

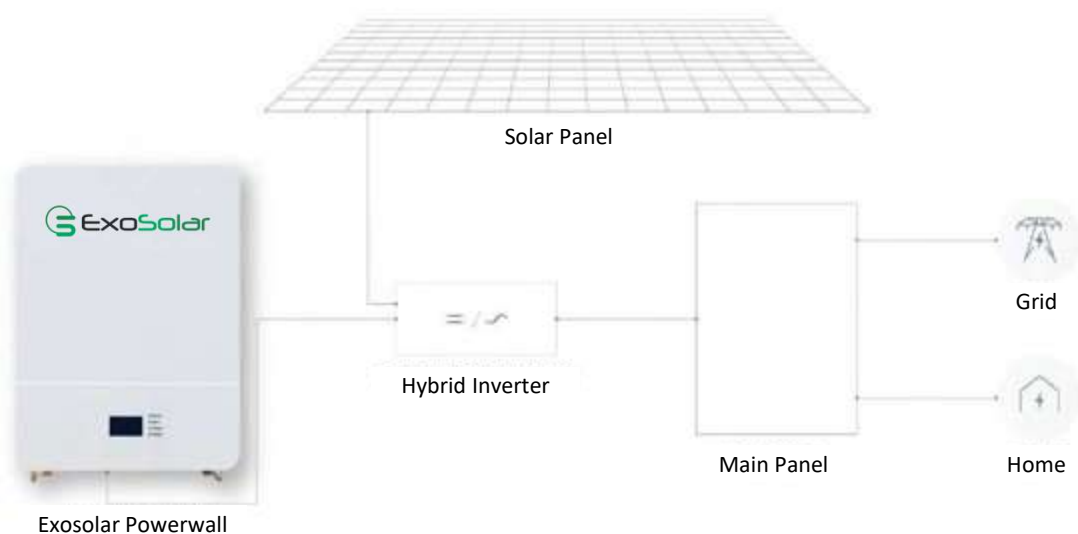
Exosolar (Pty) Ltd

Exosolar Powerwall MAX LiFePo4 Battery Specification

Model: LFP51.2V100AH

Modified Record

Revision	V.006	Draft	Chuanjun Bao
Date	2021-09-24	Checked	Chuanqiang Yao
File No.	LF51100-210901	Approved	Jack Tian



1. General Information

This specification is suitable for the 51.2 v 100ah battery pack, and describes its dimensions, characteristics, technical requirements and precautions for use.

2. Battery Specification (@ 25±5°C)

NO	Items	Characteristics	
System specification			
2.1	Battery Cell	3.2V 50AH, Prismatic, LiFePo4	
2.2	Nominal capacity	100AH	
2.3	Total energy	5.12KWh	
2.4	Nominal voltage	51.2Vdc	
2.5	Cell compose method	16S2P	
2.6	End of discharge voltage	43.2V	
2.7	Charging voltage	56~58.4V	
2.8	Max. charging current	100A _{dc}	
2.9	Max. discharging current	100A _{dc}	
2.10	Max. power	5120W	
2.11	Pulse discharge current	150A@1S	
2.12	Display method and language	LCD, English	
2.13	Communication interface	CAN and RS485	
2.14	BMS parallel supports	Yes, Max. 14units	
2.15	BMS series support	Not support	
2.16	Cooling method	Natural cooling	
2.17	Dimension	W 495±5mm	
		H 190±5mm	
		L 680±5 mm	
2.18	IP rating	IP21	
2.19	Net Weight	About 69Kg	
2.20	Cycle life (80% DOD, 25°C)	>6000 times	
2.21	Life time(25°C)	10 years	
2.22	Protection	Over voltage, Low voltage, Over current, Over temperature, Low temperature, Short circuit.	
2.23	Operation Humidity	0~95% RH (No condensing)	
2.24	Operation temperature	Charge	0~50°C
		Discharge	-15~55°C
2.25	Self-discharge rate	Residual capacity	≤3%/Month; ≤15%/ Year
		Recover capacity	≤1.5%/Month; ≤8%/ year

3. Electrical Characteristics & Test Condition

Testing Conditions: Environment Temperature: 25±5°C; Humidity:45%~75%.

Normal charge: Charge battery under CC(0.5C)/CV(57.6V) mode until over charge protection or the charge current reduce to 0.05C, and then rest for 1h.

