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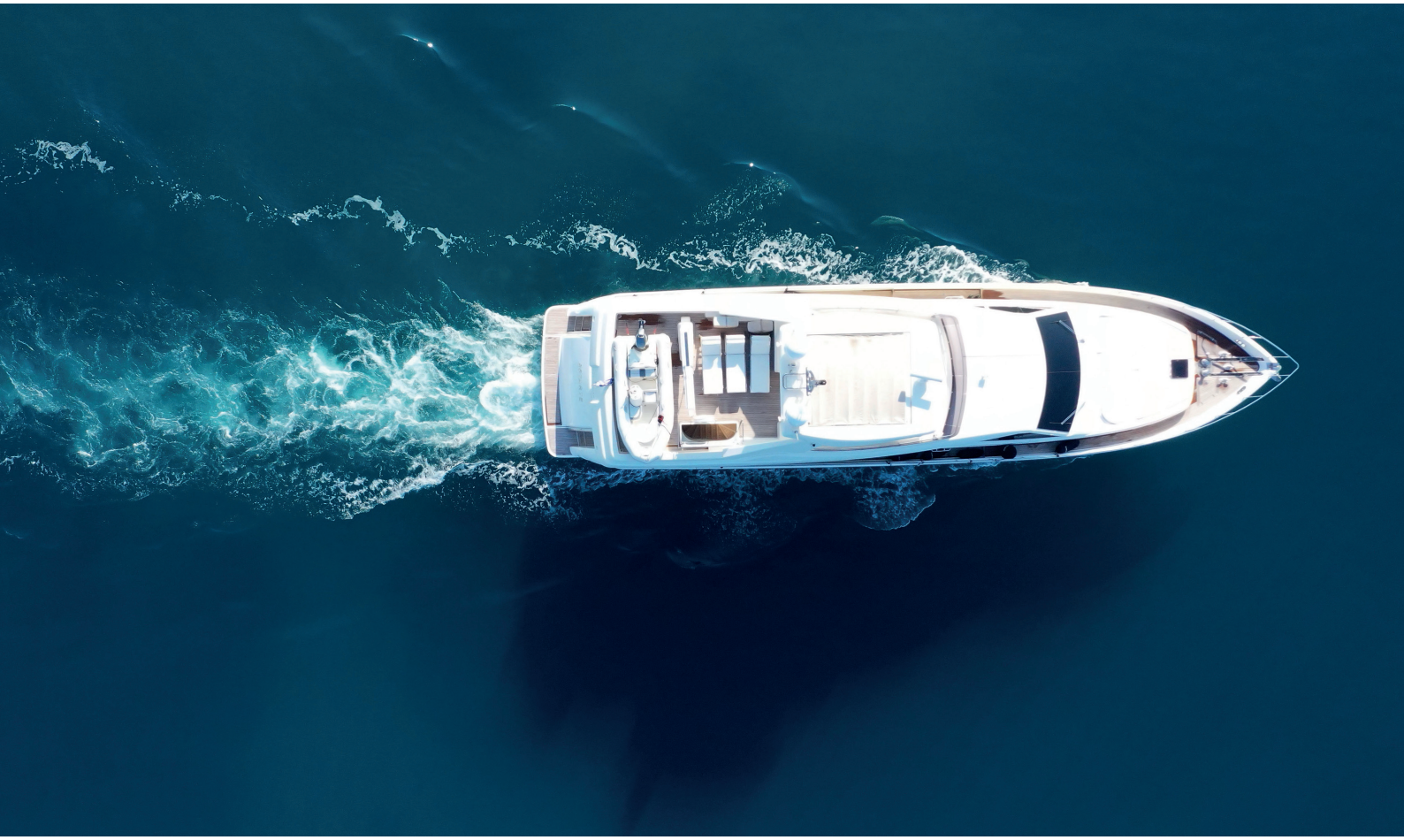

