

# Intensium® Smart 52M – Indoor Medium power lithium-ion energy storage system

Saft's Intensium® Smart 52M is a Li-ion energy storage system providing 52 kWh of energy and 100 kW of power and is designed for smart grid applications in commercial, tertiary and industrial buildings.

Built with proven Saft Li-ion technology, Intensium® Smart is a fully integrated storage system, providing high operational reliability over thousands of cycles with excellent energy efficiency. Its modular design based on 50 kWh / 100 kW storage units allows scaling up the system size to 300 kWh / 600 kW.

## Applications

- Self-consumption (PV, CHP)
- Energy management optimization
- Participation in remunerated Demand Response programs
- Black-out management

## Features

- Field-proven Li-ion technology (15 years' experience)
- Advanced industrial design offering highest safety and robustness
- Long life under dynamic cycling conditions
- Outstanding power capability
- Best energy efficiency of all electrochemical technologies (above 95% roundtrip)
- High charge retention

## Benefits

- Flexibility to provide both power and energy functions
- Optimized system integration with main power conversion systems in the energy storage market
- Prompt and flexible response to any power demand
- Real-time energy management enabled by transmission of all relevant battery parameters through BMS
- Low maintenance
- Effective troubleshooting with user-friendly diagnostic tool



Nominal characteristics at + 25°C/+ 77°F	
Voltage (V)	624
Capacity (C/5) (Ah)	84
Energy (C/5) (kWh)	52
Continuous discharge power (kW)	100
Continuous charge power (kW)	54
Mechanical characteristics	
Total Width (mm)	1800
Height (mm)	1586
Depth (mm)	647
Weight for 3 cabinets (kg)	965
Electrical characteristics at + 25°C/+ 77°F	
Minimum Voltage (V)	546
Maximum Voltage (V)	728
Maximum continuous discharge current (A)	160
Maximum continuous recharge current (A)	82
Discharge time at nominal power (h)	0.5
Recharge time at nominal power (h)	1
Insulation resistance (1000 V – 0C)	>100 MΩ
Dielectric	3 kV rms
Operating conditions	
Operating temperature	0°C to 40°C (32°F to 104°F)
Cycle efficiency (one way)	>95%
Self-discharge	<=5% per month
Calendar lifetime at + 25°C/+ 77°F	>20 years
Cooling	Fans at 230 V, 96 W



## Battery Management System

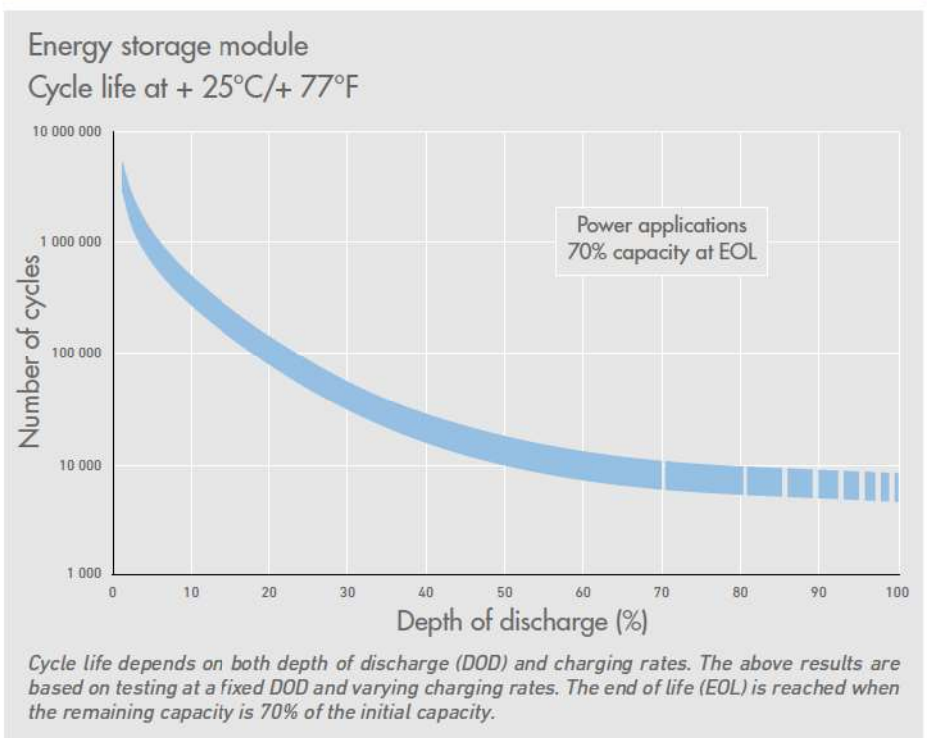
Sophisticated battery management system based on one Battery Management Module (BMM) per storage unit and Safety Monitoring Units (SMU) in all Synerion® 24 M modules providing the following functions:

- Monitoring and control of voltage and temperature at cell level
- Real time calculation of charge and discharge current limits
- Real time calculation of SOC using temperature, aging, voltage and currents
- Balancing of State of Charge (SOC) between modules
- Alarms and faults management
- Indication of State of Health (SOH) of the system integrating cycling and calendar aging
- Black box registering alarms and number of cycles

## Safety

- Safety driven design guarantees safe behavior in case of abuse usage
  - cell level : shutdown effect separator, mechanical venting to release gases, materials selected to resist high temperatures
  - module level : electronic board for voltage and temperature monitoring, cells balancing and structural protection to avoid heat propagation
  - string level : BMM with both circuit breaker and contactor to manage short-circuits, over-currents, over-temperature and over-voltages
- Stringent qualification processes
- Safe handling of battery modules during maintenance because of low voltage modules (24V)

Storage conditions	
Storage temperature	- 30°C to + 70°C (- 22°F to +158°F)
Storage time	6 months
Maximum altitude	2000 m above sea level
Maximum relative humidity	95% (non condensing)
Compliance to standards	
Cell safety	UL 1642
Module safety	EN 50178 / IEC 60950
EMC	IEC 62 040-2 Cat C1 and C3
Cabinet protection class	IP 20
Vibrations and shocks	IEC 60721-3-3 (class 3M4 and 3M2 respectively)
Seismic	IEEE 693 high level
Environment	IEC 62093 (indoor conditioned)
Transport classification	UN 3480 - Class 9
Transport regulation compliance	UN 3480 - ST/SG/AC.10/11 Rev 5 § 38.3
Marking	CE
Directives	ROHS, REACH, WEEE
Manufacturing plants	ISO 9001, QS 9000 and ISO 14000



Doc No.: 21873-2-0815

Edition: August 2015

Data in this document is subject to change without notice and becomes contractual only after written confirmation.

Société par Actions Simplifiée au capital de 31 944 000 €

RCS Bobigny B 383 703 873

Produced in the UK by Arthur Associates Limited