serious injury due to electrical, mechanical and chemical influences.
- Environmental damage due to leakage of hazardous materials.
- Damage to the product.
- Damage to property.
- Loss of all claims for damages.

2.5 Assessment of hazards.

A hazards assessment is mandatory for each battery system integration.

The aim of the risk assessment is to identify the hazards and determine the corresponding risks for the specific application.

The following issues need to be addressed:

- Fire hazards (battery fire, external source fire, etc.)
- Environmental hazards (humidity, water ingress, vibrations, heat, etc.)
- Electrical hazards (short circuit, cable sizing, cable laying, etc.)
- Installation and operating risks (elevation, communication, loss of power, etc.)

2.6 Battery usage warnings.

The operational reliability of this product is only guaranteed when used as intended. The operating limits indicated on the identification label and the data sheet must not be exceeded under any circumstances. If the identification label is missing or worn, contact Endurance Motive for specific instructions.

ATTENTION

The Marine Lithium battery is not dangerous if used according to the recommendations in this manual. We recommend that all staff receive appropriate information and training on the correct use and operation of the battery.

Please note the following warnings before using the battery:

- Do not use the Marine Lithium battery if it is damaged. Do not handle damaged parts and contact Endurance Motive S.A.
- Extreme caution in handling external battery connection cables to avoid short circuits between external battery terminals and contacts. A short circuit can cause fire, material damage and serious injury.
- The external connector should avoid:

  - ✓ Force the connections.
  - ✓ Remove the connector by pulling the cable.
  - ✓ Tampering with the connector by unauthorized personnel.

- The Marine Lithium battery should only be connected to the appropriate charger that has been configured for the charge of said battery. Do not use any other charger as it could damage the Marine Lithium battery and/or cause injury.
- Do not climb on or stand on the Marine Lithium battery.
- Do not open the Marine Lithium battery to access the interior.
- Use only cables provided by Endurance Motive S.A. In case the cables are damaged, you must order replacement cables from Endurance Motive S.A.
- Only authorised personnel shall be responsible for installing or removing the battery.
- The product should not be disassembled.

Do not short-circuit, drill, incinerate, crush, submerge in water or expose to temperatures outside the range indicated by the manufacturer. If this occurs, an electrolyte leak, explosion or battery fire may occur, depending on the circumstances. In case of a prolonged short circuit, the battery can reach high temperatures emitting gases and can generate a flame focus.

Any battery damage caused by the actions described above will invalidate the use of the warranty.

If, due to external influences such as hits, fire, flooding, etc., it is not possible to use the system safely. In case of irregular phenomena, the following should be taken into account:

- Cells contain substances that are flammable when they reach the oxygen in the air.
- Cells contain substances that can form a flammable mixture with air after evaporation.
- Cells contain substances that can react with water as soon as they reach the humidity of the air or if water enters a cell.
- These substances can be expelled if a cell is exposed to high pressure or external fire, or if it is damaged by mechanical force.
- The amount of these substances is so small that caution should be exercised only in the vicinity of the energy system.

3. Information on composition.

The battery consists of a metal housing with protection grade IP65 that contains several sealed lithium-ion phosphate cells and other materials, which could be potentially hazardous if released.

SUBSTANCE	Wt %	CAS-Nr.
LITHIUM IRON PHOSPHATE	49,0	15365-14-7
ALUMINIUM	6,0	7429-90-5
GRAPHITE	24,0	7782-42-5
COPPER FOIL	13,0	7440-50-8
LITHIUM HEXAFLUOROPHOSPHATE	3,0	21324-40-3
POLYPROPILENE	5	9003-07-0

4. First aid measures in case of exposure to internal battery components.

There are lithium salt compounds, organic solvents, etc. inside the Polris Lithium batteries.

When used incorrectly or in extreme environments, dangerous situations including: leakage, smoking, overheating, safety valve opening (with black substance spraying) or fire may occur. To protect the safety of personnel and reduce economic losses, you should take urgent protective measures in the event of danger.

ATTENTION

Please read and observe the following protective recommendations carefully:

INHALATION OF SMOKE	When there is smoke, use protective measures (such as covering nose and mouth with a wet towel or use of a professional gas mask) to prevent inhalation of fumes. As smoke and other harmful gases may cause damage to the respiratory system, give oxygen if necessary. Move victim to fresh air and remove source of contamination from the area. Seek medical attention in severe cases.
EYE CONTACT	Flush immediately with plenty of water for at least 15 minutes, lifting the upper eyelid during flushing. Rinse with saline solution if possible. Seek medical attention in severe cases.
SKIN CONTACT	Remove attached clothing, washing with water carefully. Seek medical attention in severe cases.
INGESTION	Drink milk/water and induce vomiting. Seek medical attention in severe cases.

5. Fire fighting measures.

GENERAL DANGER	A destructive impact can cause the battery to release internal energy in an instant, causing a pressure discharge from the safety valve, smoke, etc. At temperatures above 120°C, the pressure valve can burst and flammable gases can escape. At this time, fire-fighting measures must be taken.

