LithiumIron Battery System Specification Confirmation

Customer: _____

Product name: MBlock Battery Energy Storage System

Model: MBlock200 50kW/200kWh

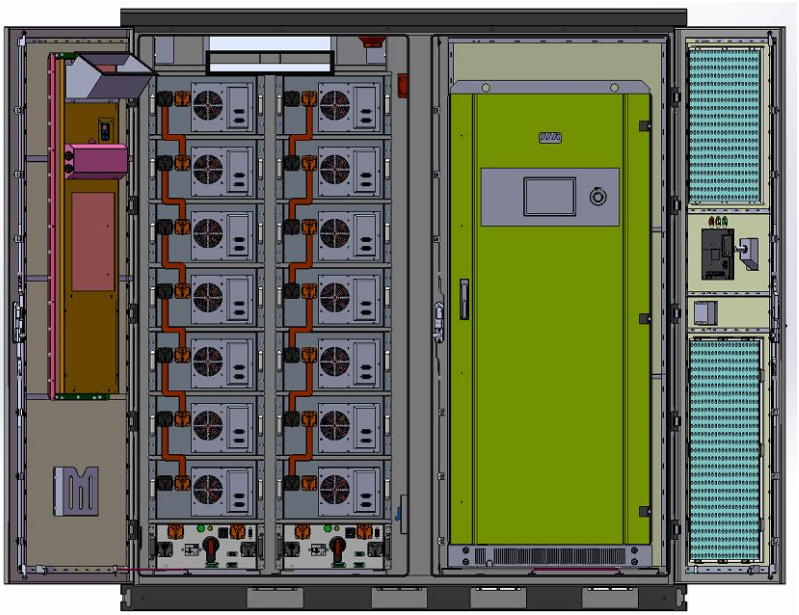
Author	Checked by	Approved by

Customer confirmation	
Customer company:	
Signature	Company signature
Date:	Date:

Battery System Specification

1. Overview

MBlock series is Lithium iron phosphate battery system which designed for energy storage system. This battery system consists of PCS, outdoor cabinet, battery racks and BMS, every cabinet integrates with intelligent HVAC inside. And this system has big advantages on safety, cycle life, energy density, fast charging, temperature range and environmental protection.



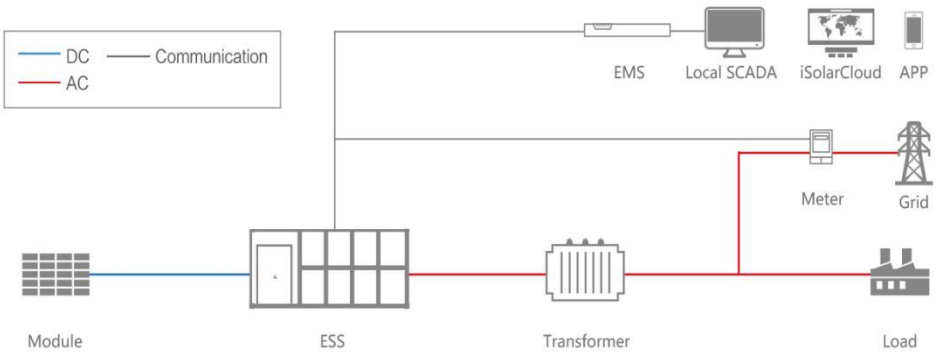
2. Advantages

The battery energy storage system is an all-in-one design.

- Modular and flexibly expandable battery storage system at the power and capacity level※
- All-in-one design, AC-coupled solution
- Individual energy content-perfectly matched to your requirements
- Max. Battery cell life
- Lithium iron phosphate batteries for high operational & fire safety
- Outdoor housing for any installation site
- Easy maintenance due to modular design(Battery modules, BMS, control design)
- Internal and external protection
- Suitable for series application such as control reserve, self-consumption increase
- 15 years design life, Stable performance, maintenance-free
- Maximum 5 cabinets parallel to support bigger power and capacity

※Can parallel with MERITSUN MBox product to expand capacity.

3. System Block Diagram



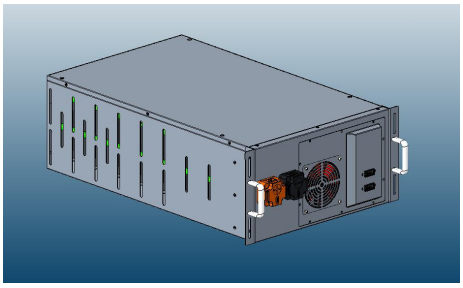
Application scenarios.

