Shenzhen Sinostorage Energy Co.,ltd

Energy Storage System
430kWh energy storage battery
200kW AC output power

Shenzhen Sinostorage Energy Co.,ltd

Specification Data

Material details						
No.	Material name		specifications	unit	quantity	remarks
1	Integrated cabinet	DC-DC module	50kW	pcs	4	Total 200kw solar power input
2		DC-AC module	50kW	pcs	4	Total 200kw AC power input/output
3		isolation transformer	300kVA	set	1	
4		EMS		set	1	
5		fire extinguisher system	heptachloropropane	set	3	
6		air conditioner	3kW	pcs	3	
7		Other accessories	Including switches, sensors, wiring, etc	set	1	
8		Integrated cabinet		set	2	
9		Energy storage battery	Rated voltage of 768V, 280Ah, 2cabinets	kwh	430	215kWh * 2 battery cabinet

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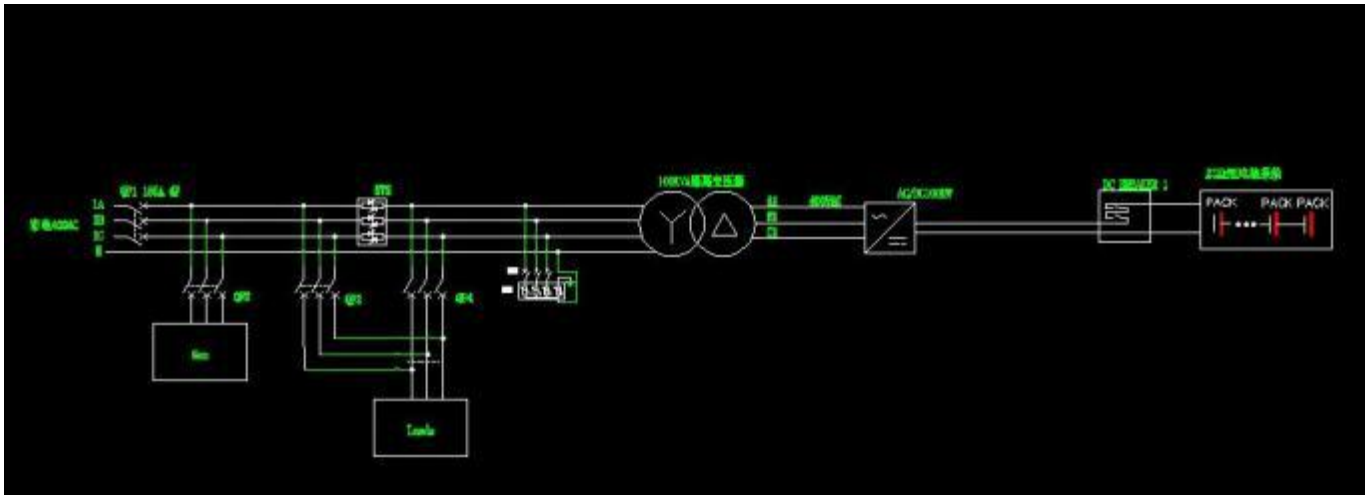
1. Integrated energy storage system cabinet

The large-scale intelligent energy storage system takes the lithium iron phosphate battery as the energy carrier, charges and discharges through PCS, realises various energy exchanges with the power system, and can be connected to various power supply modes, such as photovoltaic array, wind energy, diesel generator and power grid and other energy storage systems. The output of the energy storage system can be connected to the grid, supplied to a variety of load equipment, and charged by electric vehicles. The output of the energy storage system can be connected to the grid, supplied to various load devices and electric vehicle chargers.



Product topographic map

The primary circuit of the energy storage system integrated cabinet includes the battery system, cluster control box, energy conversion system PCS, and output molded case circuit breaker; the battery system output is controlled and protected by the cluster control box and connected to the DC side of the PCS.

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This integrated energy storage system cabinet include Lithium Battery Clusters,BMS and cluster control box,Power Conversion System(PCS),Energy Management System(EMS) temperature control and fire protection, water door magnetic and monitoring communication, fully control the system operation status and risks .The core of the technology is the design of the battery pack, the battery cluster structure, the thermal design of the battery system, the protection technology of the battery system, and the battery management system.

This distributed off-grid power generation system adopts energy storage system integrated cabinet*2 cabinets:

(1) The internal part of the battery cabinet, integrating 1 cluster of battery packs, each cluster of 215.04kWh + BMS high voltage management system, fire + cooling + EMS + ATS and other auxiliary systems. fire protection + cooling + EMS + ATS and other auxiliary system.

