ORIENT POWER



2Mwh & 1Mwh Immersed Liquid Cooling Series

BRES Immersed Liquid Cooling Series

Product Introduction

Immersed Energy Storage System (hereinafter referred to as BRES) is an integrated energy storage system that combines the Power Conversion System (hereinafter referred to as PCS) with an immersed battery system. By intelligently integrating grid power and loads through lithium battery energy storage, it can achieve peak shaving and valley filling, microgrid applications, multi-energy complementarity, and strategic intelligent power consumption, providing users with high-quality power services featuring high economy, reliability and safety.

Product Features

- The battery system adopts an immersed liquid cooling solution to improve heat dissipation efficiency;
- The system adopts a string design scheme to support inter-cluster SOC balancing;
- 100% unbalanced load capacity during off-grid operation;
- 110% rated output power can operate for a long time;
- Supports parallel operation of multiple energy storage systems to increase the installed capacity of the energy storage system;
- Adopts AC/DC dual-input redundant power supply to ensure stable operation of the control power supply;
- Adopts front air intake and rear air exhaust mode for full front maintenance.

System Composition



Power Conversion System (PCS)

A bidirectional AC/DC converter that enables bidirectional conversion between AC and DC.



Immersed Energy Storage Battery Module

A main component of the system where cells are completely sealed and immersed in insulating coolant, connected in series to form battery modules, achieving faster cooling rates and shorter cooling time.



Energy Management System

The core component of the system, which collects and summarizes information from the battery system to achieve real-time data monitoring, effectively protecting the battery from overcharging, over-discharging, overcurrent, etc., ensuring safe, reliable and efficient operation of the entire system.



Fire Protection System

The safety guard of the system, which alarms and extinguishes fires when a fire occurs in the energy storage system, achieving rapid response to accidents and providing safety guarantee for equipment and personnel.



Chiller System

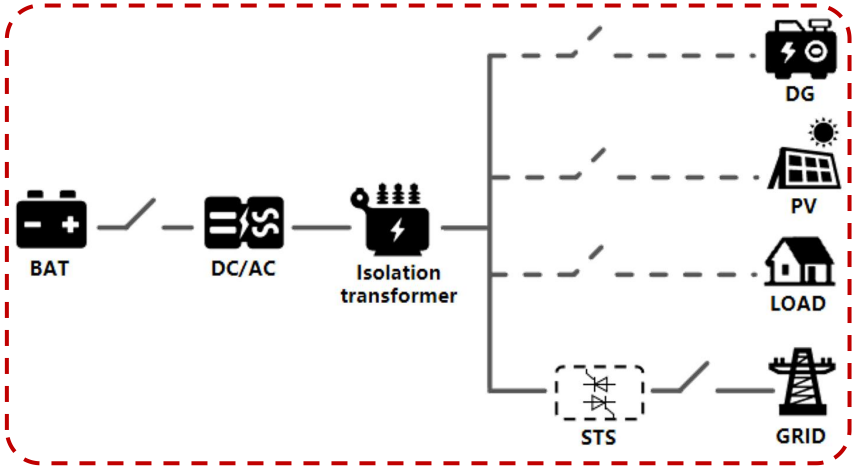
A 5KW water-cooled unit, the "refrigeration heart" of the immersed liquid-cooled energy storage system, ensuring the battery is always in the optimal temperature range in extreme environments through efficient heat exchange, thus guaranteeing system safety and lifespan.

BRES Immersed Liquid Cooling Series

BRES-1040-500



Topological Diagram



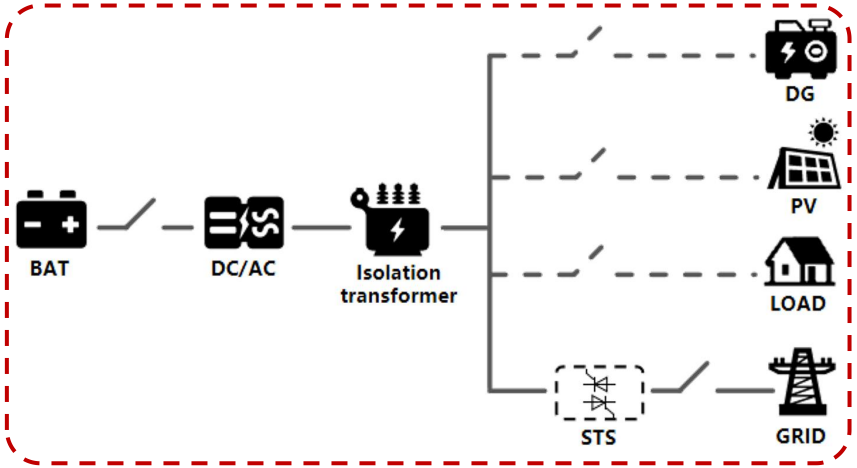
TIP:By default, there is only one gird CB. Load, PV and DG CB are optional.STS is optional.

BRES Immersed Liquid Cooling Series

BRES-2080-1000



Topological Diagram



TIP:By default, there is only one gird CB. Load, PV and DG CB are optional.STS is optional.