- Self consumption of renewable energy.
- Power boost and EV charging optimization.
- Peak shaving.
- Back-up and foo-grid.

4. System parameter

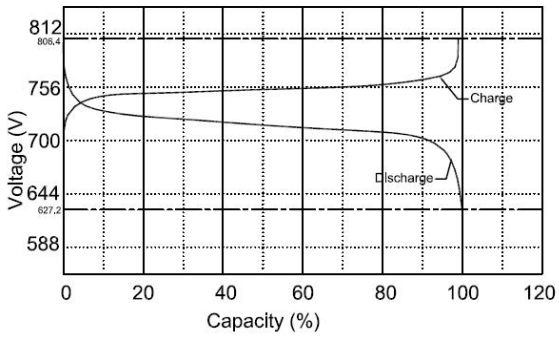
Type	50kW/200kWh
Battery Parameters	
Cell	LFP280Ah
Pack	51.2V280Ah
Rated Voltage	716.8V【Max 14 modules series】
Battery Capacity	280Ah
Rated Energy	200.7kWh
Usable Energy	180.63kWh(90%DOD)
Voltage Range(V)	627.2V~784V
Max. Charging Power(kW)	60
AC On-grid Parameter	
Grid Type	3W+N+PE
Rated Charge/Discharge Power	50kW※
Rated Grid Voltage	AC320V~460V
Applicable Grid Frequency	45~55Hz/55~65Hz
Rated Current	72A
THDi	<3%
Power Factor	1(Leading)~1(Lagging)
AC Off-grid Parameter	
Rated Charge/Discharge Power	50kW
Max Output Power	55KVA
Rated Grid Voltage	AC400V
Rated Frequency	50/60Hz
THDu	≤1% linear; or≤5% nonlinear
Rated Current	72A
Photovoltaic Input	
Max Input Power	60kW
MPPT Voltage Range	250~850V
General Parameter	
Dimension (W*D*H)	2200mm*1100mm*2340mm
Max. Weight	3000kg
IP Degree	IP54
Operating Temperature Range	-20~50℃
Relative Humidity	0~95%(No condensation)
Attitude	<2000m
Cooling Method	Heat Ventilation Air Conditioner
Noise	≤75dB
System Efficiency	≥85%
Firefighting System	Integrated
Communication	Ethernet, Modbus TCP/IP

※Can be replaceable with a maximum 100kW output.

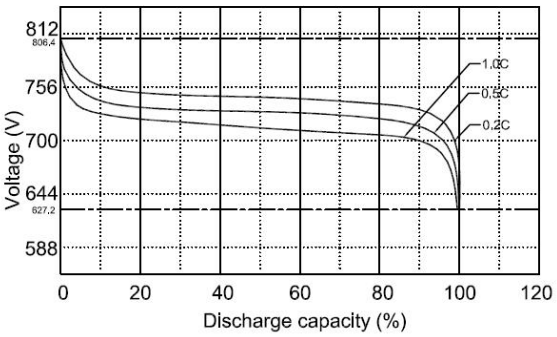
Single cell	Cell Type	LiFeO4 Aluminum shell	
	Rated	3.2V 280Ah	
	Operating voltage range	2.5V~3.6V	
	Dimension (T*W*H,mm)	72*174*208	
	Weight	~5.8kg	
	Rated Charging current	0.5C	
	Rated discharging current	0.5C	
	Impedance(1kHz)	<0.25mΩ	
Battery module	Module Voltage	51.2V	
	Rated capacity	280Ah	
	Pack	1P16S	
	BMU inside	1	
	Dimension (W*D*H)	390*750*230	
	Weight	~115±5kg	
	Cooling mode	Forced air cooling	
	Power Terminal	M8 Screw	

5. Performance Curve

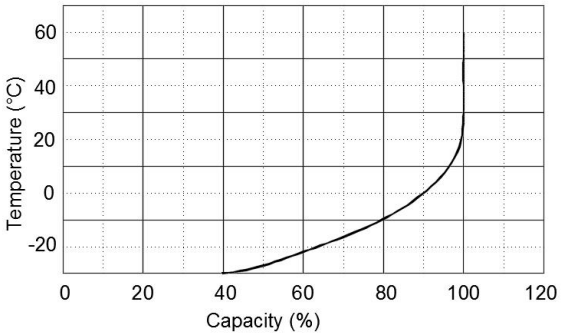
Charge & Discharge curve with1.0C @ 25°C



