

THE BATTERY ELEMENTS



About TheBattery Elements

As a result of the increasing demand for energy storage in the industry and Alfen's gathered expertise over the past 10 years, Alfen hereby launches its new TheBattery Elements system. The solution counters the ever growing need for storage across a broad market, for instance energy companies, flexibility providers, project developers and the public sector. Due to its modularity, flexibility in sizing and applications all corresponding business cases in European countries can be fulfilled.



Best in class battery package and components

Li-ion based LFP batteries with corresponding Battery Management System (BMS) combined with an independent selection of established component suppliers. Guaranteed lifetime with a minimum of 10 years performance warranty.

Applications

- Renewable energy integration
- Peak shaving
- Energy trading
- Back-up functionality
- Balancing services (fast frequency response, FCR and aFFR)



Design and safety of the system

The Alfen designed EMS monitors and safeguards the system at all times. Each modular battery rack is equipped with various safety systems, such as a fire extinguishing and temperature management.



Modular scalability by standardised subsystems

Modular system based on outdoor building blocks, expandable over time to accommodate the ever-growing energy demands. An easy to augment system by connecting additional subsystems to increase the energy and power capacity.

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Specifications

Battery type	Outdoor battery racks of 372.7 kWh using Li-ion LFP chemistry
Power Conversion System	Energy Storage Inverter(s) of rated 1250 / 2500 / 3750 / 5000 kVA each
System capacity	1 to 6 hour solutions, starting from 0.5MWh, scalable up to any size
System power	Starting from 1MW / 1.25 MVA, scalable up to any size
Auxiliary Connection	3P + PEN 230/400Vac; externally or internally provided
Output Voltage	Variable between 0.4kV and 36kV
Earthing	From grid connection or external earthing pin
Output Frequency	50 Hz; compliant with EN 50160:2010, (60 Hz is optional)
Noise level	Battery rack <70 dB(A) at 1 meter; Inverter <75 dB(A) at 1 meter
Technical availability	> 97%
System Controller and Communication	Combination of a high-end industrial controller with an in-house developed master system controller. Various communication channels are possible: via the local HMI, communication interface and Alfen's TheBattery Connect platform.
Communication interfaces	Modbus TCP/IP, IEC-60870-5-104, IEC-61850, OPC UA
TheBattery Connect	TheBattery Connect offers a live web portal which allows remote monitoring and controlling of the system. TheBattery Connect platform includes the following type of features: system overview, power and FCR profiles, State of Charge control, peak shaving, monitoring, alarms, reports.
Operational Modes of System Controller	Peak shaving, Energy trading [P/Q], Frequency Response [P(f)] and SoC control, Voltage Control [Q(U)], back-up/microgrid [P(f)/Q(U)] and combinations.
Operating Temperature Range	-20°C to + 40°C (optional -40°C)
Climatisation	Batteries liquid cooled; Inverters are cooled by forced air and water cooling.
Standards	Quality: ISO9001:2015, ISO14001:2015, ISO27001:2013, ISO45001:2018, EU Battery Directive, EU RoHS Directive, EU WEEE Directive. Engineering: IEC 61000-6-2, IEC 61000-6-4, IEC 60364-1:2005, IEC 61439-2:2011, IEC 62271-200, IEC 60076. Batteries: IEC 62619, UL 1973, IEC 62477-1, EN 61000 6-2/6-4, UN 38.3, UL 9540A, CE. Inverter: IEC 61000-6-2, IEC 61000-6-4, IEC 62109-1, IEC 62109-2. Transport: Road and sea transport ADR class 9, UN 3536, UN 3481.
Warranties	≥2 years of product warranty; ≥10 years performance warranty (battery degradation) depending on the intensity of the load profile.
Operation & Maintenance	Various Service Level Agreements available (Bronze, Silver, Gold and Platinum).

Dimensions

	Battery rack	Inverter	Transformer	Connection Cabinet
Type of enclosure	Outdoor	Outdoor	Outdoor	Outdoor
IP value of enclosure	IP56	IP65	Hermetically sealed	IP55
Corrosivity	≥C4	≥C4	≥C4	N/A
Dimensions (l x w x h) (mm)	1300 x 1300 x 2280	2120 or 3690 x 1170 x 3760	Project specific	2600 x 500 x 1600
Weight (kg)	3500-3800	1525 or 3900	Project specific	Project specific

NOTE

- Subject to misprints, errors and technical modifications.

