

DZ125261L2 Outdoor Liquid-cooled PV-ESS Cabinet Specification

Series	Outdoor Liquid-cooled PV-ESS Cabinet
Model	DZ125261L2
Customer Name or code	
File No.	
File Version	V1.1
Issue Date	2025-03-14

Customer Approval	Signature	Date
	Company Name:	
	Company Stamp:	

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1. Preface

The DZ125261L2 is an All-in-One integrated outdoor cabinet-type energy storage system developed for commercial and industrial energy storage applications. It integrates batteries, Battery Management System (BMS), Power Conversion System (PCS), Energy Management System (EMS), distribution system, fire protection system, and temperature control system within a single enclosure.

2. DZ125261L2

2.1 Model Description

- The first two letters "DZ" indicate the product code for string-type outdoor energy storage cabinet.
- The third to fifth digits represent the rated power (unit: kW).
- The sixth to eighth digits represent the rated energy capacity (unit: kWh).
- The ninth letter indicates the configuration mode.

2.2 Product Overview

- The DZ125261L2 string-type outdoor energy storage cabinet integrates energy storage batteries, Power Conversion System (PCS), Battery Management System (BMS), Energy Management System (EMS), fire protection system, temperature control system, distribution, and protection systems, achieving an all-in-one design.
- Modular design supports rapid capacity expansion and customized capacity matching. It also supports parallel operation of multiple energy storage cabinets on the AC side, meeting the flexible expansion requirements of large-capacity energy storage projects.
- The system supports front and rear maintenance design, reducing the footprint and maintenance aisles while improving space utilization. It is also convenient for installation and transportation.
- The Battery Management System (BMS) continuously monitors battery voltage, current, and temperature, achieving precise control and balancing management. It is equipped with multiple protection functions such as over-voltage, over-current, and over-heating to ensure safe battery operation.
- The Energy Management System (EMS) supports both local control and cloud monitoring functions. Users can remotely monitor the operating status of the energy storage cabinet and manage it via a remote platform.

- The system has an IP54 protection rating, making it suitable for complex outdoor environments. The optimized temperature control system and cluster-level fire protection system ensure stable operation of the energy storage cabinet in harsh conditions such as high temperature and high humidity.

2.3 Application Scenarios and Operation Strategies

- **Peak Shaving and Valley Filling:** Set charging and discharging strategies based on time-of-use electricity rates. When electricity prices are in the off-peak or mid-peak period, the energy storage cabinet can be set to charge automatically. Once fully charged, it will enter standby mode. During peak rate periods, the energy storage cabinet will discharge automatically, achieving arbitrage through the price difference and enhancing the economic benefits of the energy storage system.
- **Photovoltaic Integration:** The primary strategy is to prioritize the consumption of photovoltaic-generated electricity. When there is sufficient sunlight, excess electricity is stored in the energy storage system. When sunlight is insufficient, the energy storage system or the grid supplements the power supply.
- **Backup Power:** In the event of a grid failure, an immediate switching procedure is initiated. During the switching process, the connection to the grid is cut off, the energy storage system is activated, and power supply is re-established. Priority is given to ensuring power supply to critical equipment, guaranteeing stable and reliable electricity supply.



Figure 1 Product Appearance

2.4 System Architecture

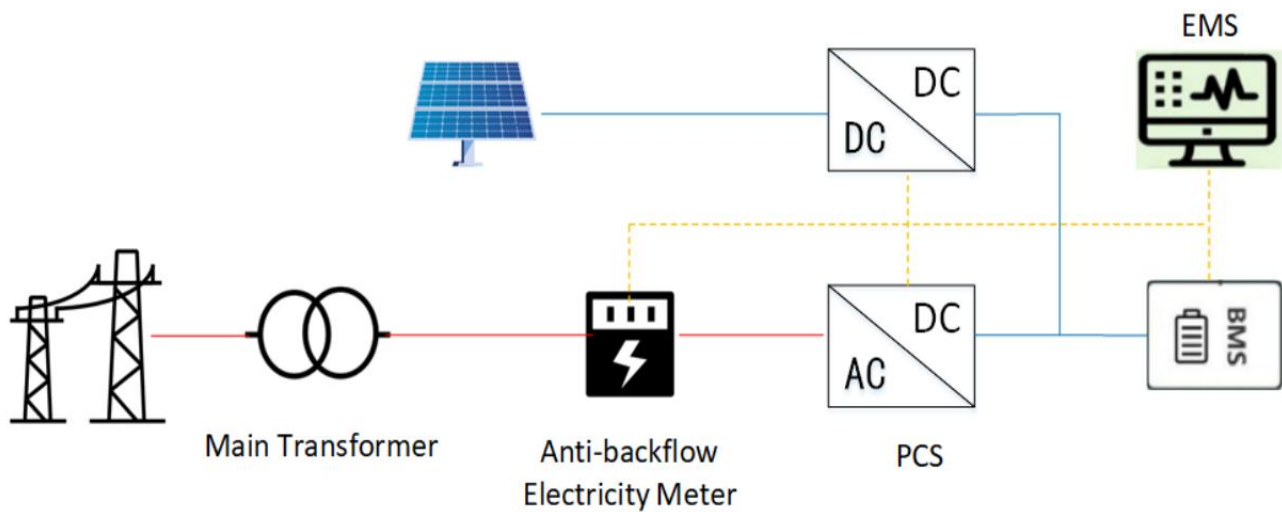


Figure 2 System Architecture Diagram

The BMS of the outdoor energy storage cabinet adopts a two-tier structure, with one BCU responsible for united management. Under each BCU, there are 5 BMUs responsible for managing modules with a configuration of 1P52S. The basic structure of the system is as follows:

