TYPE APPROVAL CERTIFICATE
No. **ELE018325XN**

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

Description	**Battery Systems**
Type	**Battery System** **BATTERY MASTERVOLT MLI ULTRA 24/6000**
Applicant	**Navico Group EMEA B.V.** **Snijdersbergweg 93** **1105 AN Amsterdam** **NETHERLANDS**
Manufacturer *Place of manufacture*	**Navico Group EMEA B.V.** **Snijdersbergweg 93** **1105 AN Amsterdam** **NETHERLANDS**
Reference standards	**Rules for the Classification of Ships - Part C - Machinery, Systems and Fire Protection - Ch 2, App 2: Battery Powered Ships; Rules for the Type Approval Certification of Lithium Battery Systems**

Issued in **GDANSK** on **December 5, 2025**. *This Certificate is valid until* **December 5, 2030**

RINA Services S.p.A.
Anna Maria Baranska

This certificate consists of this page and 1 enclosure

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Battery System

1. Product Description

The MLI Ultra batteries are engineered for versatility, supporting a wide range of applications such as for example marine systems. Battery systems can vary in capacity and configuration. MLI Ultra batteries are designed for flexibility. The variations are permissible provided they comply with the manufacturer's specifications and applicable standards.
The main components of the system are as following:
- **Battery Bank**: up to 24 batteries, connected in series or parallel as specified in user manuals.
- **Display Units**: one or more monitors to display system status, measurements, and alarms
- **Chargers**: configured according to battery requirements and capable of communication with the batteries.
- **Emergency Shutdown Devices**: wired and powered independently from the battery system it controls.
- **Fuses:** sized according to applicable standards and capable specifications.
- **System Loads:** Any devices or circuits connected to the battery system.

Battery module:

Model:	LF230
Rated capacity [Ah]	230
Rated voltage [V]	3,2
Weight [kg]	4.14 ± 0.124
Cut-off charge voltage [V]	3.85
Cut-off discharge voltage [V]	2.5
Rated charge current [A]	115
Rated discharge current [A]	115
Max instant discharge current [A]	230
Operation temperature [°C]	-10 to +65 for charge and -30 to +60 for discharge

Battery Pack

Model:	MLI Ultra 24/6000
Rated capacity [Ah]	230
Rated voltage [V]	24
Weight [kg]	46.4
Cut-off charge voltage [V]	28.5
Cut-off discharge voltage [V]	22
Rated charge current [A]	80
Rated discharge current [A]	200
Max instant charge current [A]	230
Max instant discharge current [A]	230
Operation temperature [°C]	0 to +50 for charge and -20 to +50 for discharge

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Battery System

Battery Management System

The MLI Ultra is equipped with a BMS (Battery Management System), which:
- balances the voltages between the cells;
- protects each cel from undercharging and overcharging
- prevents too deep battery discharges
- monitors the temperature of battery cells
- communicates with Mastervolt charge devices over MasterBus or CZone
- sends out warning and alarms (to a compatible displaying device)

2. Reference Documents:

Documentation related to this certificate is listed under plan approval letter PLEL/2025/274/BKU01

3. Additional place of manufacture

516006 Zone 14,
Zhongkai Hi- tech Development Zone,
Huizhou, Guangdong
China

4. Notes/Remarks:

- The product is subject to the compliance with RINA Rules and Standards of 2025 mentioned on the certificates.
- When the aggregate capacity of a battery system exceeds the rating of 20 kWh, the battery system is to be type approved in accordance with relevant rules.
- Any modification or change shall not be valid until approval is granted by RINA as a result of due assessment.
- The documentation mentioned in Pt C, Ch 2, App 2 of RINA Rules for the Classification of Ships is to be submitted for each particular application. Special attention is to be paid to the requested Risk Assessment.

GDANSK December 5, 2025

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