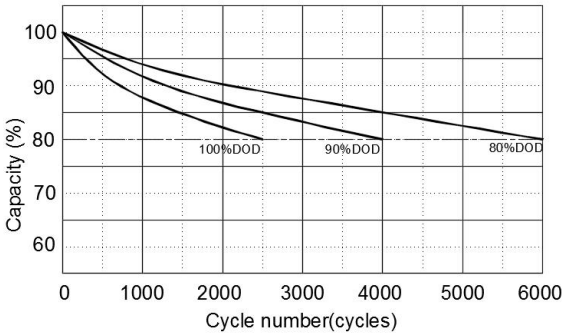
Discharge perfomance with different rate @ 25°C



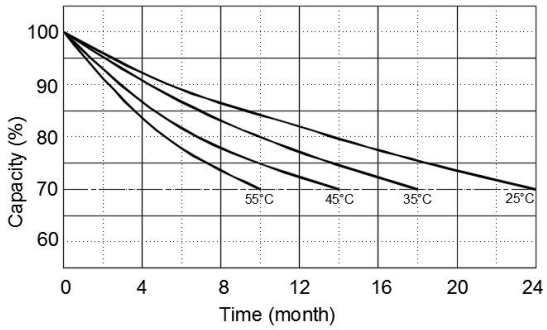
Discharge capacity with different temperature @ 1.0C