LIGHT OR LARGE FIRE	In the event of fire, flame or smoke: during driving: stop, turn off the truck and leave the area. During charging: stop the charger or remove the charging cable and leave the area. ▪ Move the power system outside or into a well-ventilated area and remove people from the area when possible. ▪ Set up a 5-meter security perimeter around the battery. ▪ Use extinguishing systems to isolate the system from the air such as masking sand, carbon dioxide or dry dust extinguishers or other extinguishers, and disconnect the system at the same time. Avoid using water as it can produce hydrogen fluoride. ▪ Call emergency services and report that the fire was caused by a lithium-ion battery.

ELECTRICAL HAZARD

After extinguishing the fire do not use the battery again. Contact the after-sales service department.

6. Accidental release measures.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED	▪ If the battery material is spilled, remove personnel from area until fumes dissipate. ▪ Provide maximum ventilation to clear out dangerous gases. ▪ Wipe up with a cloth and dispose of it in a plastic bag and put into a steel can. ▪ The preferred response is to leave the area and allow the batteries to cool and vapours to dissipate. ▪ Provide maximum ventilation. ▪ Avoid skin and eye contact or inhalation of vapours. ▪ Remove spilled liquid with absorbent material and incinerate.

LIMITATION

The batteries should not be opened, destroyed or incinerated as they may leak or rupture and release the materials contained in the hermetically sealed container into the environment.

7. Use of personal protective equipment.

7.1 In normal condition.

RESPIRATORY PROTECTION	Respiratory protection is not necessary under conditions of normal use.
PROTECTION GLOVES	Not necessary under conditions of normal use.
EYE PROTECTION	Not necessary under conditions of normal use.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT	Not necessary under conditions of normal use.

7.2 After an incident.

RESPIRATORY PROTECTION	In case of battery venting, provide as much ventilation as possible. Avoid confined areas with venting batteries.
PROTECTION GLOVES	Use polypropylene, polyethylene, rubber or Viton gloves to handle broken or leaky items.
EYE PROTECTION	Wear safety goggles with side protections or a full-face mask when handling broken or leaking items.
OTHER PROTECTIVE CLOTHING OR EQUIPMENT	Wear a rubber apron and protective clothing when handling broken or leaky items.

7.3 Stability and reactivity.

REACTIVITY	None, beyond normal conditions
CONDITION TO AVOID	Heating, mechanical and electrical abuse
MATERIALS TO AVOID	None, beyond normal conditions
DANGEROUS DECOMPOSITION PRODUCTS	None, beyond normal conditions

8 Toxicological information.

Inhalation, skin and eye contact are possible when the battery is opened. The corrosive fumes are very irritating to skin, eyes and mucous membranes. Overexposure can cause symptoms of non-fibroid lung injury and membrane irritation.

9 Transport information.

Mandatory transport warnings:

- Use original packaging materials.
- Lithium-ion batteries are dangerous goods and must be transported according to the applicable rules.
- The transport company and the carrier must be qualified to transport and pack dangerous goods.
- The SoC during transport should be 30%.

As the Watt-hour rating of the battery is more than 100Wh, this lithium ion battery has to be declared and shipped as "Class 9" DANGEROUS GOODS in accordance with Packing Instruction 965 (UN 3480) or 966/967 (UN 3481), Section I - Fully Regulated Class 9 Lithium Ion Cells and Batteries - of the IATA-DGR and Packing Instruction P903 of the ADR and IMDG code. The Dangerous Goods Label "Class 9" is required.

Codes and classification according to international regulations for transport		
Air	IATA/CAD	UN 3480
Sea	IMDG	UN 3480
Land	ADR/RID	UN 3480

10 Storage.

ELECTRICAL HAZARD

ELECTRICAL HAZARD, we recommend storing the batteries at a height of between 15cm and 120 cm.

Store in a cool, dry and well-ventilated place at a temperature between 0 and 40ºC to preserve its shelf life.
Indicate in the storage area that access should be strictly limited to personnel who are aware of the risks and safety instructions.

STORAGE PERIOD OF LESS THAN 2 WEEKS	▪ No special care is needed. ▪ During this period, the Polaris Lithium battery will not go into auto-discharge protection mode.
STORAGE PERIOD EXCEEDING 2 WEEKS	▪ It is mandatory to load at maximum before storing. ▪ Check the charge level every 6 months to keep the charge level above 50%. Recharge the battery 100% if necessary. ▪ (Higher ambient temperatures increase the discharge process).

11 Unpacking and handling.

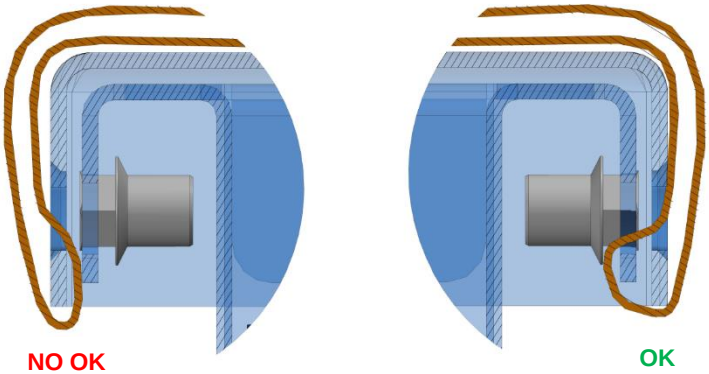
Follow these handling guidelines when unpacking the product to avoid damage during unpacking.