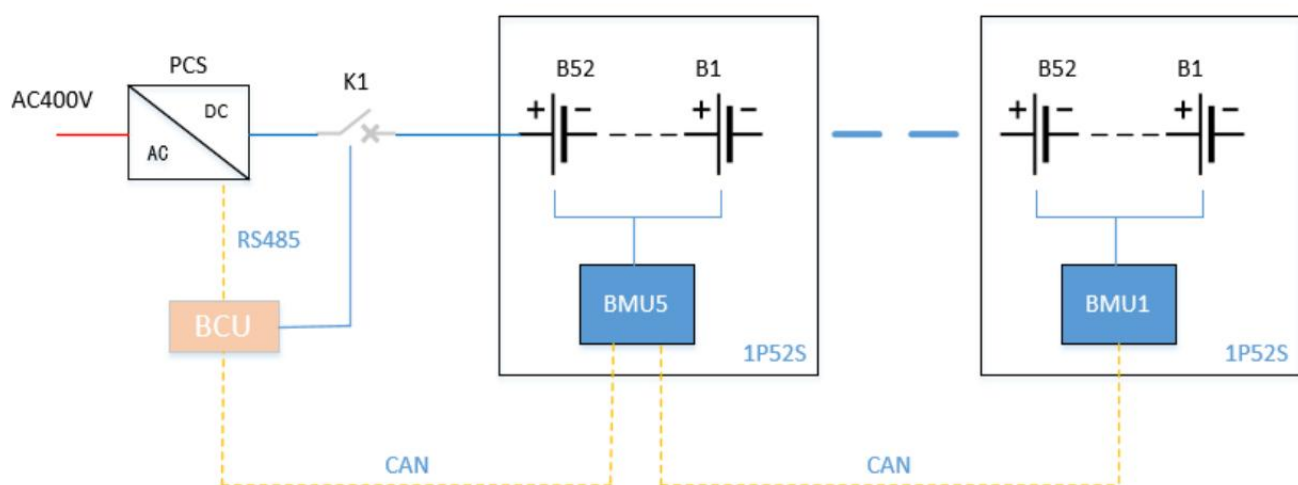


Figure 3 BMS Architecture Diagram

2.5 Product Features

✧ **Safety and Reliability**

- High-performance LFP (Lithium Iron Phosphate) batteries are used, ensuring safety and reliability.
- Four-level safety protection: combustible gas detection, water ingress detector, temperature-sensing aerosol fire extinguishing device, millisecond-level cell health monitoring and early warning technology, providing multiple safety measures.

✧ **Stability and Efficiency**

- Suitable for peak and off-peak pricing models, with voltage operating within the high-efficiency inverter range, resulting in higher charging and discharging system efficiency.
- String-type design allows different battery clusters to operate independently, with no circulating current. This leads to higher battery utilization and longer battery life. In the event of a battery cluster or PCS module failure, the faulty branch will not affect the operation of other branches.
- Intelligent temperature control system ensures the optimal temperature environment, with low cell temperature differences, longer battery life, and lower system power consumption.

✧ **Easy Operation and Maintenance**

- Real-time cloud monitoring enables unattended operation and remote upgrades. The EMS has functions such as data acquisition, alarm and protection, predicted power output, optimized energy storage charging and discharging, and management of controllable loads. It also uploads operational data and alarm status to the cloud in real time.
- Pre-assembled in the factory with an All-in-One highly integrated design, facilitating transportation and maintenance.
- The outdoor energy storage cabinet adopts a modular design, supporting parallel connection, which makes it flexible and convenient for expansion.

