Ablerex
Experts in Power Conversion

EnerSalvis

Containerized Battery Energy Storage System

BESS-20, BESS-40

The Ablerex EnerSalvis BESS is a compact, fully integrated, customizable battery energy storage system designed to optimize usage of energy generated from diverse sources including solar and wind energy. Integrating modular PCS and lithium battery architecture with intelligent Energy Management Software into a 20ft or 40ft container, the solution offers flexilbility, reduce installation time and transportation cost, suitable for commercial and industrial users to optimize energy cost and reduce carbon footprint.

PERFECT FOR:

- Integration with Renewable energy generation
- Islanding and off-grid energy storage
- Optimizing Energy Usage in Manufacturing
- EV Charging Stations

HIGHLIGHTS

- **Customizable**
  Provides all required batteries, power conversion system, switchgear, cooling, fire detection and protection according to users requirements.

- **Safety Compliance**
  The major equipment selected is factory tested and in compliance with international standards.

- **High Mobility**
  Containerized design is highly mobile and can be safely and easily transported to any location, saving time and cost.

- **Flexible and Scalable Capability**
  Numerous containers can be put together for capacity expansion.

STANDARDS COMPLIANCE

- UN 38.3
- IEC 62619
- IEC 60730
- IEC 62477
- IEC 62933-5-2
- UL 1642
- UL 1973
- UL 60730
- IEEE 1547

REFRIGERATED CONTAINER

- Refrigerated type container with Double-wall design.

- Provides superior heat rejection and efficient temperature regulation to help improve equipment lifespan.

- Structually strong to withstand heavy weight.

- Complete with Condenser and Compressor to produce chilled air in the container.

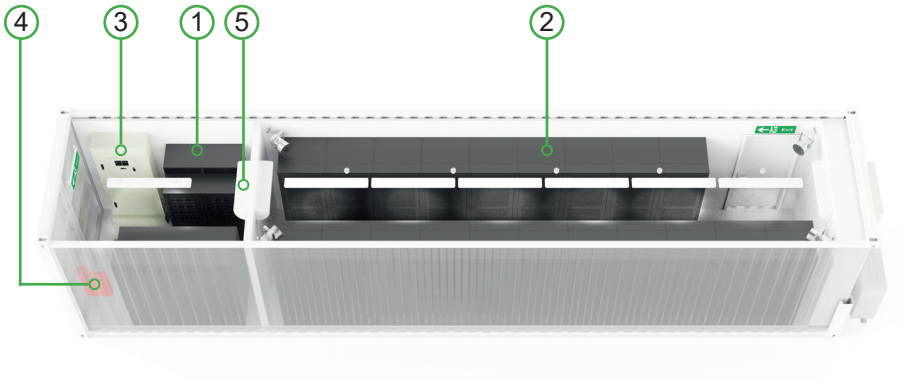
- Fresh air exchanges keep the container ventilated.

- Add-on Multi Split Air-conditioning System for operation and maintenance redundancy.

- T-shaped decking floor
ensure a uniform flow of chilled air.

- The airflow maintains optimum temperature and humidity in the container.

INTEGRATED EQUIPMENT



1. Ablerex Power Conversion System (PCS)
2. Lithium Iron Phosphate (LFPs) Battery Modules.
3. Intelligent Energy Management System (EMS)
4. Built-in Fire Protection System
5. Air-Conditioning System

1. Ablerex Power Conversion System (PCS)

- Comes in true modular hot-swappable design, cost optimization for future expansion.
- Each module is rated at 85KW and connected to one string of battery only. Risk spreading should a fault occurs.
- Modules can be individually replaced without interruption to the entire system.
- Equip with Active Energy Saver mode, selected PCS modules can be put into "sleep mode" during low load condition, to reduce power consumption and improve system efficiency.

2. Lithium Iron Phosphate (LFPs) Battery Modules

- Comes in modular design, providing great flexibility for capacity expansion.
- Improve Safety. Low risk of overheating and cataching fire.
- Environmentally Sustainable.
  Non-Toxic, Recyclable and easy to source ethically.
- Wider Operating Temperature Performance from -20°C to 60°C.
- More than 6,000 life cycles. Can be charged quickly and frequently without significant capacity deterioration.

3. Intelligent Energy Management System

- Equip with intelligent auto-energy reduction control capability
- Automatically regulate the PCS and the cooling system operating modes.
- Collected data are analyze to optimize and provide energy saving recommendations to help user reduce cost and improve energy efficiency.
- Remote control and monitoring via the internet.

