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Technical Data Sheet

ECHANDIA ENERGY & ECHANDIA POWER

Echandia

www.echandiagroup.com

Heavy-Duty Energy Storage Solutions

Technical Data Sheet – 1st of January 2022

ECHANDIA ENERGY
ECHANDIA POWER

Echandia is leading the development of maritime electrification, with zero-emission energy solutions for maritime and industrial applications.

Echandia delivers heavy-duty battery systems and proprietary, lightweight battery racks and system architecture for complex and demanding environments.

Flexible and modular

Flexible and modular rack system to meet any vessel requirements. Inherently safe using the safest battery chemistry on the market. Flexible system capacity and voltage levels based on application.

Certified for the maritime world

Echandia actively promotes and engages in certification and type approval to meet the highest possible industry standards. We have type approval for LTO-based battery systems from both DNV and Bureau Veritas.

Echandia

Echandia Energy

E-LTO ENERGY

Description

The High Energy system is ideally suited for applications that require safe operation and long lifetime under heavily cycling conditions over longer durations, typically 6 minutes or longer per cycle.

The unique LTO cell technology used enables a greater portion of installed capacity to be utilized, resulting in a more compact, lighter and cost-effective system for a given duty cycle

Applications

Full electric propulsion

Performance

Peak max current per string (Discharge / Charge)	400 A / 400 A for 10 s
Continuous max current per string (Discharge / Charge)	160 A / 160 A
Life-time 2C Discharge / Charge to 80% EOL	50 000 cycles at 50% DoD
Usable capacity (% of installed)	90% (5% - 95% SOC)
Weight	Example: 13800 kg for 1068 kWh @ 1000 Vmax

Safety

Thermal runaway anti-propagation	Cell level. Verified in accordance with DNV-GLPt-6, Ch-2/ NMA RSV 12
Integrated Fire Suppression	Not required. Verified in accordance withDNV-GLPt-6, Ch-2/ NMA RSV 12
Fault Detection	Over- & under- voltage, over-temperature
Short Circuit Protection	Breaker on string level
Emergency Stop Circuit	Hard wired
Disconnect Breaker Rating	Max string short circuit contribution at full load

General

Class Compliance	All Classification Societies
EMC compliance	DNV/BV: based on IEC 60945, IEC 61000-4-X, CISPR 16-2-1 & CISPR 16-2-3
Type Approval	DNV, Bureau Veritas
BMS Communication	CAN2.0b, MODBUS TCP and PROFINET
Cooling	Forced air
Vibration and Shock	DNV requirements plus dampers always selected to comply with vessel's specification
Pre-charge circuit	Integrated

Echandia Power

E-LTO POWER

Description

The High-Power system is ideally suited for hybridization applications where high power is required under shorter periods of time, typically 5 minutes or under per cycle.

The unique LTO cell technology used enables a greater portion of installed capacity to be utilized, resulting in a more compact, lighter and cost-effective system for a given duty cycle.

Applications

Spinning reserve, peak shaving, load levelling, cranes etc.

Performance

Peak max current per string (Discharge / Charge)	550 A / 550 A for 100 s
Continuous max current per string (Discharge / Charge)	400 A / 400 A for 300 s, 160 A / 160 A > 300 s
Life-time 2C Discharge / Charge to 80% EOL	70 000 cycles at 50% DoD
Usable capacity (% of installed)	90% (5% - 95% SOC)
Weight	Example: 4770 kg for 274 kWh @ 1000 Vmax

Safety

Thermal runaway anti-propagation	Cell level. Verified in accordance with DNV-GLPt-6, Ch-2/ NMA RSV 12
Integrated Fire Suppression	Not required. Verified in accordance with DNV-GLPt-6, Ch-2/ NMA RSV 12
Fault Detection	Over- & under- voltage, over-temperature
Short Circuit Protection	Breaker on string level
Emergency Stop Circuit	Hard wired
Disconnect Breaker Rating	Max string short circuit contribution at full load

General

Class Compliance	All Classification Societies
EMC compliance	DNV/BV: based on IEC 60945, IEC 61000-4-X, CISPR 16-2-1 & CISPR 16-2-3
Type Approval	DNV, Bureau Veritas
BMS Communication	CAN2.0b, MODBUS TCP and PROFINET
Cooling	Forced air
Vibration and Shock	DNV requirements plus dampers always selected to comply with vessel's specification
Pre-charge circuit	Integrated