(2) Power conversion system(PCS) ,with AC rated output power 100KW (2sets of DC-AC conversion modules)+DC input rated power 100KW（2sets of DC-DC conversion module）

The following diagram shows the internal structure of a single integrated cabinet, including the battery system and electrical compartment (including PCS and other control modules), etc., for reference only:

All-in-one battery cabinet 215kwh-100kw

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All-in-one battery cabinet 215kwh-100kw

(1) Battery cluster: battery packs 64V280Ah (17.92kwh) /set *12sets=215.04kwh

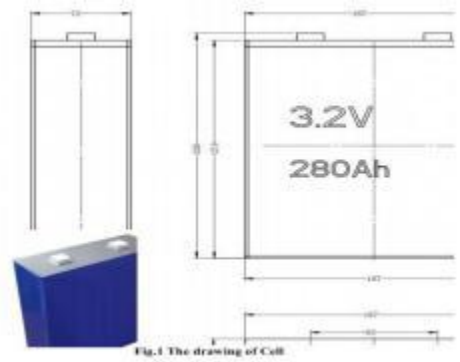
(2) 100kw AC output PCS(400Vc,3WeN+PE /3W+ PE)+100KW DC input rated power inverter

This cabinet also include air conditioner,fire fighting system,and high voltage system,EMS,ATS.

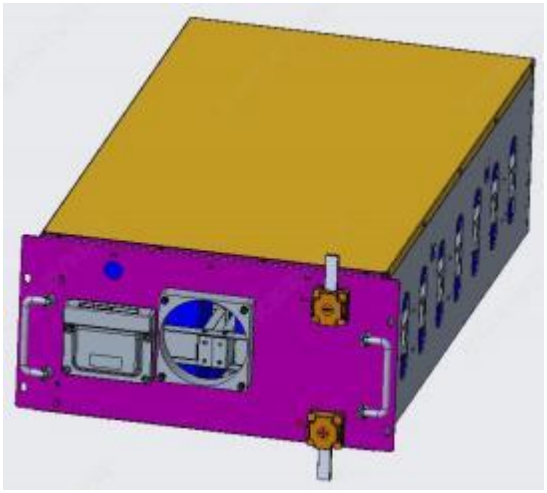
Size:1800*1200*2300mm,weight:2200kg

2. Battery main parameters

Cell Parameter：

	Item	Parameter	Note
1	Cell chemistry	LiFePO4	
2	Cell Model	3.2V280Ah	
3	Rated power(V)	3.2V	
4	Rated capacity(Ah) ±5%	280Ah	
5	Rated energy (Wh)±5%	896Wh	
6	Weight (kg)	≈5.7kg	

Battery Packs Parameter：

	Item	Parameter	Note
1	Model	64V280Ah	
2	Pack Method	20S1P	
3	Rated voltage	64V	
4	Rated capacity±5%	280 Ah	
5	Rated energy±5%	17920 Wh	
6	Operating voltage protection range	50 ~72V	
12	Battery weight	≈135KG	
13	Battery pack case material	Iron	

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Battery Cluster Cabinet Parameter:

	Item	Parameter	Note
1	Model	768V280Ah* 1 cluster	
2	Pack Method	20S1P*12 pack	
3	Rated voltage	768V	
4	Rated capacity±5%	280Ah	
5	Rated energy±5%	215.KWh* 1 cluster	
6	Operating voltage protection range	600～876V	
12	Battery weight	≈1800KG * 1Set	
13	Battery pack case material	Iron	

