

Battery Energy Storage System (BESS) Model: BESS20



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1. Scope

This specification sheet describes the property indexes and technical requirements of the 20KWh LiFePo4 Battery Energy Storage System (BESS) manufactured by Shenzhen Polinovel Technology Co., Ltd (hereinafter to be referred as POLINOVEL).

2. Product

- 2.1 Product Name: LiFePo4 Battery Energy Storage System (BESS)
- 2.2 Specification: 20KWh LiFePo4 Battery, 5KW/220V, 3KW/110V Inverter

3. Product Parameters

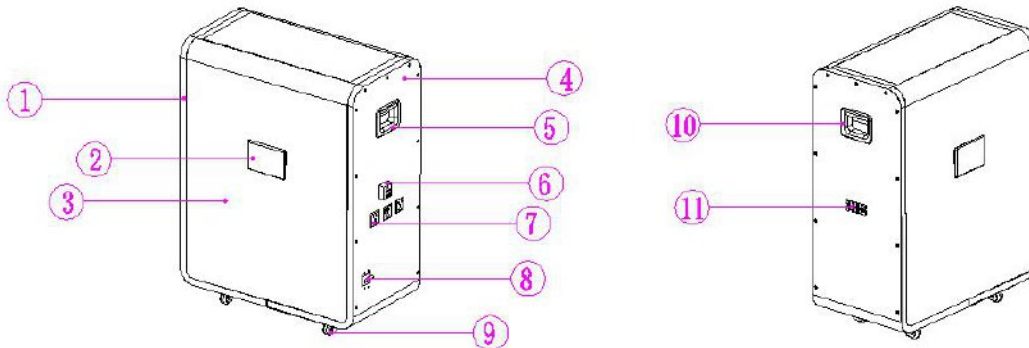
Battery Bank Specification			
1	Battery Cell Information	IFR 32700: 3.2v 6Ah Cylindrical LiFePO4 Cell	
2	Battery Information	51.2V 402Ah	
3	Power Storage Capacity	20.5KWh	
4	Max Charge Voltage	58.4V	
5	Discharge Cut-off Voltage	40V	
6	Recommend Charge Current	20 - 100A (5KW Inverter)	20 - 60A (3KW Inverter)
7	Max Continuous Discharge Current	100A (5KW Inverter)	60A (3KW Inverter)
Solar Controller Specification			
8	Maximum PV Array Power	4.5KW / 5.5KW	
9	Maximum PV Array Voc	145Vdc / 450Vdc	
10	MPPT Range @ Operating Voltage	(60Vdc - 115Vdc) / (120Vdc - 430Vdc)	
11	Max Solar Charging Current	80A	
12	Maximum Efficiency	98%	
Inverter Specification			
13	Wave Form	Pure Sine Wave	
14	AC Voltage Range	220 - 240Vac (5KW Inverter)	110 - 120Vac (3KW Inverter)
15	Frequency Range	50Hz / 60Hz (Auto Sensing)	
16	Max AC Output Current	60A (5KW Inverter)	40A (3KW Inverter)
Electricity Interface Details			
17	Solar DC Charge Interface	Wiring type interface Or MC4; Quantity: 1 unit.	
18	AC Charge Interface	Wiring type interface; Quantity: 1 unit.	
19	AC Output Interface	Interface type: Socket type or wiring type; Quantity: 3 units. (Customized as required)	
20	DC Output Interface	5V/2A Dual USB Port; Quantity: 1 unit.	
21	Master Switch	Air Switch; Quantity: 1 unit.	
22	GPRS WiFi Monitoring Port (Optional)	If you do brand channels, we don't recommend you to use the function, as the monitoring App is from third party and can't be customized as your brand. In fact, it is not a key function too.	
Physical Information			
23	BESS Weight	260±5kg	
24	BESS Size	1103x703x403 (±3) mm	
25	IP Level	IP54	
26	Gross Weight	290±5kg	
27	Plywood Packing Size	1220x775x460 (±5) mm	

4. Product Details And Drawing

4.1 Details



(Only for reference, the input and output voltage can also be designed as 220V)



1	Cabinet Left Plate	6	USB 5V Output
2	LCD Screen	7	AC Output Socket
3	Cabinet Cover	8	Master Switch
4	Cabinet Right Plate	9	Universal Wheels
5	Right Handle	10 & 11	Left Handle & AC Charging Terminal

(Only for reference, electricity interfaces can be customized as required)

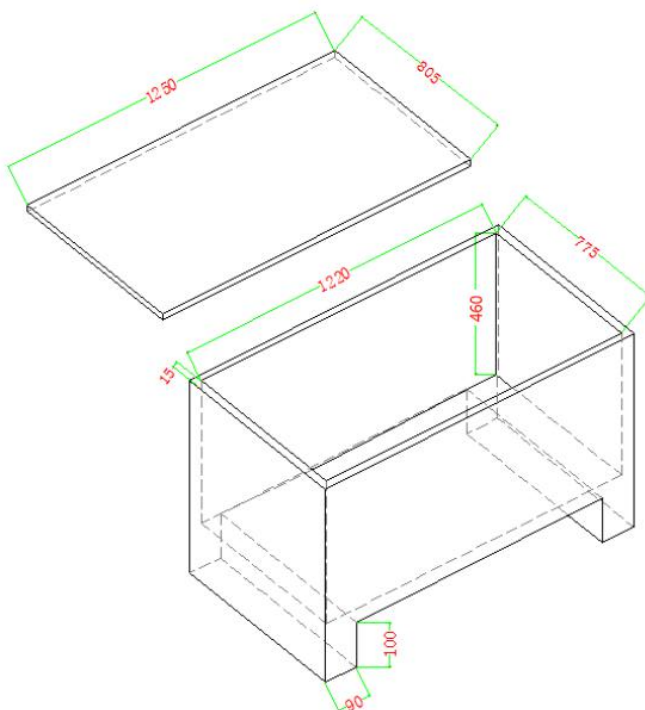
4.2 Dimensional Drawing

4.2.1 Product Dimensions



Model	BESS20
Height (H)	1103±3mm
Width (W)	703±3mm
Depth (D)	403±3mm
Net Weight	260kg