11.1 Battery removal and elevation.

To remove the battery from the packaging, use the 2 slings that come with the battery inserted into the 4 holes of the lid that come on the long side of the housing.

Do not remove the slings when installing the battery.

In case you have to insert them, it should be passed through the hole of the cover and the case at the same time, as indicated by the image.



Before handling the battery, always consider the applicable local rules and regulations on accident prevention.

Note the weight of the battery and do not elevate heavy objects without mechanical means or without the help of the number of people required to distribute the weight of the battery, (elevate between 4 people).

12 Battery overview

Marine Lithium batteries are made with lithium ferro phosphate cells (LiFePO4).
Our cells are high security and certified by UN38.3/MSDS, RoHS, CE, TUV and UL. The material of the cell cover is fireproof and has a ceramic diaphragm pressure valve to increase safety. An LFP cell has a nominal voltage of 3.2 V and capacity of 105 Ah.

Our Marine Lithium batteries feature a parallelization BMS (battery management system) that gives you intelligent action for charging, discharging and monitoring. Thanks to the parallelizable BMS, the system is safe and able to make autonomous decisions on the connection and disconnection of the different 24Vx420Ah modules, which allows to keep the system running even in the event of loss of any of the modules due to system errors.

The BMS monitors compliance with the limit values, and in case of bad practices, protects the battery against critical conditions.

Our Marine series batteries allow the connection in parallel between them, creating a system of multiple battery modules in parallel. Specifically, this system has the ability to connect up to 16 modules, allowing the creation of a battery bed of 24 / 48 / 96 V

with an energy storage capacity ranging from 420 Ah to 2520 Ah, equivalent to an energy storage capacity of between 10.1 kWh and 60.5 kWh.

13 Battery components.

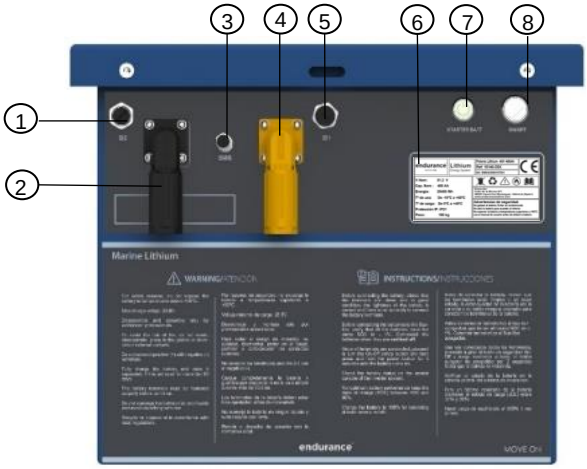
Material	Quantity	Provider
Battery	according to customer	Endurance
Communication cable	1*battery / 1*GPRS	Endurance
Gateway	1*system	Endurance
Terminator resistance	1*system	Endurance
Power connector Orange	1*battery	Endurance
Power connector black	1*battery	Endurance
Power cable	2*5 meters per battery	Distributor
Round terminals	2*battery	Distributor

13.1 Optional components.

Material	Quantity	Provider
GPRS	1*system	Endurance

13.2 Descripción de los conectores de la batería.

Element	Identifier	Function
1	B2	CAN-Bus communication output
2	-	Negative connector
3	BMS	Communication with the BMS
4	-	Postive connector
5	B1	CAN-Bus communication input
6	-	Battery label
7	Battery Starter	Push Button Battery Starter
8	On/Off	On-off switch



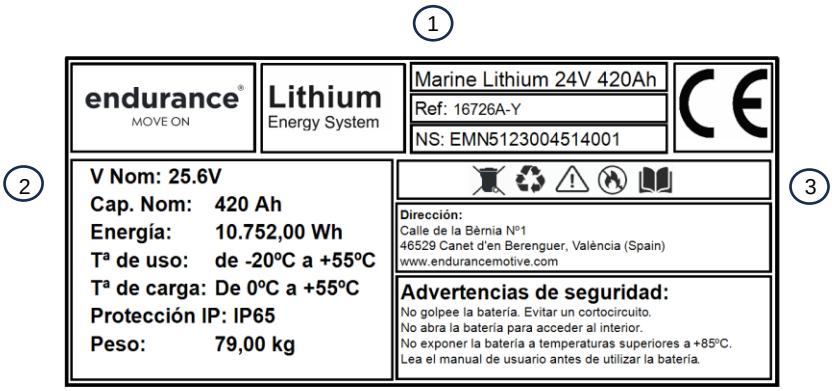
13.3 . Label battery description

Warning signal.
Danfer: The battery contains cells. Avoid short circuit.

Prohibition signal.
Do not expose the battery to high temperatures. The Polaris Lithium battery is designed for use at an ambient temperature of up to +45 C. For safety reasons, the battery should not be exposed to temperatures above +85 C.

Information signal.
Read the user manual before installing and using the Polaris Lithium battery.

Symbol Recycling of electronic waste.
This product must be recycled correctly.



1. Model, internal reference and serial number.
2. Specifications of the battery.
3. Warning symbols, company information and safety warnings.

13.4 GPRS Description.

The device provides GPRS connection to the system for monitoring batteries, being able to monitor batteries remotely.

Label	Function
G1	CAN-Bus output
G2	CAN-Bus input

13.5 Gateway description.

Mandatory element in the system, if you work with Victron.
This device is the communication bridge with the Com integrator device to our batteries.