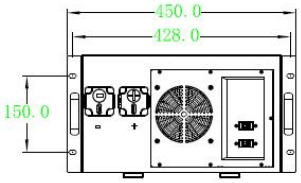
Cycle life with DOD @ 1.0C，25°C

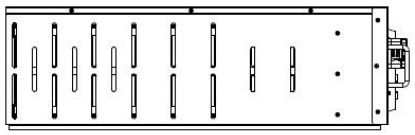


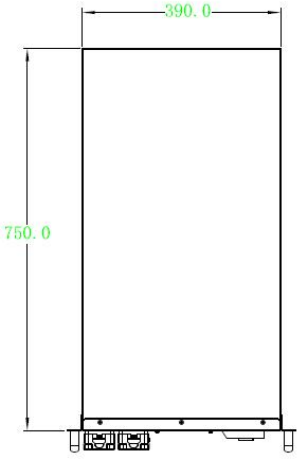
Self-discharge @ different temperature

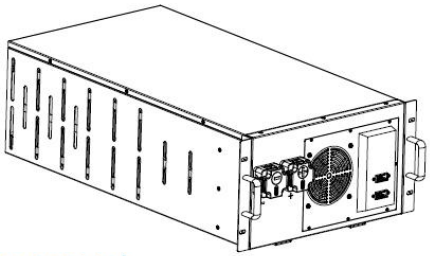


6. Drawings

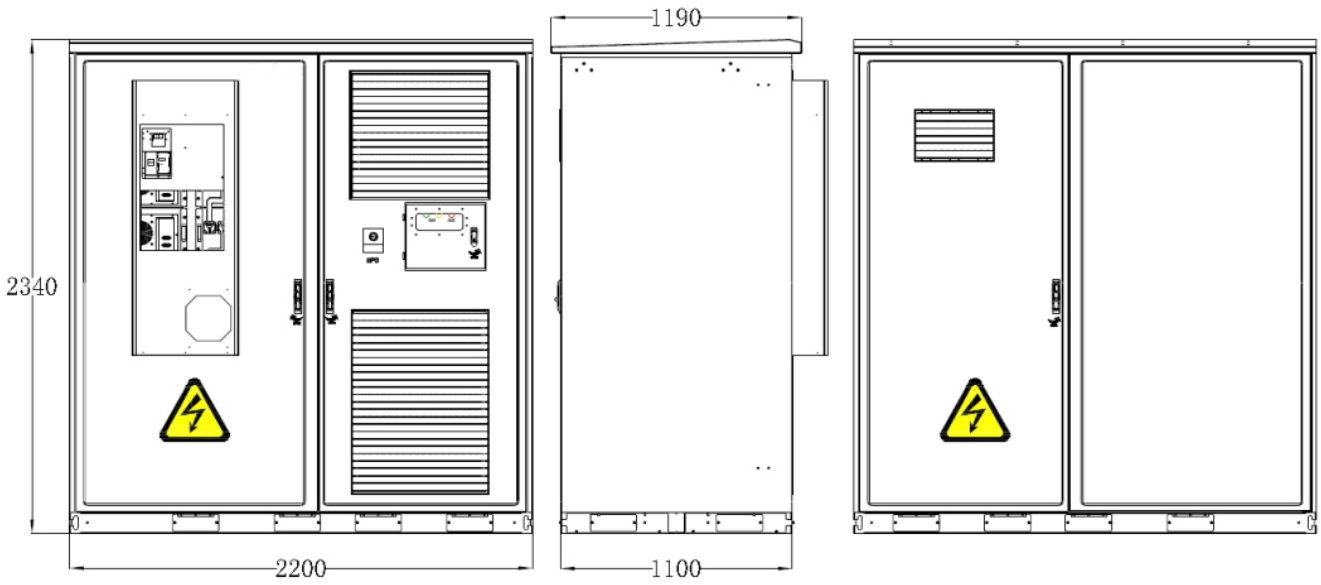








51.2V280Ah
Battery module



MBlock200 Energy Storage Cabinet

7. Packing List

No.	Item	Specification	Quantity	Remarks
1	LiFePO4 battery pack	MHES51280 51.2V280Ah battery pack	14	
2	MBlock50/200 cabinet	Battery cabinet of 50kW/716.8V280Ah, IP54 grade, 2200*1100*2340(W*D*H, mm), including fire fighting and industrial air conditioner.	1	
3	PCS	MPS50, hybrid, 50kW, 400Vac.		
4	BSMU	LCD touch screen	1	
5	Power cable	Power cable between battery racks and CBMS	1set	
6	Communication cable	Communication cable between battery module and BMU	1set	
7	User manual	User manual	1	

8. SAFETY

The MBlock200 is an all-in-one AC system, operated by skilled/qualified personnel only. Read all safety instructions carefully prior to any work and observe them at all times when working on with the system.

Incorrect operation or work may cause:

- injury or death to the operator or a third party;
- damage to the system hardware and other properties belonging to the operator or a third party.

Skills of Qualified Personnel

Qualified personnel must have the following skills:

- ✓ training in the installation and commissioning of the electrical system, as well as the dealing with hazards;
- ✓ knowledge of this manual and other related documents;
- ✓ knowledge of the local regulations and directives.

Symbol		Definition
	DANGER	Lethal voltage! Battery strings will produce high voltage DC power and can cause a lethal voltage and an electric shock. Only qualified person can perform the wiring of the battery strings.
	WARNING	Risk of battery system damage or personal injury DO NOT pull out the connectors while the system is Operating! De-energize from all multiple power sources and verify that there is no voltage.
	CAUTION	Risk of battery system failure or life cycle reduction.

Danger: Batteries deliver electric power, resulting in burns or a fire hazard when they are short circuited, or wronglyinstalled.

Danger: Lethal voltages are present in the battery terminals and cables. Severe injuries or death may occur if touch the cables and terminals.

Warning: DO NOT open or deform the battery module, otherwise the product will be out of warranty scope

Warning: Whenever working on the battery, wear suitable personal protective equipment (PPE) such as rubber gloves, rubber boots and goggles.

Warning: MBlock50/200 system working temperature range: 0℃~50℃; Optimum temperature: 18℃~28℃. Out of the working temperature range may cause the battery system over / low temperature alarm or protection which further lead to the cycle life reduction as well as. It will

affect the warranty terms as well.

Caution: Improper settings or maintenance can permanently damage the battery.

Caution: Incorrect inverter parameters will lead to a further faulty/damage to battery.

9. Disposal

The batteries may only be disposed of in accordance with the disposal regulations for used batteries applicable at the time of disposal. Immediately decommission any damaged batteries and please contact your installer or sales partner first before disposal. Ensure that the battery is not subjected to moisture or direct sunlight. Ensure quick removal by your installer or MERITSUN.

①Batteries, including rechargeable batteries, may not be disposed of in household waste. You are legally obligated to return used batteries.

②Used batteries may contain pollutants that can damage the environment or harm your health if they are not stored or disposed of properly.

③Batteries also contain important raw materials such as iron, zinc, manganese, copper, cobalt or nickel and can be recycled.

Do not dispose of batteries in household waste!