NO	Items	Criterion	Condition
3.1	Normal Capacity	100AH	After Normal charge, discharge @0.33C current to the end of discharge voltage.
3.2	Internal Impedance	≤22mΩ	@50% SOC @1kHz AC internal resistance test instrument.
3.3	Short circuit protection	Auto cut off load when short circuit	Connect the positive and negative of this battery pack through a lead with 0.1Ω resistance.
3.4	Cycle life	>6000 cycles	After Normal charge, discharge @0.5C current to the end of discharge voltage. Repeat above process until discharge capacity reduce to 80% of initial value.
3.5	Discharge temperature characteristic @0.2C	-15°C(6h)	≥60%
		0°C(6h)	≥80%
		25°C(4h)	≥100%
		55°C(4h)	≥95%
		Capacity @specified temperature the percentage Capacity @ 25°C accord with criterion	
3.6	Capacity retention rate	Remain capacity ≥96%	After normal charge, store the battery @25±5°C for 28days, then discharge capacity @0.2C, the retention capacity accord with criterion.

4. Circuit Protection

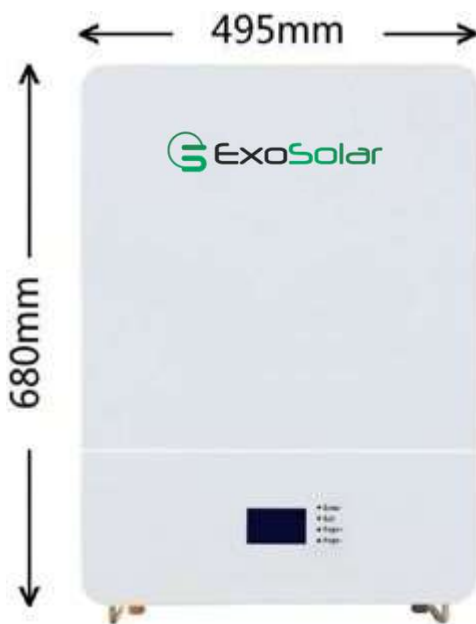
The batteries are supplied with a LiFePo4 Battery Management System (BMS)that can monitor and optimized each single prismatic cell during charge & discharge, to protect the battery pack over charge, over discharge, short circuit. Overall, the BMS helps to ensure safe and accurate running.

No	Item	Content	Criterion
4.1	Over charge	Over-charge protection Alarm for each cell	3.5±0.05V
		Over-charge protection for each cell	3.65±0.05V
		Over-charge protection delay time	0.5~1.5s
		Over-charge release for each cell	3.4±0.05V
		Over-charge protection Alarm for system	56±0.5V
		Over-charge protection for system	58.4±0.5V
		Over-charge protection delay time	0.5~1.5s
		Over-charge release for system	54.4±0.5V
		Over-charge release method	Under the release voltage than 60s
4.2	Over discharge	Over-discharge alarm for each cell	2.90±0.05V
		Over-discharge protection each cell	2.70±0.05V

		Over-discharge protection delay time	0.5~1.5s
		Over-discharge release for each cell	3.00±0.05V
		Over-discharge alarm for system	46.4±0.5V
		Over-discharge protection system	43.2±0.5V
		Over-discharge protection delay time	0.5~1.5s
		Over-discharge release for each cell	48±0.5V
		Over-discharge release method	Higher the release voltage than 60s
4.3	Over current	Charge over current protection alarm	100±5A
		Charge over current protection	120±5A
		Charge over current protection delay time	0.5~1.5s
		Charge over current release method	Auto release after 1min
		Discharge over current protection alarm	100±5A
		Discharge over current protection	120±5A
		Discharge over current protection delay time	0.5~1.5s
		Discharge over current release	Auto release after 1min
		Short circuit protection	Yes
		Short circuit protection release	cut-off download or exchange fuse
4.4	Temperature	Charge over temperature protection	Protect@55±3°C; Release@50±3°C;
		Charge under temperature protection	Protect@-10±3°C; Release@5±3°C
		Discharge over temperature protection	Protect@55±3°C; Release@50±3°C;
		Discharge under temperature protection	Protect@-15±3°C; Release@0±3°C;