Label	Function
P1	CAN-Bus output
P2	CAN-Bus input

13.6 Description of power cables and their connectors.

The power cable consists of 3 elements:

- The connector connecting cable and battery, Included in each battery.
- Cable, supplied by the supplier.
- The washer terminal connecting the interlock and cable is provided by the supplier.

It is very important that the system remains balanced, it is important to put the same length of cables in all batteries, so the impedances will be kept as close as possible, as it will be charged and discharged with different currents.

ATTENTION

- Use the appropriate cable type for the designed system voltage.
- It is advisable to size cables to limit voltage drop to 1% or less.
- To ensure that the power connections have a low resistance, these should be cleaned before connection.
- Check these connections for excessive temperatures during a load test.
-

13.7 Communication cables.

These cables are responsible for taking the information to the rest of batteries or to the auxiliary elements, is provided with the battery.

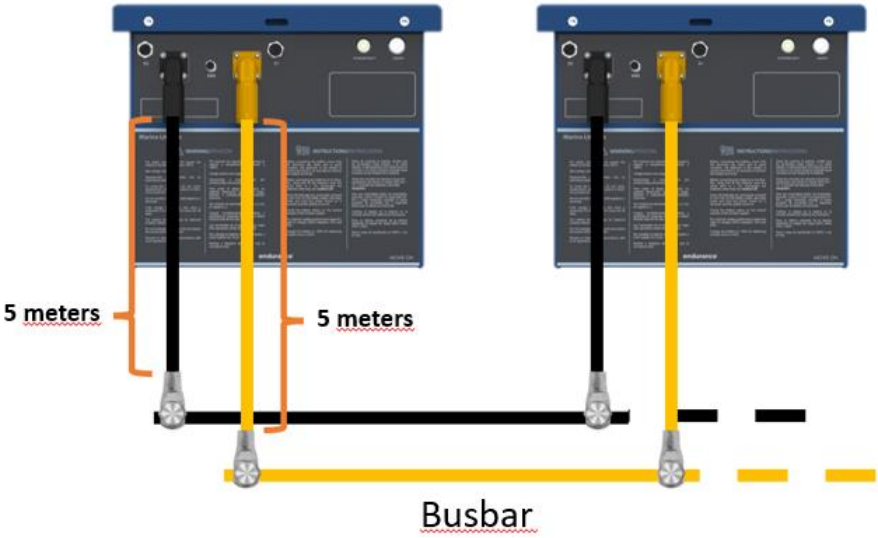
13.8 Terminator resistance.

It is an important element of the system, since it will endow the characteristic impedance to the CAN-Bus.

14 Connectivity overview.

14.1 Power connection.

The power wiring shall be connected in parallel from the bus continuous to each of the batteries as shown in the following image.



For each battery you need 2 power cables one will be the positive of the battery and the other the negative. Both cables will have at one end a terminal with washer that will connect the battery with the muddle. The recommended torque will be 8 Nm.

On the other end of the power cable the connectors provided with the battery, with the battery connection function, shall be placed.

ATTENTION

The connectors provided will be of 2 colors, being orange for the orange connector of the battery and black for the black connector of the battery.

For proper bonding, the auditory signal must be checked on the connection.

If you want to disconnect the battery, check the system shutdown first, then press the connector trigger and proceed to disconnect.

14.2 Maximum power cable lengths.

The maximum length of power cables should be 5 meters, if possible, installation of smaller lengths is recommended.
If lengths greater than 5 meters are required, please contact us with the data provided in point 7.

ATTENTION

The length of the power cables must be equal in all batteries, if not runs the risk of imbalance.

14.3 CAN-Bus connecting conector.

Batteries have on their front 2 connectors dedicated to communication CAN-Bus: B1 y B2.

B1: M12 male connector, which has two functions:

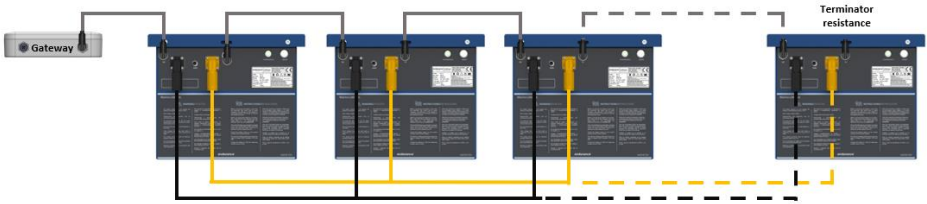
- Place the terminating resistance of the system, just place that element in the last battery of the system.

- Interconnect the communication of the batteries.

B2: Female M12 connector, which has two functions:

- Interconnect communication of batteries

- If it is the first battery, it shall be connected with a communication cable provided to the auxiliary device, as explained in paragraph 16.2.



ATTENTION

1. Identify the footprints of the connectors and connect male-female fitting both footprints in the same position.
2. Lock them by turning clockwise without specific tool.