BRES Immersed Liquid Cooling Series

Mode	BRES-2080-1000	BRES-1040-500
AC parameters (grid-connected)		
Rated output power (kW)	1000	500
Rated grid voltage (V)	3W+N+PE,380/400V	
Grid voltage range	-15%~+10%	
Rated grid frequency (Hz)	50/60	
Grid frequency range (Hz)	±2	
Output current harmonics	≤3% (rated power)	
DC component	<0.5%In	
Power factor range	-0.9~+0.9	
AC parameters (off-grid)		
Rated output power (kW)	1000	500
Maximum output power (kW)	1050	525
Rated output voltage (V)	3W+N+PE,380/400V	
Output voltage harmonics	3% (linear full load)	
Rated frequency (Hz)	50/60	
Overload capacity	105%]: Continuous operation, (105%~120%]: 10 min, 120%): Halt	
Battery parameters		
Cell type	LFP	
Capacity per battery cabinet (kWh)	261.2	
Number of battery cabinets	8	4
Capacity of battery system (kWh)	2090.0	1045.0
Rated operating duration (h)	2 (other durations can be selected by changing the number of battery modules)	
Battery life	>6000 cycles（0.5P，25±2℃@100%DOD@80%SOH）	
Maximum efficiency	93%（0.5P）	

Mode	BRES-2080-1000	BRES-1040-500
Basic parameters		
Dimensions (W * D * H) (mm)	6058*2438*2896	2991*2438*2896
Weight (kg)	32000	17000
Isolation Method	Isolation transformer (built-in)	
On-off-grid switching device	Electrical operation	
Protection Class	Outdoor type IP54	
Working Temperature Range	-20~55°C (>45°C To be derated)	
Relative Humidity (no condensation)	0～95%	
Temperature Control Method	Battery cabinet: air-conditioned PCS cabinet: air-cooled	
Maximum Working Altitude (m)	≤4000 (>2000 derated)	
Display	HMI	
Communication Interface	RS485、LAN	
Communication Protocol	Modbus-RTU、Modbus-TCP	

PCS Module



Overview

The PCM125 converter adopts advanced digital control technology, which optimizes control performance, improves system reliability, and realizes modes such as grid-connected discharge, grid-connected charging, and off-grid operation. The PCM125 system has a wide DC input range, which can better meet the charging and discharging needs of different battery combinations. At the same time, the energy storage system composed of PCM125 bidirectional converter modules is more flexible in structure and power design. Under the condition of the same power output, it increases the diversity of battery pack connections and reduces the number of parallel battery packs. It can better manage the battery, improve the battery life and the economic benefits of the energy storage system.

Product Features

- The system includes multiple operating modes such as PQ mode, VF mode, and VSG mode;
- Three-level control technology with high efficiency and high power quality;
- Can accept grid dispatching, including communication methods such as RS485 and LAN;
- Supports four-quadrant operation;
- 100% unbalanced load capacity during off-grid operation;
- 110% rated output power can operate for a long time;
- Multiple modules can be used in parallel to increase the installed capacity of the energy storage system;
- Adopts AC/DC dual-input redundant power supply to ensure stable operation of the control power supply;
- The system is designed with front air intake and rear air exhaust, allowing full front maintenance.

System Parameter Table

Model		PCM125H
DC side parameters	Voltage range	DC580V ~ DC950V（3W3L） DC650V ~ DC950V（3W+N）
	Rated power	125KW
	DC side maximum current	230A
AC grid connection parameters	Output wiring system	3W+N+PE
	Rated power	125KW
	Rated voltage	AC 400V
	Rated current	181A
	Voltage range	-15% ~ +10%
	Rated frequency	50Hz/60Hz
	Frequency range	±2Hz
	Output Harmonics	≤3% (rated power)
AC off-grid connection parameters	Output wiring system	3W+N+PE
	Rated power	125KW
	Rated voltage	AC 400V
	Rated frequency	50Hz/60Hz
	Rated current	181A
	Voltage accuracy	1%
	Frequency accuracy	±0.2Hz
	Output voltage harmonics	≤3% (linear full load)
	Unbalanced load capacity	100%
	Overload capacity	≤110%: long-term operation; (110,120): operating time ≥10 min; 120%: stop operation for 1 min
Environment	Operating Temperature	-20℃ to 70℃ (derated above 45℃)
	Storage Temperature	-20℃ to 70℃ (without battery)
	Relative Humidity	0% RH to 95% RH, non-condensing
	Working Altitude	≤4000m (derated above 2000m)
	Noise	< 75dB
Others	Communication methods	BMS Communication Interface: CAN/RS485 EMS Communication Interface: Ethernet / RS485
	Communication Protocol	CAN2.0 / ModBus RTU / ModBus TCP
	Isolation method	Non-isolated
	IP level	IP20
	Cooling method	Air-cooled, smart fan speed control
	Maximum efficiency	98.5%
	Dimensions (W*D*H)	642*540*172
	Weight	62kg
	Air outlet mode	Wind comes in from the front, goes out from the back

Note: There may be a deviation of up to several millimeters in the size and weight of the product. Please refer to the actual item for the exact details.