2.6 System Parameter

Table 1 System Parameter

Model	DZ125261L2
DC side	
Battery rated capacity	261kWh
Battery rated voltage	832V
Battery voltage range	780V - 936V
Battery type	LFP
Cell capacity	314Ah
Battery life cycle	8000 cycles (0.5P, 5%~95%DOD, 70%SOH)
Standard charge/discharge rate	0.5P
Pack Configuration	1P260S
Cooling Method	Liquid-cooling
AC side	
Rated AC power	125kW
Maximum power	137.5kW
Maximum current	200A
Rated AC voltage	400V
Voltage range	± 15%
Output wiring	3P/N
Rated AC frequency	50/60Hz
Current harmonic distortion THDI	< 3% (rated power)
Power factor	≥0.99/-1~1
Overload capacity	110%
PCS cooling method	Air-cooling
Maximum efficiency	98.5%

System Parameter	
Energy cycle efficiency	≥90%
Protection rating	IP54
Corrosion resistance rating	C3 , (C4/C5 optional)
Fire protection	Aerosol/Perfluoro (Optional)
Isolation method	Non-isolation (transformer optional)
Relative humidity	0 ~95% (no condensation)
Ambient temperature	-30℃ ~55℃ (≥45℃ derating)
Altitude	<3000m (≥2000m derating)
BMS communication	CAN2.0b
EMS communication	4G/CAN/RS485
Dimension (W*D*H)	1692mm*1385mm*2220mm
Weight	3.0t
Annual degradation rate	<3%
Warranty	5 years
PV DCDC (Optional)	
Maximum input module power	125kW
MPPT voltage range	300- 800V
PV maximum PV input current	160A (single channel)
MPPT channel number	2

2.7 Environmental Control System

The environmental control system is configured with fire extinguishing devices, temperature detectors, smoke detectors, combustible gas alarm controllers, surge protectors, door magnetic sensors and other environmental control units, which can comprehensively monitor the system's operating status.

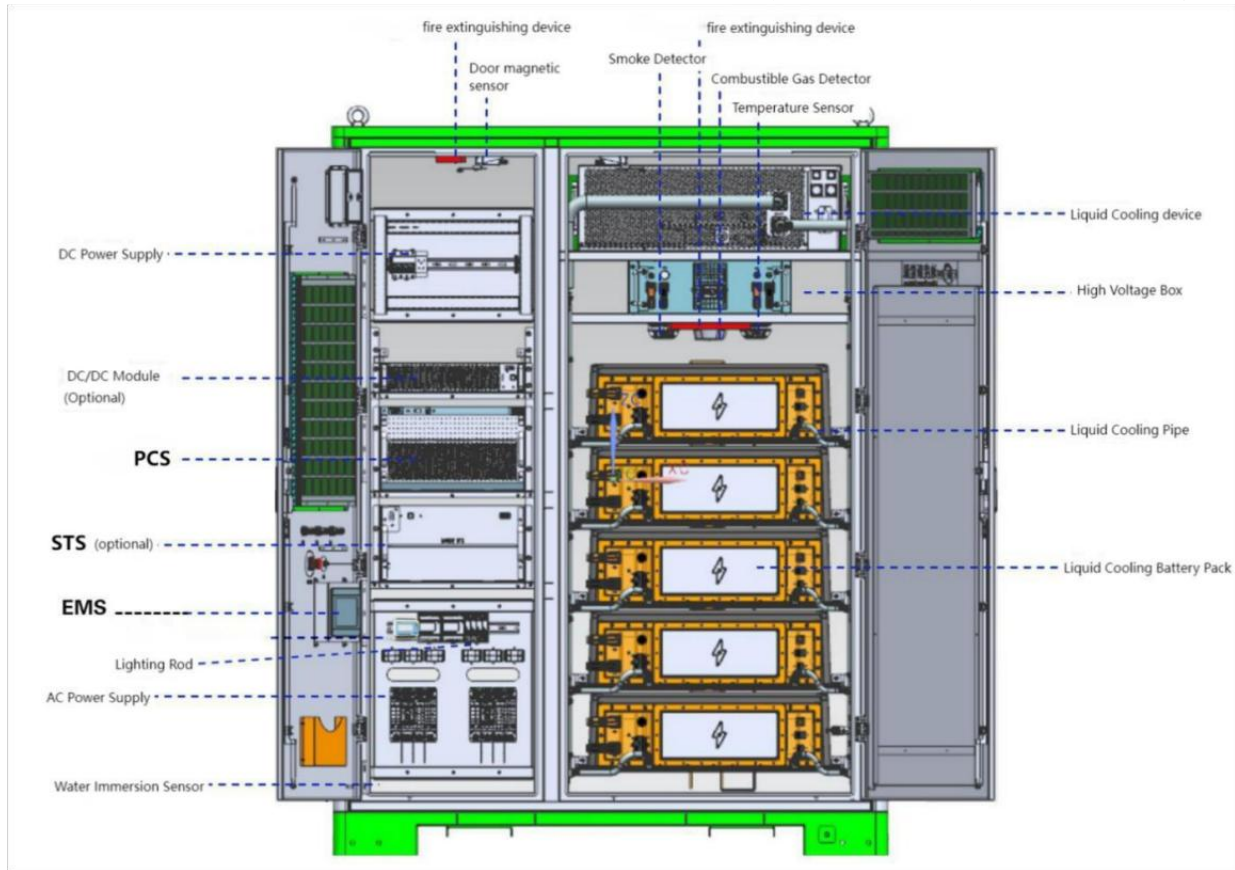


Figure 4: Schematic diagram of environmental control

Note: Component positions are for reference only, actual design may vary.