

Maximizing the value of energy storage through compact and modular ESS lineups

The Intensium® Shift lineup is Saft's compact and modular AC ESS system enabling utility-scale storage

solutions for renewables and power grids, scalable up to Gigawatt-hours size.

Integrating Intensium® Shift Li-ion battery containers with fully qualified power conversion systems (PCS),

control and protection equipment, Saft is able to address 2-to-8-hours durations applications through

optimized architectures ensuring large revenue generation opportunities for customers. The Intensium®

Shift lineup's embed Safts I-Sight cloud-based data management platform, for remote information services

that guarantee safe operation and optimized maintenance activities.

Key benefits Features

1. Optimized solutions

- Modular battery and power conversion systems building blocks, fully assembled, tested and certified in factory conditions.

- Easy and fast installation, 'plug and play' delivered.

- Able to address 2-to-8-hour applications through multiple container paralleling. Augmentation ready.

- Reduced floorspace per MWh for the full system installation.

2. Secure revenue

- Optimal system availability, operability, and maintainability.

- Extended product warranties and performance guarantees for capacity degradation, roundtrip efficiency and uptime.

- Real-time battery control, supervision and big-data publishing platform for enhanced analytics and services with Saft I-Sight tool.

3. Secure service

- Scope of supply ranging from battery containers to AC turnkey solutions up to grid point of connection.

- Single point of responsibility covering design, supply and services,

supporting customers through long-term partnerships.

- Meet stringent safety and reliability standards.

Proven container architecture for high availability

- Individually connectible strings with one Battery Management Module per string.
- Master Battery Management for global charge and discharge management, auxiliary equipment monitoring and diagnostic functions.
- I-Sight platform for external communication, battery containers parallelization, remote monitoring and supervision, data management with a high cybersecurity level.

State-of-the art Power Conversion System

- Large units up to 4MW, for optimized system footprint and ease of installation.
- Supporting all on-grid and off-grid functions.
- High efficiency even at partial load.
- High availability.
- Suitable for harsh environment.

High-end Power Management and SCADA

- Consistent DC and AC control chain: system control and user interface integrate seamlessly with high resolution battery data and control algorithms.
- Optimizes power dispatch with high accuracy of State of Charge (SoC) indication, even in systems with massive string paralleling.
- Real-time available DC and AC operation data with high granularity, through local and cloud-based data logging and data management.
- High cybersecurity level: IEC 62443- 4-2 compliance SL-2.

Saft - Intensium® Shift Energy Storage lineups

2 hours
lineup

4 hours
lineup

6 hours
lineup

8 hours
lineup

Electrical

Nominal discharge duration 2 hours 4 hours 6 hours 8 hours
AC power per lineup @ MV level 4 MW 4 MW 3 MW 2.5 MW
AC voltage @ PCS level 690 V 690 V 690 V 600 V
Number of I-Shift containers per lineup 3-4 6-7 7-8 8
Nominal DC energy per lineup (MWh) 9-12 MWh 18-21 MWh 21-24 MWh 24 MWh
MV grid connection up to 36 kV
Auxiliary consumption (1) 840 kWh/day 1200 kWh/day 1200 kWh/day 1200 kWh/day
Auxiliary power input 400 V/50 Hz, 400 V/60 Hz, 480 V/60 Hz, 3 phases

Mechanical

Single battery container dimensions (L, W, H) 6.1 m, 2.4 m, 2.9 m/20 ft, 8 ft, 9 ft 6 in
Protection class IP54
Lineup footprint (2) 217-262 m² 350-395 m² 395-440 m² 440 m²
Typical installed DC energy density,
safety distances and roads included

33 kWh/m²
3.1 kWh/ft²

43 kWh/m²
4.0 kWh/ft²

45 kWh/m²
4.2 kWh/ft²

46 kWh/m²
4.3 kWh/ft²

Performances

Design lifetime ≤ 20 years
AC round trip efficiency (3) 86% 88% 88% 88%
Depth of discharge up to 100% up to 100% up to 100% up to 100%
Response time <150 ms
Maximum daily throughput (4) 200% 200% 200% 200%
Functions Reactive power control, Islanding, Grid forming, (Black start option)
Operating conditions
Ambient temperature -20°C to +45°C (option +55°C)
Altitude above sea level ≤ 2000 meters
Softwares
PMS + Scada Integrated from Tier 1 suppliers
Remote Saft I-Sight

Local HMI Saft Cube

Communication interface Modbus TCP/IP, MESA compliant

Standards (5)

Battery IEC 62619, IEC 62477-1, UL1973:2022, UL 9540, UL 9540A

PCS UL 1741/-SA, UL/IEC 62109-1

Cybersecurity IEC 62443-4-2

(1) At system level. One full charge/discharge cycle per day over 24h at 25 °C ambient

(2) Not including access roads. These increase the system space, depending overall system layout

(3) Not including auxiliary consumption

(4) Defined as the cumulated energy discharged in 24h (in MWh) related to the nominal energy capacity (in MWh) of the storage system

(5) Reference standards used for product design. Product certification ongoing

The final configuration of an ESS system will be defined on a project basis, taking into account application and locational requirements.

Specifications

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the world.

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at sea,

in the air

and in space.