Footprint Connector Communication B1

Footprint Connector Communication B2

14.4 Pin Out connectors.

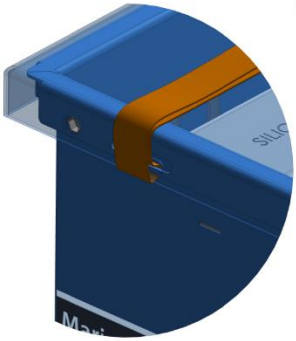
Connector B1	
Pin	Function
1	Do not apply
2	12 Volt
3	12 Volt GND
4	CAN - Hight
5	CAN - Low

Connector B2	
Pin	Function
1	Do not apply
2	12 Volt
3	12 Volt GND
4	CAN - Hight
5	CAN - Low

Connector BMS	
Pin	Función
1	CAN - Hight
2	CAN - Low
3	Does not connect

15. Battery installation.

Below, it describes how the installation and electrical wiring connections will be performed.

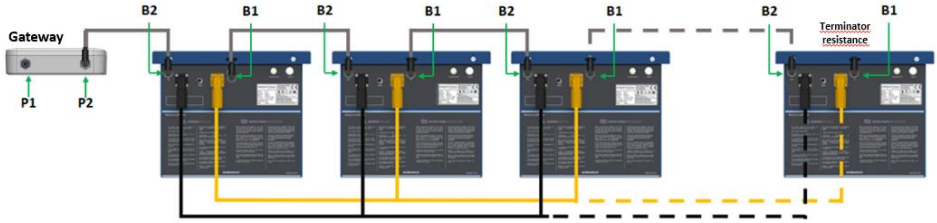


15.1Handling of the battery.

Use the 2 slings provided with the battery to move it. Note the weight of the battery 80 kg. to handle it in safe conditions, it is recommended to move it between 4 people.

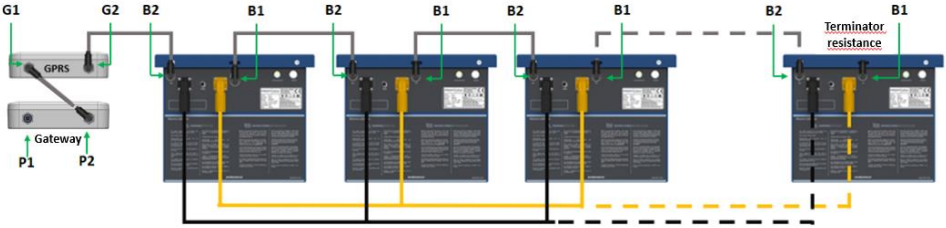
15.2 Wiring diagram of the batteries.

To connect the batteries to each other, you must connect, on the one hand, the power in parallel to the DC bus, and on the other hand the communication of the battery boxes in series with the catwalk box.



Battery parallelization scheme without GPRS

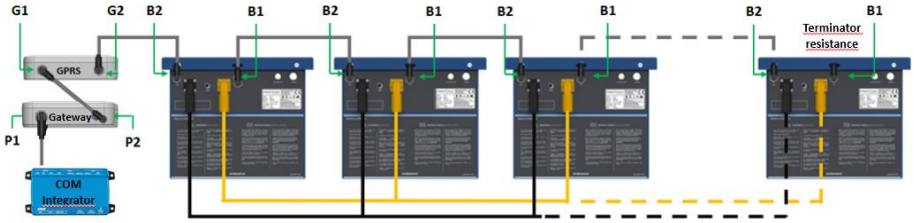
If the system obtained by the client contains GPRS it must be connected in series between the gateway and the battery, as shown in the following diagram.



Battery parallelization scheme with GPRS

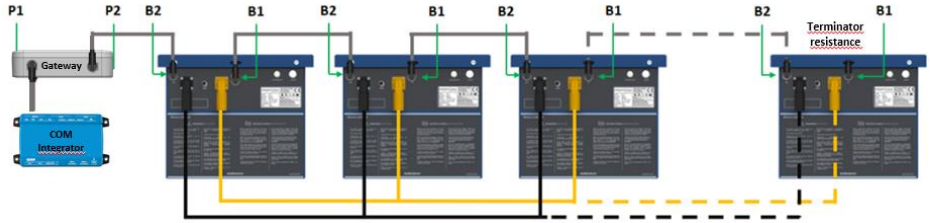
15.3 Diagram of connection with COM Integrator.

The connection of the communication of the different components should be as follows:



Schematic connection of the communication peripherals with GPRS

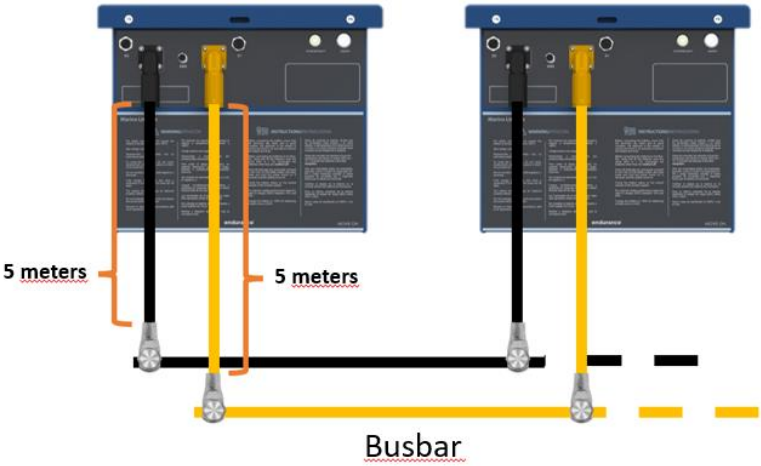
On the one hand, the CAN-BUS communication of the charger/inverter shall be connected from the system gateway.