3. Battery Management System(BMS)

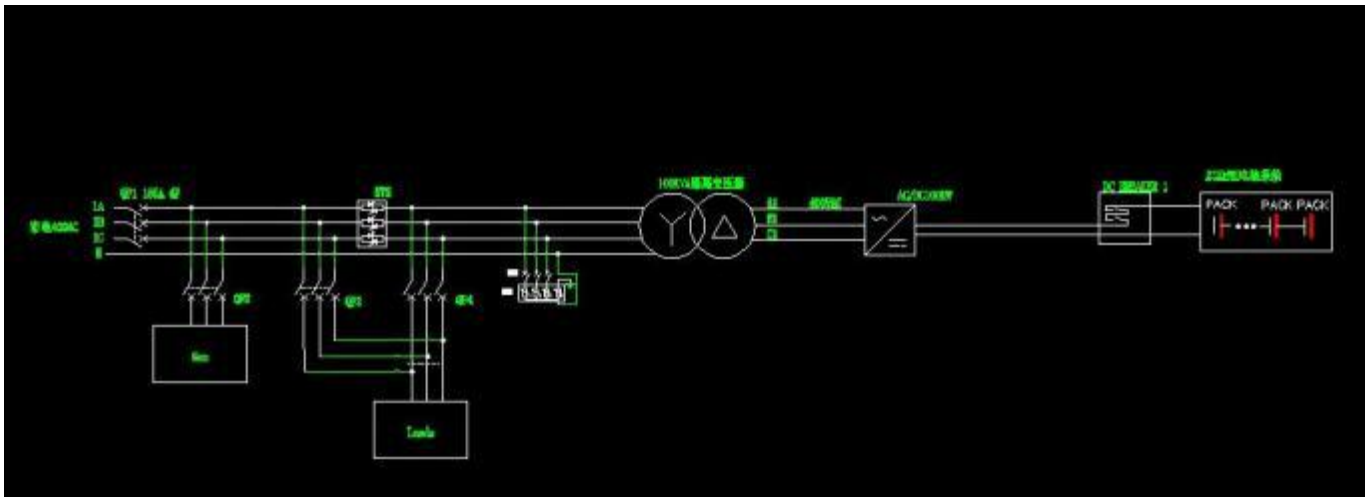
The energy storage battery management system adopts a two-level framework, including battery management unit BMU and battery cluster management unit BCMS

The battery management unit (BMU) is mainly used to collect the single cell voltage, temperature, equalizing voltage, equalizing current, total battery string voltage, pressure data, fan speed, etc., calculate the battery characteristic information, alarm and protection status, record important logs, events and other data during the operation of the battery module, implement the temperature control strategy, equalizing strategy, etc. issued by BCMS, and report the battery related data to BCMS.

The battery cluster management system (BCMS) is mainly used to obtain the battery system voltage, current, temperature and other information for processing, calculate the battery cluster SOC, SOH, rechargeable and discharged power, cluster operation alarm and protection status, record all important operation, alarm and protection log files, real-time record all the battery cluster operation information during the system operation, and execute the dispatching and control instructions issued by the superior.

4. Power Conversion System （PCS）

This distributed off-grid power generation system adopts Power conversion system(PCS) with AC rated output power100KW (2sets of DC-AC conversion modules， 400V,3P+N+PE,50HZ)+DC input rated power 100KW（2sets of DC-DC conversion module）



PCS Topographic map

parameter：

DC / DC conversion module	
Model	Monet-50DC
DC / DC conversion module power rating	50kW
Maximum power	55kW
Number of installations	3pcs, rated power 3pcs*50kW= 150kW
Working range of DC voltage	200- 1000V
High-voltage side full-load voltage range	500-900V
High voltage side maximum current	110A
Low-voltage side full-load voltage range	312-850V
Low-voltage side maximum current	80A*2
Low-voltage side input number	2 (can be 2 independent, can be parallel into 1)
Maximum conversion efficiency	98.8%
Dimension W*D*H(mm)	483*600* 150mm
Weight(kg)	25kg

