What drives us?

Reducing emissions through intelligent energy management.

Lürssen has created an artificial intelligence system that analyses the yacht's usage, monitors and visualizes the yacht's power supply and energy consumption, and even performs automated power management tasks. The intelligent data network also allows to fully integrate independent systems into the operational data network. Thus, greater utilisation of the individual generators and batteries can be achieved and emissions can be reduced. LÜRSSEN – sustainable yachting makes the difference.

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The difference.

INTELLIGENT ENERGY GENERATION AND DATA MANAGEMENT

The Lürssen Think Tank

Technical Whitepaper

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THE LÜRSSEN THINK TANK

Through the extensive collation of operational data and the intelligent management of energy demand and power generation, Frank Schröder, head of electrical design, reveals how Lürssen reduces emissions on board without compromising on comfort.

INTELLIGENT ENERGY GENERATION AND DATA MANAGEMENT

At Lürssen, our goal is to merge the multitude of facilities and systems on board a vessel, making it possible to realise any operating, monitoring and analytical functions across system boundaries. As such, during the build of a yacht, the electrical design department at Lürssen gathers and analyses more than 10,000 operational data points, spanning basic alarm information to the voltage and current of each switchboard. And, to utilise all this data for the benefit of our clients, we have created an automated platform so that energy generation, distribution and consumption on board can be managed intelligently and efficiently.

This platform is an automated energy and battery management system with an open-interface architecture and, as system integrator, Lürssen has put together the entire energy system incorporating the many individual systems unique to each project. By using the sophisticated control and monitoring system Allviu, developed by our partner company besecke, the yacht can receive and process all relevant information, status reports and faults and perform automatic or semi-automatic energy management tasks. In addition, independent systems such as the safety management and control system can be fully integrated into the plant data network.
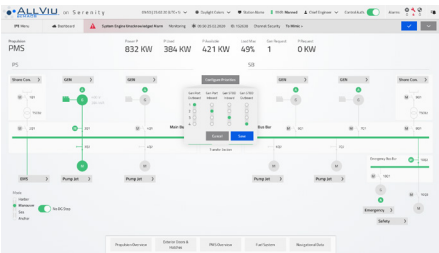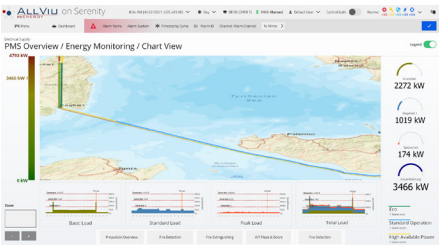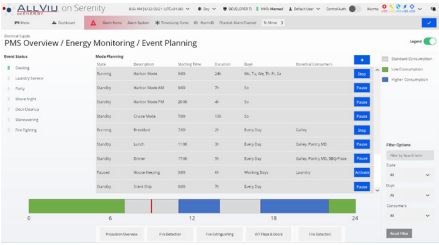
As opposed to a traditional ship's power management system – where the power generation is the main focus – our system only connects the relevant consumers. Depending on the power demand, the load of the energy storage and the load of the active power generator, the system will automatically optimise the consumption in different modes. Two modes are provided as standard – Comfort Mode enables energy supply without restriction on the consumer side and Eco Mode ensures the lowest possible energy consumption – but any other modes in between are also possible to set up.

These energy management tasks ensure the power supply of the yacht by controlling the number of generators connected to the grid according to the amount of energy required at one time. With the use of batteries and the intelligent control of selected consumer groups, temporary starts of generators can be avoided by calculated forecasts, thus optimising the use of individual generators.

The main benefit of this system is that the yacht can be free from interfaces between the many systems on board, with all the information on one platform. Furthermore, the system is scalable depending on the project and number of systems, and we can create customised functions and modes according to owner usage. For example, if a swimming pool on board needs to be heated within a certain time frame, we can create a bespoke power-management mode to prioritise that.

In the future, our vision is to integrate Artificial Intelligence technology inside the system, which would analyse the use of the vessel, and then adapt a customised mode to ensure that energy storage aligns with the owner's energy usage, without the chief engineer having to do anything. We are also looking to provide a win-win solution for our clients, whereby all operating data and fault messages are transferred and used for analysis and dashboard solutions, as well as ensuring that we can offer and prepare the right service in the most efficient way.

Until now, energy supply and distribution on board a yacht has been mostly independent from automated systems or energy management. However, our solution brings the two together, resulting in efficient energy supply and the optimal utilisation of machinery on board.

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