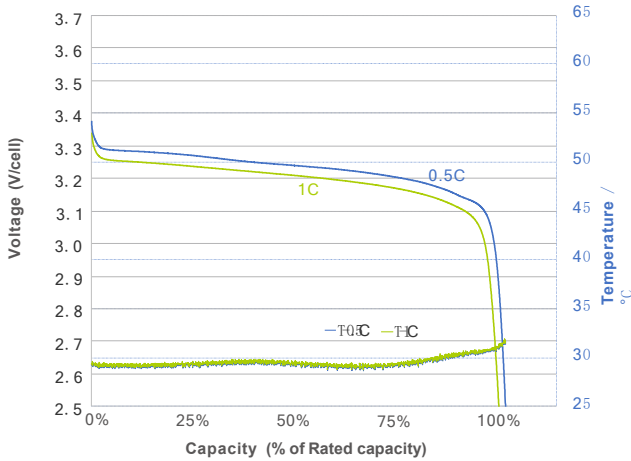
5. User guide

1. Product dimension(mm)

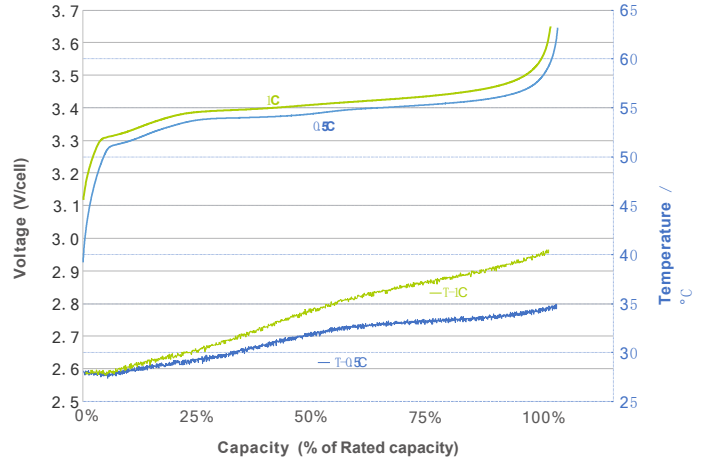


51.2V POWERWALL LITHIUM BATTERY

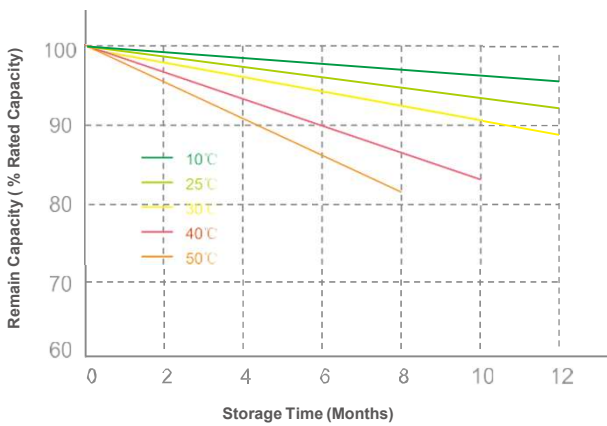
Different Discharge Rate and Temperature Characteristic



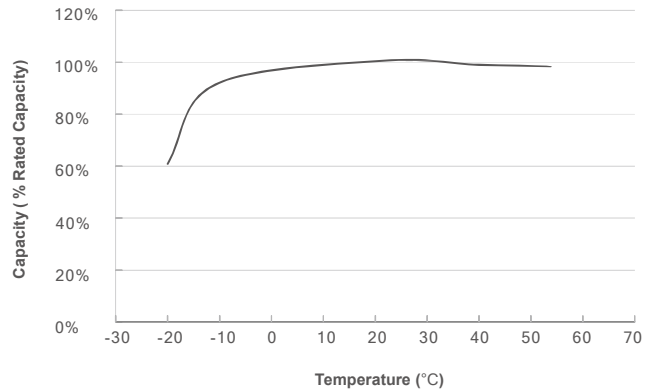
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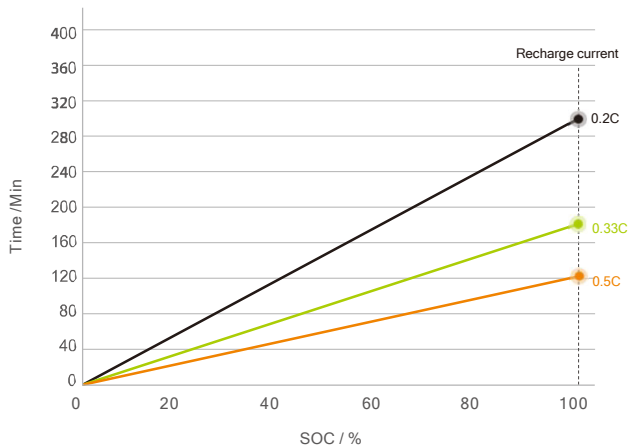
Different Temperature Self Discharge Curve



Capacity with Different Temperature



Typical Recharge Time



Typical Cycle Life