Schematic connection of communication peripherals without GPRS

15.4 Power connection.

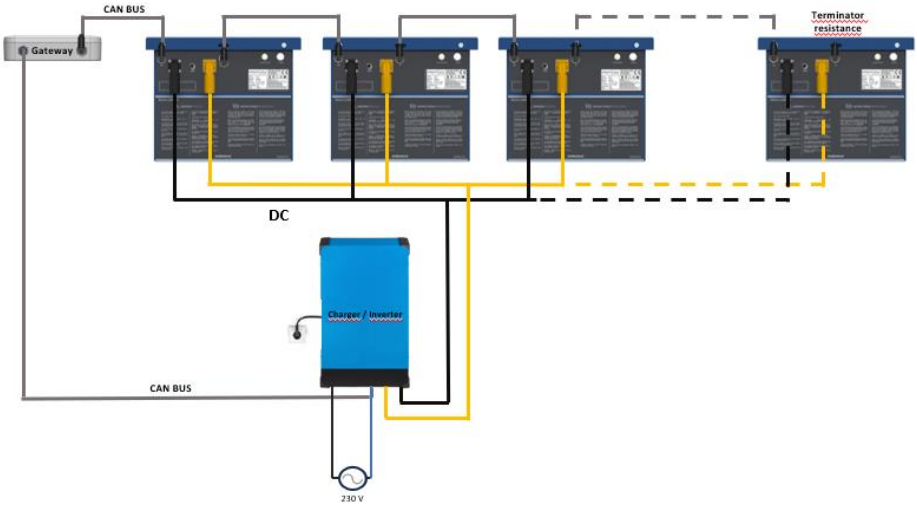
To make the power connection with the batteries you have to join the connector + female (orange) of the battery with the power cable connector male orange, the other end will be bolted to the boat positive mud.



For the negative part it is the same procedure but joining the black connectors and screwing the cable to the negative mud.

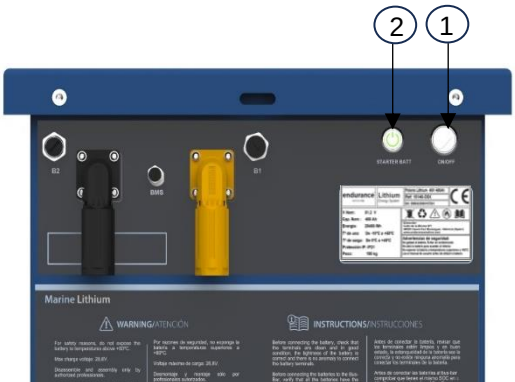
15.5 Connection to charger/inverter.

- Connect the charger/inverter to the muddle.
- Check battery and charger/inverter polarity. The positive pole of the battery must be connected to the positive pole of the charger/inverter and the same for the negative pole.
- Connect the charger/inverter cables to the battery using terminals suitable for the current and voltage handling the system.
- Make sure the wires are securely attached and tight to avoid loose connections that can cause sparks and possible damage.
- Connect the charger to a suitable socket.



16. Starting the Battery.

1. Turn connector 1 by putting it on ON all system batteries.
2. Press and hold the 2 button for 4 seconds until you hear the battery contactor.



17. Charging procedure.

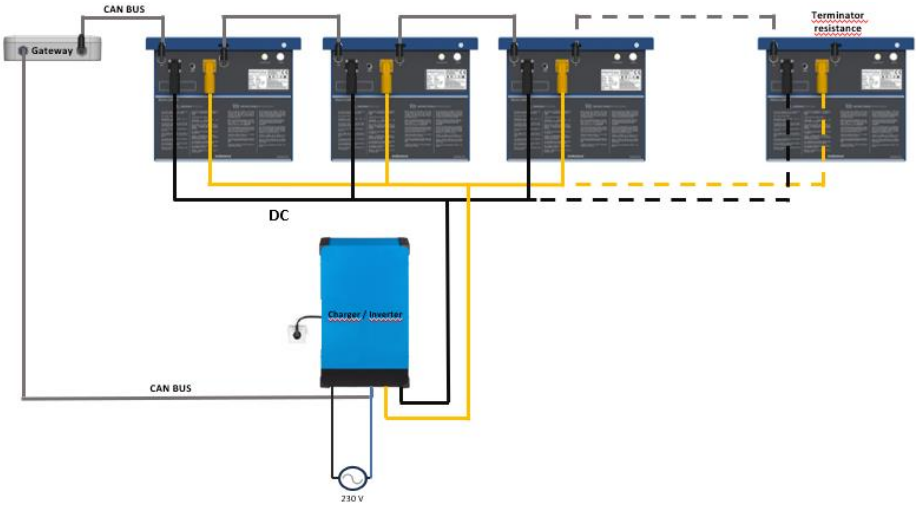
Charging the battery it simply requires 3 things.

- Batteries on.
- Charger/inverter connected to the mudslide.
- Charger/inverter on.

18. Discharge procedure.

To discharge only 3 things are required:

- Batteries on.
- Charger/inverter is connected to the mudslide.
- Charger/inverter is in inverter mode.