E-Maritime & Offshore energy solutions

Powerful, safe and reliable

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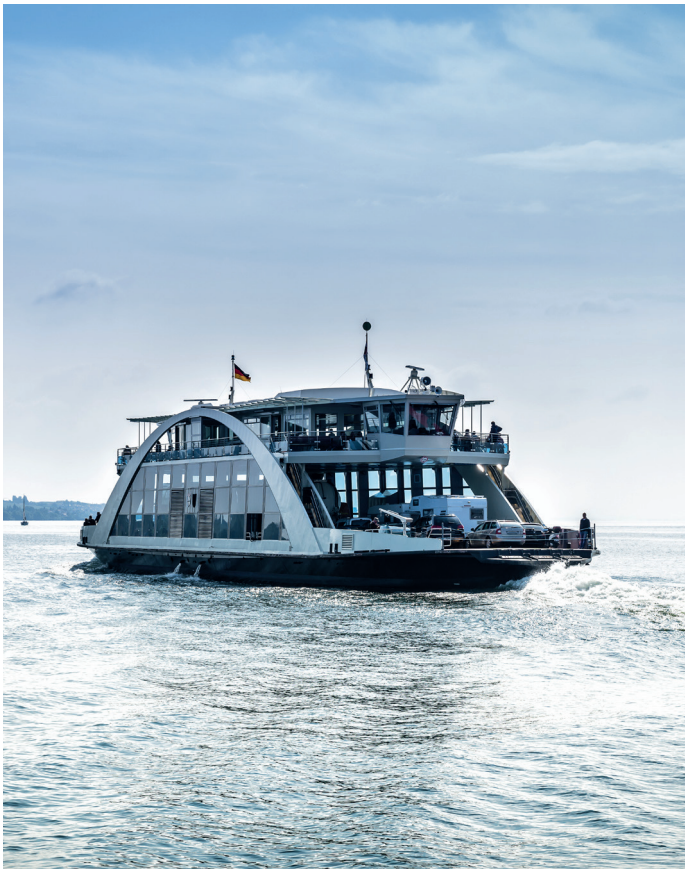
E-Maritime applications

Certified battery technology meeting the highest standards for maritime environments



E-Maritime: powerful and reliable on the water

In order to glide across the water at full power, electric-powered vessels require reliable and powerful propulsion solutions. aentron provides robust 1 to 900 Vdc battery solutions, even for the harshest of sea conditions. aentron's battery systems are dust-proof and have a tightness level to withstand heavy water splashing up to IP66. aentrons battery systems are designed for the most demanding applications, whether on land or in the water.

The batteries can easily be integrated into new or existing systems thanks to our modular "Plug & Sail" system. aentron's maritime battery systems are modular and can be flexibly adapted to the most customer requirements. aentron batteries are characterized by their robust housing and the possibility of a flexible 360° installation, which is especially valuable in terms of retrofitting.

Boat classes and recommended certifications

ISO 16315:2016 Small Craft Electric Propulsion Systems

DNV-GL Type Approval

1 - 2 kWh 12/24/48 Vdc	2 - 10 kWh 48 Vdc	10 - 30 kWh 48 - 150 Vdc	30 - 200 kWh 150 - 400 Vdc	200 - 1.000 kWh 400 - 900 Vdc
< 5 m < 15 ft	5 - 8 m 16 - 26 ft	8 - 12 m 26 - 40 ft	12 - 20 m 40 - 65 ft	> 20 m > 65 ft

Innovative battery technology

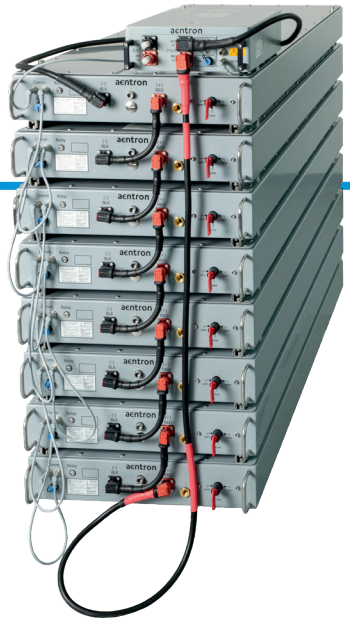
- Dust and water resistant: IP 66
- Modular and scalable configuration
- Robust metal housing
- Recycle- and reusable
- Fast charging capable
- Safety: Integrated BMS
- Low and high temperature operation: -20°C to +60°C
- Plug & play: Power at the touch of a button
- 360° mechanical integration
- Made in germany

