your wind your power your way

Energy Storage

FREEN-BSH

SODIUM Na+

High voltage sodium-ion battery systems

The Freen-BSH series features high-voltage rechargeable sodium-ion battery modules tailored for residential and commercial applications where performance, safety, and efficiency are non-negotiable. Their floor-mounted design and modular build make integration simple across a wide range of energy storage scenarios, from grid support to renewables integration.

Outstanding Efficiency

Round-trip efficiency exceeds 97%, allowing maximum utilization of every kilowatt stored.

Sodium-ion Technology

A fire-safe, and sustainable alternative with stable performance across various conditions.

Extended Durability

Engineered for over 10,000 full charge and discharge cycles, EOL capacity over 60%, supporting long-term system value and reduced maintenance.

Scalable Configuration

Modular design supports tailored energy system sizing for various project scales and technical requirements.

Wide Operating Temperature Range

With a discharge temperature range of -40°C to +60°C, the FREEN-BSH series excels in extreme climates.

Minimal Maintenance

Built-in fan cooling, a safety-focused design, and CAN/RS485 -based system communication ensure minimal maintenance requirements.

With a nominal voltage of 288 V and modular configurations, compatible with modern inverters, Freen-BSH systems provide high power output, extended cycle life, and dependable operation.

rev. 2.0-2026-01-15

FREEN-BSH Specifications

BATTERY MODULE	FREEN-BSH
Module quantity [1]	1 - 4
Operating voltage	144-379.2 V
Nominal voltage	288 V
Rated capacity	17.5 Ah
Usable energy	10 kWh
Max. charging / discharging current	17.5 A
Max. charge / discharge power	5 kW
Dimensions, mm（W / D / H）	360 × 680 × 418
Battery module weight	120 kg
Cell type	Sodium-ion (Layered oxide)
Installation	Indoor / Floor stand
Operating temperature range	Charge 0 – +55 C^{o} / Discharge -40 – +60 C^{o}
Storage temperature range	-10 – +35 C^{o}
Certificates, Standards compliance	CE, UN 38.3, IEC62619
IP rating	IP20
Cooling	Natural convection
Communication	CAN / RS485
Relative humidity	< 70%
Battery efficiency [2]	> 97%
Expected service life [3]	> 10000 cycles (60% SOH)

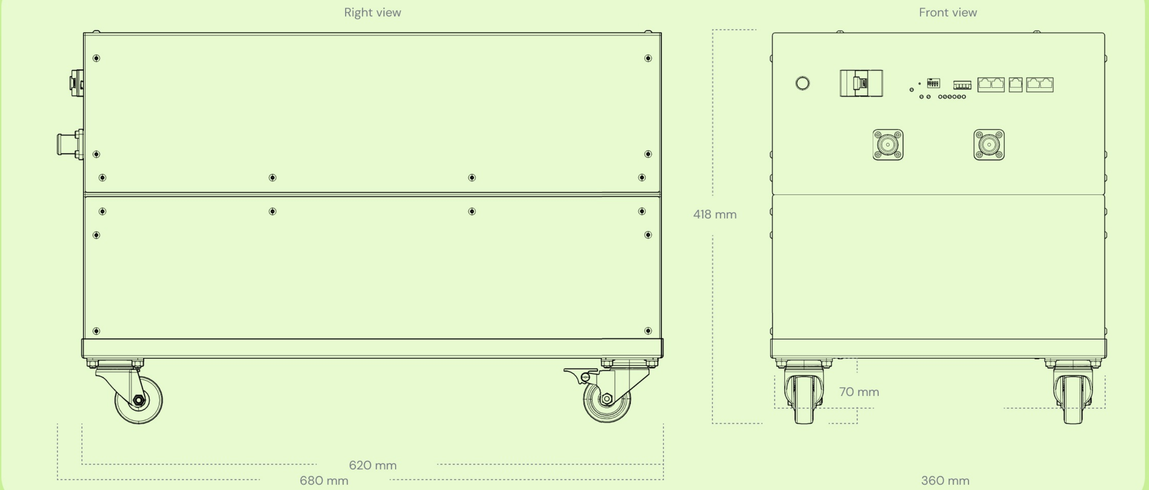
[1] Maximum parallel connection is 4 units, total capacity is 40 kWh.

[2] At a charge/discharge rate of 0.5C, temperature of 25C^{o}.

[3] At a charge/discharge rate of 0.5C.

Text and illustrations were accurate at the time of printing. Freen reserves the right to make changes. All information published in this document, despite exercising the greatest of care in its preparation, is subject to change. No legal liability is accepted. Copyright © 2026 Freen™. All rights reserved.

Drawings



Engineered Safety

Freen-BSH batteries are engineered with safety and reliability at their core.

To minimize the risk of internal short circuits, overheating, or fire, we apply a strategy of partial capacity utilization, keeping the battery consistently undercharged and under discharged. This approach greatly reduces the likelihood of thermal runaway, even during high-voltage and high-load operations. Each module is structurally reinforced to withstand mechanical stress and prevent the ingress of moisture or oxygen, which could trigger exothermic reactions.

The result: a stable, safe, and resilient high-voltage energy storage system built for long-term performance.

Freen OÜ

Arenduse 6, Kohtla-Järve, 30328, Ida-Virumaa, Estonia

contact@freen.com