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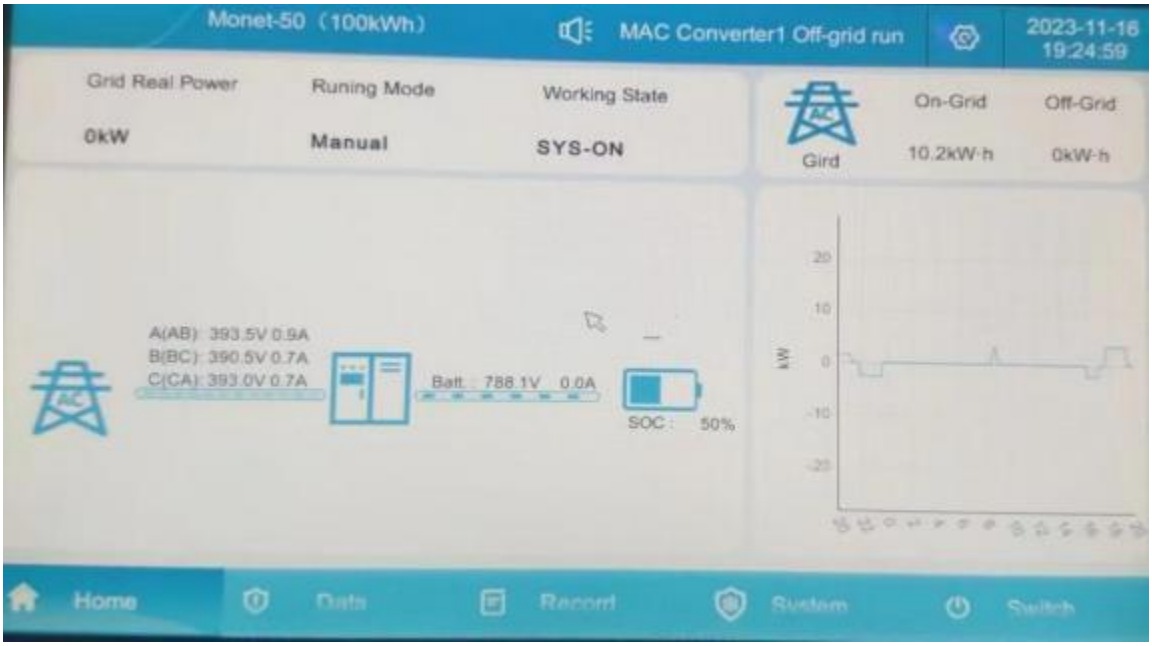
DC / AC conversion module	
Model	Monet-50AC
DC / AC conversion module power rating	50kW
Maximum power	55kW
Number of installations	5pcs, rated power 5pcs*50kW=250kW
Working range of DC voltage	500-1000V
DC grid full-load voltage range	500- 900V
Maximum DC current	110A
Rated AC voltage	400Vc,3WeN+PE /3W+ PE
Rated frequency	50/60HZ215
Rated AC current	72A
Overload capacity	100%,normal operation :120%，,1 Minutes:150%,10second
Current distortion	<3%(power rating)
Power factor adjustment range	1(outstrip)-10 （delay)
Capacity of drive the unbalanced load	100%,Three-phase independent control
Adapted battery	Lithium battery / lead-acid / photovoltaic modules
Charging method	Press the BMS instruction / 3-stage / MPPT
Maximum conversion efficiency	98.2%
Dimension W*D*H(mm)	483*6007150mm
Weight(kg)	25kg

5. EMS Energy Management System

The system is equipped with an energy management system EMS, which uniformly coordinates and controls each equipment in the complete set of energy storage projects, and manages and counts the charging and discharging capacity of the energy storage system and the components of the energy storage system, and regulates and controls them and collects relevant operating parameters. Users can execute various operation commands through the LCD display interface, conveniently browse DC, AC and system operation related parameters and data, timely obtain the current equipment status and real-time alarm information, and provide a reliable basis for fault diagnosis. In addition, the LCD touch screen can also display the system software version information and upgrade the software of each component through the U disk.



The operation mode of the energy storage system can be divided into three types: grid-connected automatic mode, grid -connected manual mode, and off-grid manual mode.

(1) Grid-connected automatic mode: For peak shaving and valley filling application scenarios, the energy storage system is automatically connected to the grid according to the pre-set time-sharing charge and discharge power.

(2) Grid-connected manual mode: The energy storage system runs in grid-connected mode, but the system must be manually operated by the user to operate the LCD touch screen when starting or shutting down. The charging and discharging active power, reactive power and power factor of the energy storage system can be set in the "parameter settings"

(3) Off-grid manual mode: The energy storage system runs in off-grid mode, and the system can output a stable 400V/50Hz three-phase AC voltage, but the start or shutdown of energy storage must be manually operated by the user LCD touch screen.

6. **Fire fighting system**

The integrated cabinet can meet the basic installation requirements of forklift installation and provide a welding fixation method. The welding point is reliably connected to the non functional conductive conductor (metal shell, etc.) of the entire integrated cabinet, and at least two grounding points that meet the strictest electrical standards are provided to the user in the form of copper bars. The primary and secondary equipment in the electrical compartment of the split cabinet are grounded separately in the form of copper bars.

The fire protection function ensures that the shell structure, insulation materials, and interior and exterior decoration materials of the battery cabinet are all made of Class A non combustible materials. The integrated cabinet is equipped with temperature and smoke detectors and fire alarm controllers.

The integrated battery cabinet is equipped with an automatic fire extinguishing system mainly made of perfluorohexane. Once a fire is detected, the integrated cabinet should be able to disconnect the electrical connection with external equipment in a timely manner and activate the fire extinguishing device.

7. Packaging Method

Pallets are safely packed and suitable for logistics.