

Energy Storage

FREEEN-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.



Extended Durability

Engineered for over 5,000 full charge and discharge cycles, EOL capacity over 80%, supporting long-term system value and reduced maintenance.



Wide Operating Temperature Range

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



Sodium-ion Technology

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



Scalable Configuration

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



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.

FREEEN-BSH Specifications



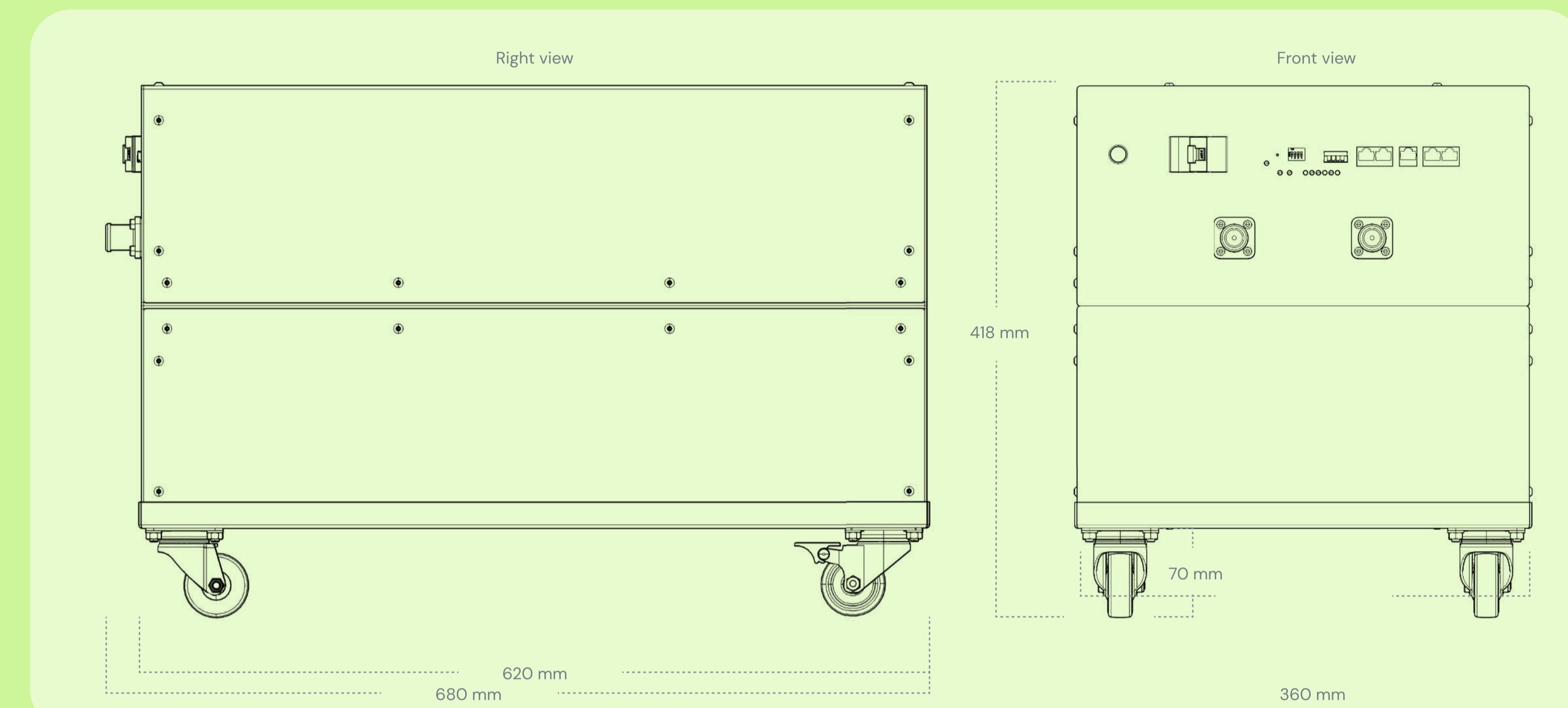
BATTERY MODULE	FREEEN-BSH
Module quantity ¹	1 - 4
Operating voltage	144-379.2 V
Nominal voltage	288 V
Rated capacity	17.5 Ah
Usable energy	10 kWh
Max. charging / discharging current	17.5 A
Max. charge / discharge power	5 kW
Dimensions, mm (W / D / H)	360 × 680 × 418
Battery module weight	120 kg
Cell type	Sodium-ion (Layered oxide)
Installation	Indoor / Floor stand
Operating temperature range	Charge 0 – +55 C° / Discharge -40 – +60 C°
Storage temperature range	-10 – +35 C°
Certificates, Standards compliance	CE, UN 38.5, IEC62619
IP rating	IP20
Cooling	Natural convection
Communication	CAN / RS485
Relative humidity	< 70%
Battery efficiency ²	> 97%
Expected service life ³	> 5000 cycles (80% SOH) or MTE 45 MWh

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

² At a charge/discharge rate of 0.5C, temperature of 25C°.

³ At a charge/discharge rate of 0.5C. The warranty for the battery is that it will retain at least 80% of its Usable energy for 10 years from the date of dispatch from Freen, or until it reaches the Minimum Throughput Energy, whichever occurs first.

Drawings



Engineered Safety

FREEEN-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

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