Scalable for customised energy solutions

aentron lithium-ion energy storage systems enable you to create modular and scalable battery solutions. We provide operating voltages from 12, 24, 48 Vdc up to 900 Vdc with capacities from 1 kWh to 1 MWh. Due to the aentron battery management system, all lithium-ion energy products can be combined with each other, used as standalone or in conjunction with products from other manufacturers or customer solutions. aentron's certified and safe energy storage systems provide the highest level of flexibility for individual energy solutions.

HV-Energy System

1 - 900 Vdc



10 kWh Modul

24/48 Vdc
R-Type Imax = 300 A (Standalone)

2 kWh Modul

12/24/48 Vdc
M-Type Imax = 60 A (Standalone)
R-Type Imax = 200 A (Standalone)

1 kWh Modul

12/24/48 Vdc
M-Type Imax = 60 A (Standalone)

Certified quality and safety

A reliable, safe and high-performance energy supply is of central importance in commercial shipping as well as in the private sector such as electric motorboats and yachts. Our batteries meet the highest standards as well as the harsh of conditions, both on and offshore. This was confirmed by the DNV-GL Type Approval.

The maritime classification society certifies aentron GmbH in the areas of shipping, offshore installations, speedboats and light boats. With the DNV-GL certification, aentron is one of the few manufacturers worldwide to offer HV lithium-ion batteries with DNV-GL Type Approval Certificate (TAE00003BY).

Technical data

	1 kWh Lithium-Ionen M-Type (60 A)	2 kWh Lithium-Ionen M-Type (60 A)	2 kWh Lithium-Ionen R-Type (200 A)	10kWh Lithium-Ionen R-Type (300 A)	aentron Energy Controller (400 A)
Voltage	12 Vdc/24 Vdc*/48 Vdc	12 Vdc/24 Vdc/48 Vdc	12 Vdc/24 Vdc/48 Vdc	24 Vdc*/48 Vdc	1-900 Vdc
Capacity	70 Ah/40 Ah/20 Ah	139 Ah/81 Ah/40 Ah	139 Ah/81 Ah/40 Ah	460 Ah/203 Ah	-
Energy	1.006/1.023/1.023 Wh	2.046/2.046/2.046 Wh	2.004/2.046/2.046 Wh	10.230/10.230 Wh	10 kWh - 1 MWh
Cell chemistry	Li-NMC	Li-NMC	Li-NMC	Li-NMC	Li-NMC
Temperature range	-20 °C - + 60 °C / Discharge 0 °C - + 50 °C / Charge	-20 °C - + 60 °C / Discharge 0 °C - + 50 °C / Charge	-20 °C - + 60 °C / Discharge 0 °C - + 50 °C / Charge	-20 °C - + 60 °C / Discharge 0 °C - + 50 °C / Charge	Operating range: -30°C - + 100°C
Dimensions	40 cm x 16 cm x 9 cm	42,22 cm x 31 cm x 11,5 cm	42,22 cm x 31 cm x 11,5 cm	170 cm x 60 cm x 15,5 cm	42,22 cm x 31 cm x 11,5 cm
Weight	approx. 9 kg	approx. 22 kg	approx. 22 kg	approx. 130 kg	approx. 9 kg
Certifications and standards (excerpt)	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66, ECE-R10 (EMC) DNV-GL Type Approved	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66, ECE-R10 (EMC), DNV-GL Type Approved	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66, ECE-R10 (EMC), DNV-GL Type Approved	UN 38,3, CE-93-68-EU, VDE 01000, VDE 0701-702, IP66, ECE-R10 (EMC), DNV-GL Type Approved

*UN38.3 expected as of first half of 2021

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aentron specialises in the development and production of energy storage devices for maritime, industrial, e-mobility and building power storage applications. aentron power solutions are state-of-the-art, scalable, robust and safe lithium-ion battery-systems – Made in Germany.

For further information please contact: info@aentron.com.

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