19. State of rest.

In a resting state, without the charger/inverter being in operation, current flows can be produced between the batteries, this is produced if any of the units has an imbalance.

ELECTRICAL HAZARD

Please do not disconnect immediately after use.

20. Installation considerations.

ATTENTION

It is important to do the installation with the batteries off, so the contactor will be open and there will be no danger in handling.

20.1 Checkpoints after completion of installation.

- Check the polarity, section and length of battery interconnect cables to be equipotential.
- Check that the connections are tight to the right torque.
- Gently pull the wires to check the connection.
- Check that the connection of the communication hoses is correct.
- Check that there is a finishing resistance on the last battery.
- All contactors are closed when the battery is switched on.
- Perform a charge and discharge test and measure the temperature of the battery terminals during the test.

21. Maintenance.

ATTENTION

Maintenance can only be performed by qualified personnel with knowledge of high-capacity batteries.

EVERY 6 MONTHS	▪ Check electrical connections with torque meter. ▪ Check the correct connection of the communication connectors. ▪ Check for signs of corrosion. ▪ If necessary, clean the Marine Lithium battery with a damp cloth. Never clean it under water or high pressure jets.
ONCE PER MONTH	▪ Leave the charger connected to the Marine Lithium battery system until it is fully charged. Repeat this operation at least once a month to keep the system balanced.

22. Diagnosis of errors.

Battery doesn't charge	• Check that the button light is on, to check if it is on. • Check the good contact of all communication cables. • Check the good contact of power joints. • Check the finishing resistance
The data is not displayed on the screen	• Check the communication cables. • Check the finishing resistance on the Cerbo and batteries.

23. Reparation.

If a Marine Lithium battery must be repaired, Endurance Motive S.A service staff may replace some of the parts, but any damage to the internal parts must be repaired at the Endurance Motive S.A.

ATTENTION

Always contact Endurance Motive S.A service when you suspect the Polaris Lithium battery is damaged.

24. End of battery life.

Battery life is considered at its end if the SOC is reduced to 70%. After this period, it is strongly recommended to replace the battery module to ensure safety.

Procedure for disposing of lithium-ion batteries.

- Before discarding make sure the battery is completely discharged.
- Batteries must be neutralised by an approved secondary treatment facility prior to disposal as hazardous waste.
- Battery recycling can take place in an approved facility through an authorized waste carrier.
- Batteries must be returned to the manufacturer or recycled according to environmental regulations and recycling laws of the country concerned.
- Cell identification according to IEC 62620: ICNMP/28/149/95/H/-30+55/95.
- Please note that, during transport, the Marien Lithium battery must be treated as a dangerous commodity, in accordance with standard UN3480, Class 9.

- External terminals must be protected from short circuits.
- Batteries, whether normal or outdated, must be packed in accordance with P903.

The packaging and marking of goods must be carried out exclusively by personnel trained for the transport of dangerous goods (training 1.3, according to manual UN 38.3).

25. Technical specifications.

You can download the product data sheet on our website the download section:

https://endurancemotive.com/en/downloads

26. Warranty.

This limited warranty ("the warranty") specified below applies to the MARINE LITHIUM battery family (hereinafter «batteries») and accessories supplied by ENDURANCE MOTIVE, S.A. ("Endurance") to the original buyer ("the buyer") directly or through an authorized reseller.

1. Purpose.

The main purpose of this warranty is to clearly define the issues relating to the MARINE LITHIUM product warranty policy.
The guarantee conditions indicated in this section are considered to be exclusive of any other conditions or warranty provided for in the Law.

2. Product and Performance warranty.

Endurance guarantees the Marine Lithium batteries and accessories that it supplies against any defect in material or manufacture and guarantees that they comply with the quality and performance advertised.

Endurance guarantees battery performance of at least 70% of rated power for 5 years from billing date and/or 4,000 full cycles, whichever comes first ("warranty period"), understood as a complete cycle to add charge/discharge Ah equal to the nominal amperage of the battery.

Endurance guarantees the components that form the battery for a period of 24 months from the delivery ("the Warranty Period").

Endurance guarantees the accessories supplied together with the battery such as, charging and unloading connection hoses, Gateway and GPRS for 12 months from the delivery ("the Warranty Period").

The warranty will entitle the buyer to the free repair of the battery and accessories in the facilities of Endurance, including the parts, the necessary labor and excluding transportation costs that are generated by making use of the warranty. In the event that the customer requires the repair to be carried out in their facilities, the guarantee will not cover the travel and subsistence costs incurred by the application thereof.
In case the battery has been exported outside the European Union, if the customer wants to make use of the guarantee, he must bear the transport costs from where the battery is located to the Endurance facilities.
Replaced or repaired products shall remain under warranty for the remainder of the original product warranty period. In no case shall the replacement justify the renewal or extension of the warranty period.
The warranty will expire at the end of the period, even if the products have not been launched for whatever reason.

