

# Intensium® Shift

## 3.0MWh high energy lithium-ion battery storage container

The Intensium® Shift is Saft's modular and ready to install containerized Energy Storage System (ESS), enabling space-optimized utility-scale storage solutions for renewables and power grids.

### Benefits at a glance

#### 1 Compact modularity

- 3 MWh high energy building block suitable for storage projects up to Gigawatt-hours scale
- Able to address 2 to 8 hours applications through multiple container paralleling
- Reduced floorspace per MWh for full system installation compatible with most Power Conversion Systems available in the market

#### 2 De-risked projects

- Full system including controls designed by Saft
- Fully assembled, tested and certified in Saft factories
- Easy transport by road and sea
- Quick and cost-effective installation, 'plug and play' delivered

#### 3 Maximized economics

- Optimized energy and power availability over state of charge
- Multiple charge-discharge cycles per day with minimum auxiliary consumption
- Long lifetime cells and optimum thermal management
- High availability and service ability

#### 4 Low maintenance

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

#### 5 Safety driven design

Guaranteed safe behavior during operations and in case of an abusive event, protecting assets, operators and first responders



Built with Lithium Iron Phosphate (LFP) cells, the Intensium® Shift is a fully integrated storage system with high levels of safety and operational reliability designed for 2 to 8 hours energy shifting applications. Thanks to its line-up architecture with modular, 'plug and play' building blocks, large utility systems can be realized quickly and with minimum space occupancy

### Applications

- Renewable integration: smoothing, shifting, minimizing curtailment
- Peaking capacity
- Transmission & Distribution grid support

### Features

#### Advanced industrial design offering highest safety and robustness

- 20-foot outdoor container with reduced installation distance requirements
- Integrated thermal management system, safety barriers and control interfaces with easily accessible control and distribution room
- Fully assembled and tested within Saft manufacturing hubs with minimized, fast, and replicable site-works installation

#### Proven 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
- Multi-container paralleling into virtual battery banks. Augmentation enabled

## Sophisticated battery management for enhanced operability

- Monitoring and control of voltage, current and temperature
- Balancing of State of Charge (SoC) between cells and strings
- Indication of State of Health (SoH) integrating cycling and calendar aging
- I-Sight digital platform for external communication, remote monitoring and supervision, data management with a high cybersecurity level

## Advanced thermal management system based on air conditioning unit and controllable fans

- Optimum operating temperature for long lifetime of battery cells
- Homogeneous temperature across all modules
- High cooling efficiency with individual module control with low energy consumption
- Robust system with low maintenance

## Safety design to guarantee safe behavior

- UL9540A compliant
- Short-circuit, over-current, over-temperature and over-voltage management
- Stop push button, disconnect switch
- Fire detection and two levels of suppression systems (gas, water) to fight fires in their initial stages and prevent collateral damages
- Blast panels on the container roof and overpressure valve with integrated flame detector
- Rockwool thermal insulation

## Specifications

Electrical	2 hours <sup>1</sup>	4 hours <sup>1</sup>
Rated energy (C/5) <sup>2</sup>	3.0 MWh	
Discharge duration	2 – 4 hours	4 - 8 hours
Voltage range	1060 V – 1500 V	
Maximum DC power charge/discharge	1.5 MW	0.75 MW
Rated current charge/discharge	1100 A	550 A
Maximum current charge/discharge	1370 A	690 A

## Mechanical

Dimensions (L, W, H)	6.1m, 2.4m, 2.9m / 20ft, 8ft, 9ft 6in
Weight	< 30.5 T
Container protection class	IP 54

## Operating & storage conditions

Ambient temperature	-20°C to +45°C (option +55°C)
Design lifetime	≤ 20 years
Altitude above sea level	≤ 2000 meters
Ambient relative humidity	Up to 100%
Painting	C5H
Ambient temperature during storage	-25°C to +55°C (under conditions)
Storage time	Up to 12 months (under conditions)

## Standards

Safety	IEC 62619, IEC 62477-1, UL 1973:2022, UL9540A
Marking	CE, UL
Directives	REACH
Manufacturing hubs	ISO 9001, QS 9000, ISO 14000
Cybersecurity	IEC 62443-4-2
Transport (fully populated)	UN3536

<sup>1</sup> Depending of protection scheme selected

<sup>2</sup> According to IEC 60620

