Alsym Energy

NON-FLAMMABLE, NON-LITHIUM BATTERIES FOR STATIONARY STORAGE

The low-cost, high-performance alternative to lithium-ion

With system-level capacities similar to lithium-ion and the ability to operate at elevated temperatures, Alsym Green is the only low-cost, high-performance, non-flammable wide-duration storage option capable of replacing lithium-ion in urban areas. With high round-trip efficiency (RTE), long cycle life and low self-discharge, wide-duration Alsym Green gives you a single solution for short, medium, and long-duration energy storage (LDES) needs.

With system-level capacity up to 1.7+ MWh (DC) per 20' container, Alsym Green offers higher energy density than other non-flammable, non-lithium options on the market today. Combined with high round-trip efficiency (RTE), long cycle life, fast response time and low self-discharge, Alsym Green is ideal for grid, microgrid and home storage applications, as well as other demanding applications such as data centers, oil and gas, mining, ports, and heavy industry.

Alsym Green enables wide-duration storage

Alsym Green is a wide-duration energy storage (WDES) solution that provides a level of flexibility and reliability that's unmatched by current LDES solutions. It can be software-configured to fully discharge over any duration from 2 to 110 hours, and can recharge to full capacity in under 4 hours. Support for 2 to 24-hour discharge durations means you can use Alsym Green to take advantage of rate arbitrage opportunities during hour peak demand periods, as well as support intraday load shifting needs.

Applications and use cases


Utility Grids


Microgrids


Port Operations


Datacenters


Steel Mills


Chemical Plants


Mining


Home Storage

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Alsym Green system-level specifications (target)*

20' Container (DC, 600-1000 V)	Up to 1.7 MWh
40' Container (DC, 600-1000 V)	Up to 3.4 MWh
Response time	75 milliseconds
Discharge rate (continuous)	2 - 110 hours
Discharge rate (pulse)	Up to 5C (30 seconds)
Round-trip efficiency (AC)	85%
Self-discharge	Less than 8% per month
Service life	Up to 20 years
Cell operating temperature range	-5 ˚C to 45 ˚C

* All specifications are subject to change. Actual system-level energy densities may vary based on system design and/or requirements mandated by local regulatory bodies. Service life may vary based on cycling frequency and depth of discharge.

System-level safety

Thermal runaway	None; all cell materials are inherently non-flammable; testing per UL 9540a
High-voltage safety	Integrated isolation monitoring and high-voltage disconnect
Short circuit protection	Fuses included at rack level
Ground fault detection	Integrated IMD
Approvals / standards	NFPA 855, UL 9540, UL1973 (planned)
Alsym BMS	Monitors and conditions cells for optimum life and performance
Thermal management	Liquid or air-cooling compatible (as necessitated by environment/application)
Emergency stop circuit	Hard-wired
Disconnect switchgear rating	Full load
Ventilation	Integrated air handling in pack enclosure to optimize service life

Cell-level safety

Crush test	HL ≤ 2 (Per USABC Battery Test Manual Rev. 3.1)
Thermal stability	HL ≤ 2 (Per USABC Battery Test Manual Rev. 3.1)
Nail penetration	HL ≤ 2 (Per USABC Battery Test Manual Rev. 3.1)
Blunt-rod nail penetration	HL ≤ 2 (Per USABC Battery Test Manual Rev. 3.1)
Overcharge	HL ≤ 2 (Per USABC Battery Test Manual Rev. 3.1)
Approvals / standards	UL 9540a (planned)

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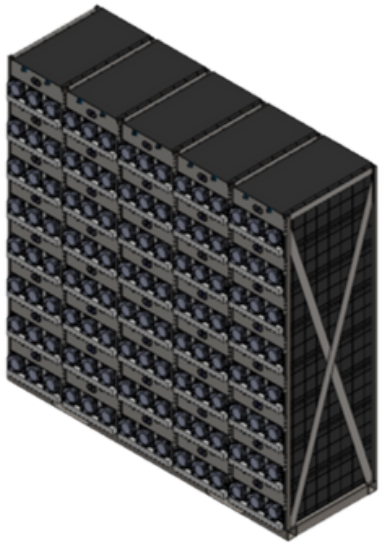
Alsym Green grid storage rack (target)*

Capacity	44 kWh
Voltage (nominal)	560 V
Voltage (min / max)	492 V / 896 V
Dimensions	20" L x 32" D x 93" H 20cm L x 80cm D x 236cm H

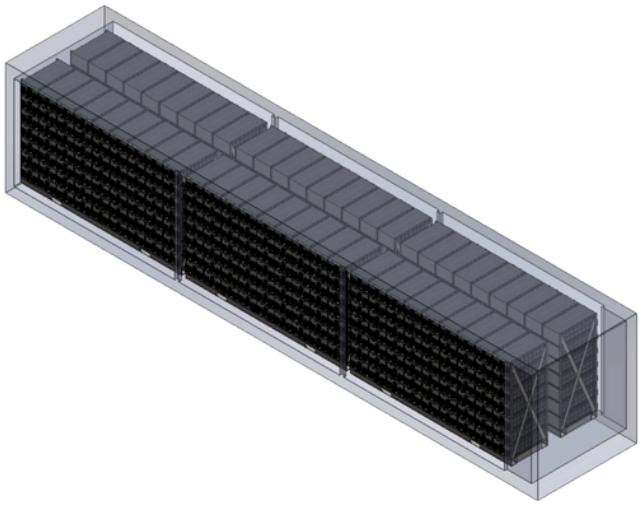
Alsym Green storage block (target)*

Capacity	218 kWh
Voltage (nominal)	560 V
Voltage (min / max)	492 V / 896 V
Dimensions	93" L x 32" D x 93" H 236cm L x 80cm D x 236cm H



System example: 40' high-cube container (DC)*

Capacity	Up to 3.4 MWh
Voltage (nominal)	560 V
Voltage (min / max)	492 V / 896 V
Dimensions	480" L x 96" W x 114" H 1219cm L x 244cm W x 290cm H



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