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Lithium battery systems

The installation and commissioning of lithium iron phosphate battery systems on board cruising yachts is a subject of great interest for offshore cruising as well as living aboard. Traditional lead-acid battery banks typically exhibit very poor life and performance in this type of service.

The articles published here have been extremely time-consuming to write, due to the volume of research and experimentation involved, but also because of the amount of time required to gain practical experience on board with this technology. It was also necessary to establish a small user base beyond the initial pilot project to obtain feedback and data originating from different energy usage patterns and observe those performing through winter and summer.

The absence of an acceptable and really adequate battery protection/management solution prompted the development of such hardware, which was then followed by extensive testing and validation in the field.

The objective here is providing all the information required for building and commissioning such a lithium house bank, starting from bare lithium battery cells. Completing this task will take a little longer as it is forever competing with other work, but I have now started publishing this material.

Building such systems is the most cost-effective pathway to embrace this new technology, but such installations must be carried out with a great deal of care and attention in order to deliver a good and safe long-term outcome.

Lithium Battery Systems

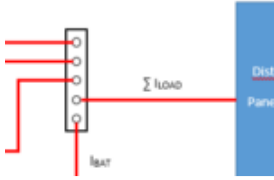


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- Charging Marine Lithium Battery Banks
- Engine Reliability: A Look at the Volvo Penta MDI Black Box
- Ultrasonic Antifouling System – Part 2, Fighting Algae Growth
- Ultrasonic Antifouling System – Part 1, Development & Construction



Charging Marine Lithium Battery Banks

This article is part of a series dealing with building best-in-class lithium battery systems from bare cells, primarily for marine use, but a lot of this material finds relevance for low-volt systems as well. [Full Article](#)



Protection and Management of Marine Lithium Battery Banks

This article is part of a series dealing with building best-in-class lithium battery systems from bare cells, primarily for marine use, but a lot of this material finds relevance for low-voltage off-grid systems as well. [Full Article](#)



Electrical Design For a Marine Lithium Battery Bank

This article is part of a series dealing with building best-in-class lithium battery systems from bare cells, primarily for marine use, but a lot of this material finds relevance for low-voltage off-grid systems as well. [Full Article](#)

Protection and Management of Marine Lithium Battery Banks

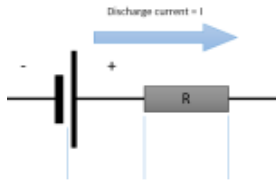
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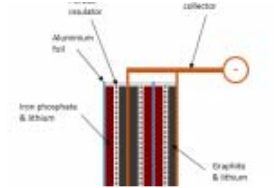
Assembling a Lithium Iron Phosphate Marine House Bank

This article is part of a series dealing with building best-in-class lithium battery systems from bare cells, primarily for marine use, but a lot of this material finds relevance for low-volt systems as well. Here, we detail the hands-on process of building a lithium battery bank from individual single prismatic cells. There is more to [...]



Practical Characteristics of Lithium Iron Phosphate Battery Cells

This article is part of a series dealing with building best-in-class lithium battery systems from bare cells, primarily for marine use, but a lot of this material finds relevance for low-volt systems as well. Batteries are about voltage, current and capacity first and foremost. This article discusses the performance characteristics of lithium



Lithium Battery Banks – Fundamentals

This article is part of a series dealing with building best-in-class lithium battery systems from bare cells, primarily for marine use, but a lot of this material finds relevance for low-voltage off-grid systems as well. Hundreds, if not thousands, of research papers have been published about lithium batteries, as well as numerous books. Still, a lot [...]

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iron phosphate cells



From Lead-Acid to Lithium: New Battery Technology for Power on Board

This article is part of a series dealing with building best-in-class lithium battery systems from bare cells, primarily for marine use, but a lot of this material finds relevance for low-voltage off-grid systems as well. The development [Full Article](#) manufacturing in recent years of large-size lithium-ion battery cells for electric vehicles and grid-tied electricity storage has made [...]

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Some of the information presented and discussed on this site refers to difficult and unforgiving situations at sea and in parts of the world where no timely assistance can be expected. This information shall not be construed as advice to act in a certain manner. It only represents personal experience and views shared by the author to provide a perspective and prompt reflection. Different yachts handle differently, some designs run into severe limits in bad weather that can irremediably compromise their safety and the life of those on board, and conditions are never twice the same. In many cases, should you decide to tackle some of the oceans and areas featured here, take your vessel where it shouldn't be or make a wrong call, you will die and probably never be found. What you decide to do is your entire responsibility. It is your freedom too. Take great care of it.

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