3. Conditions of enforceability of the warranty.

They shall be indispensable conditions and shall constitute requirements for the enforceability of the warranties, which:

a. That the instructions for starting and operating the products are observed and followed according to the instructions provided by Endurance or the suppliers designated by Endurance.
b. The battery is operated in normal use according to specifications and the current user manual published and provided by Endurance.
c. Ambient temperature during discharge cannot fall below - 10ºC and cannot exceed 60ºC.
d. Ambient temperature during battery charging cannot fall below 0ºC and cannot exceed 55ºC.
e. Endurance has been allowed to monitor the battery online in order to know at all times the use of the battery. If this monitoring is not possible, the product and performance warranty will be reduced to 2 years.
f. In case of sending the boat and battery out of Spain, before its export, the customer undertakes to validate the correct functioning of the system. Endurance, may request evidence of validation from the buyer.
g. Our batteries meet, as necessary, the legal requirements only within the European Union. The buyer is solely responsible for compliance with legal regulations or other regulations when using our batteries with your machine, as well as for performing the necessary tests to ensure compliance.

4. Exclusion from the warranty.
This limited warranty does NOT cover product damage caused by one of the following activities:

a. Improper transportation, storage, installation or wiring by the buyer.
b. Cleaning, adjustment or other periodic maintenance.
c. Modifications, alterations, disassembly, repairs or replacements by personnel not certified by Endurance.
d. Amendments required by changes in legislation.
e. Non-compliance with the current user manual published and provided by Endurance.
f. External influences, including unconventional physical or electrical stresses (spikes in current failure, burst currents, floods, fires, accidental breaks, etc.)
g. Use of an incompatible charger.
h. What may be considered normal wear due to the use of the Product.
i. Elements not manufactured by Endurance that will have those established by their manufacturers. Such guarantees will be given to the buyer, who will be the beneficiary of the same, without Endurance assuming any responsibility in relation to these elements from the date of the assignment, which will occur with the delivery of the product.

The buyer must review the delivery of the product immediately upon receipt. If, upon receipt of the products, the buyer verifies the non-conformity of the same for defects and apparent defects, produced during the transport, the buyer must sign the non-conformity of the delivery on the carrier's delivery note and the claim will be communicated as indicated in point 8 of this warranty, within an immediate period of receipt. After that period Endurance will be exonerated of any damage caused during such transport.

Any claim or litigation shall not entitle the customer to suspend or, in any event, delay payment of the disputed products, dispute or other supplies.
In any case, the liability of Endurance and/or distributors and/or any other intermediary of Endurance is limited to the maximum amount of the selling price of the Product. Compensation for indirect damages is excluded.
In no case shall it be compensated for consequential damages or for costs arising from the interruption in the operation of the product (loss of profits).

5. Out of warranty product policy.
In the case of out-of-warranty products Endurance will offer a technical assistance service at the expense of the buyer, which will cover, among others, the costs of materials, laboratory, warehouse, transport, customs, analysis, management, business profits, disposal costs (if necessary). In providing this service, Endurance will apply its tariff policy.

6. About assistance products/parts.
Support products/parts can be used new or repaired, with a performance similar to or higher than that of defective products, with the warranty of Endurance.
In case the products are no longer available on the market, Endurance may choose between (i) replacing them with others with equivalent functions and performances or (ii) return the remaining annual value with the depreciation of the purchase price of the products during the performance warranty period, as indicated in the following compensation scheme:

- CLASS I: 60% of purchase price from initial installation date to 24 months
- CLASS II : 40% of purchase price 25 to 36 months
- CLASS III : 20% of purchase price from 37 to 48 months

For the above purposes, purchase price means the list price actually paid by the buyer for the acquisition.

7. Claims in use of warranty
Claims in use of the warranties will be notified to Endurance only by email to postventa@endurancemotive.com or the distributor from whom the product was purchased, within the warranty period, accompanied by:

a. Number and date of delivery note or product invoice.
b. The serial number of the product concerned.
c. Description of the detailed problem and under what circumstances it occurred.
Buyers who are unable to contact the distributor from which they purchased the product should contact Endurance via email: *postventa@endurancemotive.com*.

8. Countries in which it applies.
This warranty covers incidents in the countries of the European Union, excluding any liability in case of different countries.

9. Enforcement of the warranty rights.
For any claim, you must contact us through our postvent@endurancemotive.com email. You must manage the claim as specified in point 8 of this warranty.

10. Entry into force.
In general, the warranty to which Endurance commits in this document will be valid from the delivery.

CE

27. Declaration of conformity

Maker: Endurance Motive SA
Address: C/ La Bernia 1, 46529 Canet de Berenguer - Valencia – Spain

Endurance Motive SA declares that the list of products indicated below complies with the relevant European Union legislation on harmonization and bears the CE marking in accordance with the following directives:

Electromagnetic Compatibility (EMC) 2014/30/EU
RoHS Directive 2011/65/EU
Low Voltage Directive 2014/35/EU
Product safety device 2001/95/CE
Regulation UE 2023/1542

References to the relevant harmonized standards used or references to other technical specifications against which conformity is declared:

UNE-EN 62619:2022 (ES-TRIN)
IEC 62620:2015 (ES-TRIN)
EN 61000-6-3:2021
UN 38.3

Type of cell technology:
Lithium – Iron Phosphate (LiFePO4).

Kind of product (Marine Series battery):

24V Series (420 Ah)
48V Series (210 Ah)
96V Series (105 Ah)

Carlos Navarro (CEO)

Date : 01-02-2024

endurance®

MOVE ON

ENDURANCE MOTIVE S.A.

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