MODULAR HIGH-VOLTAGE BATTERY SYSTEM (HV MODULAR ESS)

Overview

Our modular high-voltage battery system is designed with parallel-connected modules, enabling precise adjustment of capacity and voltage to match project requirements.

Each module is available in 3 standard configurations:

1. *353 kWh Module*
   - Internal configuration: 22 × 16 kWh
   - Nominal module voltage: 1126.4 V
   - Nominal module energy: 353.69 kWh

2. *241 kWh Module*
   - Internal configuration: 15 × 16 kWh
   - Nominal module voltage: 768 V
   - Nominal module energy: 241.15 kWh

3. *225 kWh Module*
   - Internal configuration: 14 × 16 kWh
   - Nominal module voltage: 716.8 V
   - Nominal module energy: 225.07 kWh

Note: For custom configurations, please contact us for a tailored technical and commercial assessment.

Modularity and Parallel Configuration

The modules can be installed in parallel, with up to 8 units per system.

Maximum total capacity (8 modules) depending on configuration:

1. With 353 kWh modules: 2,829.51 kWh (2.829 MWh)

2. With 241 kWh modules: 1,929.22 kWh (1.929 MWh)

3. With 225 kWh modules: 1,800.6 kWh (1.8 MWh)

Application Field

This technical datasheet concerns high-voltage (HV) stationary batteries designed for renewable energy storage systems and industrial or commercial applications.

High-voltage (HV) stationary batteries can be configured in different ways to meet diverse environments and specific needs. They are available in containerized versions for easy installation and enhanced mobility, skidded versions for flexible integration into existing infrastructures, as well as versions designed for indoor or outdoor use, depending on application requirements.

Important Notes

- Before any integration, please verify electrical compatibility (nominal voltage, DC protections, balancing, etc.) as well as thermal protections.

- The data presented here corresponds to the basic configurations. Other parameters (maximum charge/discharge power, weight, dimensions, certifications, cooling) can be specified according to the project.

- We offer preventive maintenance contracts for an extended warranty of up to 10 years.

Technical Data Sheet

Battery (Series)	353 kWh Module	241 kWh Module	225 kWh Module
Technology	$LiFePO_4$ (Lithium Iron Phosphate)		
Cell Configuration	16S		
Nominal Capacity	314 Ah		
Nominal Voltage	51.2 V		
Nominal Energy	16.077 kWh		
Nominal Energy (90% DoD)	14.469 kWh		
Nominal Energy (80% DoD)	12.861 kWh		
Nominal Energy (70% DoD)	11.254 kWh		

Gravimetric Energy Density	180 Wh/Kg
Lifecycle (80% DoD / 25°C @ 0.5P /0.5P)	12000 (@70% EOL)
Total Weight	124 Kg (±5 Kg)

Battery (Module)	**353 kWh Module**	**241 kWh Module**	**225 kWh Module**
Number of Batteries in Series	22S	15S	14S
Number of Cells in Series	1P352S	1P240S	1P224S
Nominal Energy	353.69 kWh	241.15 kWh	225.07 kWh
Nominal Energy (80% DoD)	282.95 kWh	192.92 kWh	180.06 kWh
Nominal Voltage	1126.4 V	768 V	716.8 V
Operating Voltage Range	915.2 - 1284.8 V	624 - 876 V	582.4 - 817.6 V
Maximum Charging Voltage	1284.8 V	876 V	817.6 V
Recommended Charging Voltage	1267.2 V	864 V	806.4 V
Discharge Cut-off Voltage	915.2 V	624 V	582.4 V
C-rate Charge/Discharge (Recommended)	0.3 C		
C-rate Charge/Discharge (Maximum Continuous)	0.5 C		
C-rate Charge/Discharge (Maximum 2 Minutes)	0.8 C		
Charge/Discharge Current (Recommended)	90 A (0.3 C)		
Charge/Discharge Current (Maximum Continuous)	150 A (0.5 C)		
Charge/Discharge Current (Maximum 2 Minutes)	250 A (0.8 C)		
Nominal Power (Recommended)	101.38 kW	69.12 kW	64.51 kW
Nominal Power (Maximum Continuous)	168.96 kW	115.2 kW	107.52 kW
Nominal Power (Maximum 2 Minutes)	281.6 kW	192 kW	179.2 kW
Energy Efficiency	> 90%		

Monthly Self-Discharge Rate	≈ 3%		
Volumetric Energy Density	115.7 kWh / m^3	115.04 kWh / m^3	107.37 kWh / m^3
Total Mass	~ 2922 Kg	~ 1990 Kg	~ 1864 Kg
Dimensions (Width * Depth * Height)	2170 * 805 * 1750 mm	1085 * 805 * 2400 mm	

Temperature	**353 kWh Module**	**241 kWh Module**	**225 kWh Module**
Charging Temperature (Min / Max)	0 °C / 50 °C		
Discharging Temperature (Min / Max)	-10 °C / 50 °C		

Safety	**353 kWh Module**	**241 kWh Module**	**225 kWh Module**
Balancing	Active / Passive		
Fire Protection System	Integrated in each battery		
Protection Class	IP20		
Cooling	Forced-air cooling		
Warranty Period	8000 cycles OR 5 years		
Calendar Life	10 years		
Maximum Altitude	3000 m (Power derating above 2000 m)		
Auxiliary Power Supply	Yes		

RBMS 250A	**353 kWh Module**	**241 kWh Module**	**225 kWh Module**
Number of internal batteries in series	22	15	14
Maximum number of parallel modules	8		
Power consumption (Standby)	Nulle		
Power consumption (Active)	≤ 25 W		
Overcharge protection	260 A		
RBMS response time	200 - 300 ms		
Display	HMI 7'' touchscreen		

RBMS 250A	353 kWh Module	241 kWh Module	225 kWh Module
Ports de communication	CAN Bus / RS485 / Ethernet		
Connexions d'alimentation	M8 stud		

Standards	353 kWh Module	241 kWh Module	225 kWh Module
EMC: Emission	EN-IEC 61000-6-3		
EMC: Immunity	EN-IEC 61000-6-1		
Low Voltage Directive	EN 60335-1		
Certifications	CE Compliant, RoHS Compliant		
Operating Conditions	**353 kWh Module**	**241 kWh Module**	**225 kWh Module**
Operating Temperature Range	-10 °C / 50 °C		
Humidity	5 % - 75 % (Non-condensing)		
Storage Temperature	< 35 °C		

Specifications Notes

DoD = Depth of Discharge, recommended up to 80% average daily DoD for extended lifetime, 50% average DoD for ultra-long lifetime. The maximum allowed DoD is 90%.

End of Life (EoL) is defined as a cell falling to 60% of Beginning of Life (BoL) capacity for lifetime expectancy, and 70% of BoL capacity for warranty purposes.

Customization and Tailored Production

We also design systems with higher/lower capacities or specific architectures. For these configurations, please contact us for a tailored technical and commercial study.

Disclaimer

The values provided are for reference only and may be modified during final design and testing. Do not use this information as installation data without technical validation.