4.2.2 Packing Dimensions



Model	BESS20
Height (H)	1220mm
Width (W)	775mm
Depth (D)	460mm
Packing Type	Plywood Case

5. Storage

If the BESS is not put into use immediately, the storage must meet the following requirements:

- Do not remove the outer packaging of the BESS.
- The BESS needs to be stored in a clean and dry place, protected from dust and moisture.
- Storage temperature should be maintained at 0 ° C ~ +45 ° C, relative humidity should be maintained at 45% RH ~ 75% RH.
- Avoid chemically corrosive substances, otherwise the BESS may be corroded.
- During storage, regular inspection is required. If there is any bite or damage to the package, it is necessary to replace the packaging materials in time.
- After long-term storage, the BESS needs to be inspected and tested by professionals before being put into use.

6. Transportation

Based on the character of battery cell, proper environment for transportation of LiFePO₄ battery pack need to be created to protect the battery.

- The BESS should be packed in boxes for delivery, and well prevented from vibration, shock, extrusion, sun-scorched and rain-drenched.
- The BESS should be delivered under the state of half charged (50% SOC).
- During the transportation, the battery should be well prevented from short circuit.
- During loading of the BESS, handle lightly, do not drop, throw, turn over the battery, or stack heavy goods on the battery.

7. Cautions and Warnings

The BESS is designed and tested in strict accordance with international relevant safety standards. As electrical and electronic equipment, the relevant safety regulations must be strictly observed in the process of installation, operation, operation and maintenance. Unreasonable use or mishandling may result in:

- (1) Injury the life and personal safety of the operator or a third party.
- (2) Damage to the BESS or other property belonging to the operator/third party.

This chapter mainly explains the warning, and provides safety guidance for the entire use of the energy storage machine.

7.1 Cautions in Installation

- a. Ensure that the BESS package and the BESS itself are intact, dry and clean during transportation.
- b. The BESS is heavy, handling and installation is better to be handled by two or more people.
- c. Choose the appropriate handling and installation tools to ensure the normal and safe operation of the BESS, and avoid personal injury. The installer must take mechanical precautions to protect personal safety, such as wearing anti-smashing shoes and wearing overalls.
- d. Installation of the BESS must be done by a professional technician.
- e. Do not store, put close, or install the BESS on flammable or explosive objects.

- f. It is forbidden to install the BESS in a place where children and other public can easily touch it.
- g. Before installing the equipment and electrical connections, please remove the metal accessories such as rings and bracelets worn on your hands to avoid the risk of electric shock caused by accidental contact with conductive parts.
- h. Solar modules exposed to the sun can create dangerous voltages. Always cover the battery pack with a completely opaque material before making electrical connections.
- i. Input voltage of PV, battery and mains cannot exceed the maximum input voltage of BESS, otherwise it may cause damage to the BESS.
- k. This BESS is not suitable for solar cell module positive or negative grounding system.
- l. Make sure that the BESS is securely installed and the electrical wiring is reliable.

7.2 Cautions in Mains Operation

- m. Must be licensed by the local power department and operated by professional technicians.
- n. All electrical connections must meet the electrical standards of your country.
- o. Before running the BESS, make sure that the BESS is securely installed and the electrical wiring is reliable.
- p. It is forbidden to open the BESS housing when the BESS is working or charged.

7.3 Cautions in Maintenance and Repair

- q. Maintenance, inspection and repair of the BESS must be carried out by trained and qualified professional technicians.
- r. Please contact the dealer for maintenance, inspection and repair only.
- s. During the maintenance process, unrelated personnel are prevented from entering the maintenance area. Temporary warning signs must be placed to warn non-professionals to enter or be fenced.
- t. All input power must be disconnected from the BESS before any maintenance operations are performed, and wait at least 5 minutes until the internal capacitor of the BESS is discharged.
- u. The internal components of the BESS are mostly static-sensitive circuits and devices. Please observe the static protection regulations and take anti-static measures.
- v. Use the components supplied or recommended by the manufacturer in the repair of the BESS.
- w. Turn on the BESS again only after ensuring that all failures that affect the safety of the BESS have been eliminated.
- x. Do not approach or touch any live metal conductors in the mains and the operating BESS. Failure to do so may result in electric shock or fire. Please pay attention to any safety signs and instructions similar to “Danger of Electricity”.

7.4 Recycle and Disposal

The BESS cannot be disposed of with household waste. The user has the responsibility and obligation to send it to the designated organization for recycling and disposal.

7.5 Other Warnings

- Do not immerse the product under water, store it in the cool and dry environment when not use it.
- Keep it away from heat source like fire, heater when use or store it.
- Please make sure the polarity is not reversed during the usage.
- Do not connect the cathode with the anode directly by metals which could cause short circuit.
- Do not transport or store the product with metals like hairpin, necklace.
- Do not solder directly to the product or penetrate it by using nails or other edge tools.
- Do not use or place the product where has high temperature(under the hot sun) , otherwise the phenomenon of overheat, improper function, the shorten life span may occur.
- Do not use the product in the high electrostatic field and high magnetic one, otherwise it leads to the damage of the safety device which causes unsafe issue.
- If the product gives out peculiar smell, has a fever, changes color and becomes deformed, or any abnormal phenomenon occurs during the usage, storage, charging process, you should stop and disconnect it immediately from the load or mains.

8. Technical Support

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