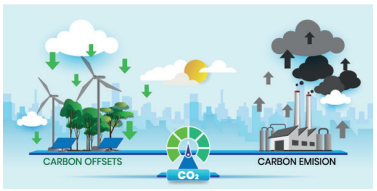
4. Fire Protection System

- Built-in with smoke detectors, fire alarm system and fire suppression systems.
- Provide early detection of possible fire alarm and help contains the spread of fire.

5. Multi-Split Air-conditioning System

- Each cooling unit can be programmed to turn on separately with Energy Saver Mode, allowing the storage battery to operate in optimum temperature environment, resulting in higher energy efficiency.
- Ease of maintenance with low manhour cost and reduce downtime.
- High availability and easy to source.

APPLICATIONS



• **Integration with Renewable Energy Generation:** Renewable energy such as solar and wind energy are intermittent energy sources which cause instability in the power grid. To achieve optimized and balance energy sources, adding a BESS can store excess energy generated and discharge during periods of high demand to balance the supply.

• **Islanding Operation:** In case of power failure, the BESS can operate independently to supply power to support continual operation in designated districts/zones and microgrids without being affected by the main grid power failure.

• **Automatic Frequency Controller (AFC):** BESS can act as an Automatic Frequency Controller (AFC) to the grid. Grid frequency will decrease with high energy demand and increase when energy demand is low. If the default frequency is 50Hz, the frequency drops to 49.9Hz at high energy demand, BESS will discharge its stored energy to correct the frequency deviation back to 50Hz.

• **EV Charging Station:** To prevent the grid from overloading and tripping, the BESS can be used to balance the supply and demand in an EV Charging station. The grid voltage will drop drastically when multiple EV are charging simultaneously, the BESS will discharge its stored energy to peak-shaved the demand, stabilized the supply and bring up the voltage.

• **Optimizing Energy Usage in Manufacturing:** For factories adopting Time of Use (ToU) electrical tariff, BESS can be deployed to supplement the energy demand during high peak/tariff periods and charge the storage battery in the BESS during low peak/tariff periods.

• **High Energy Consumption Users**: High energy users such as Cement Factory, Steel Mills, Hyperscale Data Centre, Semi-Conductors Plants utilizing diverse energy sources can deploy BESS combining its several features with dedicated priorities as part of their diverse energy sources to meet carbon neutral requirements.

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SPECIFICATIONS

MODEL		BESS-20	BESS-40
Energy (kW/kWh)		603/756	1206/1512
UTILITY	Voltage	480V 3P/3PE	
	Power Factor	0.8 ~ -0.8	
	Frequency	50Hz/60Hz	
	Harmonic	< 3%	
PHYSICAL	Dimension (LxWxH, m)	6.058 x 2.438 x 2.591	12.192 x 2.438 x 2.896
	Container Type	Refrigerated Type Container	
	Communication Interface	RS485	
BATTERY MODULE	Rated Capacity	105AH	
	Rated Voltage	38.4V	
	Operating Voltage	36~41.4V	
	Dimension (DxWxH, mm)	521 x 149 x 236	
	Weight (kg)	≤ 30.5	
	Operating Temperature	Charging: 0°C ~ 60°C Discharging: -20°C ~ 60°C	
	Storage Temperature	0°C ~ 35°C, Less than 12 months -20°C ~ 45°C, Less than 1 month	
BATTERY CABINET	Rated Capacity	105AH x 1 String	
	Rated Voltage	806V	
	Maximum Operating Voltage	869V	
	Minimum Operating Voltage	756V	
	Rated Charging Current	105A x 1 String	
	Dimension (DxWxH, mm)	750 x 900 x 2077	
	Weight	<800kg	
	Number of cycles (times)	>75% of initial capacity with 3000 cycles at 25°C ambient Charging: 1C, 869V, 0.05C cut-off at 25°C Discharging: 1C, 756V cut-off at 25°C	
	Operating Temperature	Charging: 0°C ~ 60°C Discharging: -20°C ~ 60°C	
	Storage Temperature	0°C ~ 35°C, Less than 12 months -20°C ~ 45°C, Less than 1 month	
	No. of Battery modules	21Pcs x 1 String	

**Specifications subject to change without notice.*
**The system can be customized according to the customer requirements.*

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