Multi-application - $LiFePO_4$ Power

UPOWER HOME

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RESIDENTIAL ENERGY STORAGE SYSTEM

1. Generation

This battery pack is basically designed for residential energy storage system, mainly install indoor (< 2000 m above sea). The battery can be charged by solar and grid, the stored energy can be supplied to home appliances. The pack can communicate with other devices via Can-bus and RS485. Through the APP and cloud platform the product status like how many solar generated, energy buy from grid, etc. can be monitored.

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2. Specification

No.	Items		Description	
BATTERY SPECIFICATION				
1	Nominal Voltage		51.2 V	
2	Nominal Capacity		100 Ah	
3	Usable Capacity		≥ 100%* Nominal Capacity	@ 0.33 C
			≥ 98%* Nominal Capacity	@ 1 C
			≥ 95%* Nominal Capacity	@ 1.2 C
4	Chemistry		$LiFePO_4$	
5	Operation Temperature		Discharge: -20°C - 60°C (pack internal temperature)	
			Charge: 0°C - 45°C	
6	Operation Voltage Range		43.2 ~ 58.4 V	
7	Normal Charge Voltage / Float Charge Voltage		3.6*16 / 3.45*16	
8	Allowed Max Charging Power		5.12 KW	
9	Allowed MAX Constant Charge Current		100 A	
10	Allowed Max Discharging Power		5.12 KW	
11	Allowed MAX Constant Discharge Current		120 A, peak 500 A (3s), 750 A (1s)	
12	Lithium Battery Efficiency		Up to 98%	
13	Cycle Life (DOD 100%)		≥ 2500 cycles (DOD 100%); ≥ 4000 cycles (DOD 80%)	
14	Battery Module Size		L: 450 mm	
			W: 192 mm	
			H: 700 mm	
15	Battery Module Weight		About 55 kg	
16	Self-discharge Rate	Residual Capacity	≤ 3% per month; ≤ 15% per year	
		Reversible Capacity	≤ 1.5% per month; ≤ 8% per year	
ENVIRONMENTAL CONDITIONS				
17	Humidity Range		10% ~ 90% RH	
18	Cooling Method		Natural cooling	
19	Storage Temperature & Humidity Range		-10°C ~ 30°C, 45% ~ 75% RH	
20	Installation Altitude (above sea level)		< 2.000 m	

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CERTIFICATION		
21	Cell	UN38.3, UL1642, CE
22	Battery	Comply UN38.3, UL1973, CE

3. BMS Function

No.	Items		Description
BATTERY ALARM & PROTECTION			
1	Over Charge	Over-charge alarm for each cell	3.55 ± 0.03 V
		Over-charge protection for each cell	3.75 ± 0.03 V
		Over-charge release for each cell	3.40 ± 0.03 V
		Over-charge alarm for total voltage	56.80 ± 0.5 V
		Over-charge protection for total voltage	60.00 ± 0.5 V
		Over-charge release for total voltage	54.40 ± 0.5 V
		Over-charge release method	Under the release voltage
2	Over Discharge	Over-discharge alarm for each cell	3.00 ± 0.03 V
		Over-discharge protection for each cell	2.70 ± 0.03 V
		Over-discharge release for each cell	3.10 ± 0.03 V
		Over-discharge alarm for total voltage	48.00 ± 0.5 V
		Over-discharge protection for total voltage	43.20 ± 0.5 V
		Over-discharge release for total voltage	49.60 ± 0.5 V
		Over-discharge release method	Charge to recovery
3	Over Current	Charge over current alarm	135 ± 5 A
		Charge over current protection	150 ± 5 A
		Protection delay time	5 ± 1s
		Charge over current release method	Auto release after 1min
		Discharge over current alarm	135 ± 5 A
		Discharge over current protection	150 ± 10 A
		Protection delay time	5 ± 1s
		Over current release method	Auto release after 1min
4	Short Circuit		1200 ± 200 A, delay time 200 ~ 800 us

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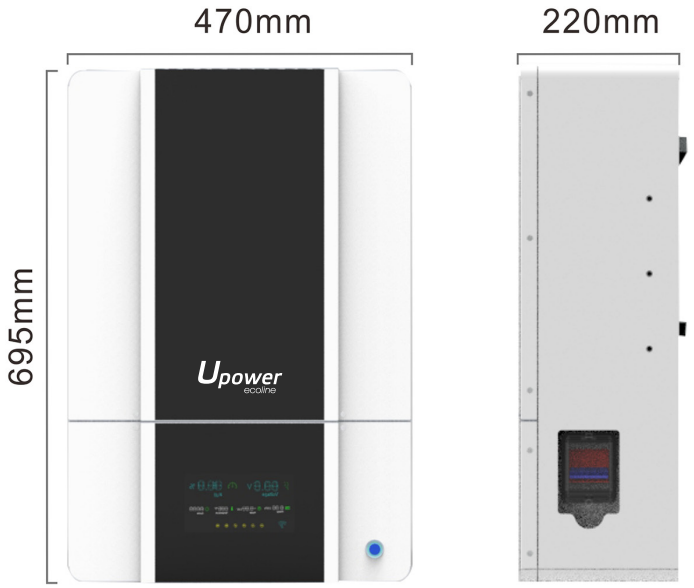
5	Charge Over Temperature		Alarm @ 50 ± 3°C
			Protect @ 55 ± 3°C
			Release @ 45 ± 3°C
6	Discharge Over Temperature		Alarm @ 60 ± 3°C
			Protect @ 65 ± 3°C
			Release @ 55 ± 3°C
7	Charge Low Temperature Protection		Alarm @ 3 ± 3°C
			Protect @ 0 ± 3°C
			Release @ 5 ± 3°C
8	SOC	LOW SOC Alarm	10%
MONITOR & COMMUNICATION			
9	LCD		Customize the LCD screen
10	Communication		Can-bus, RS485
11	Monitoring		WiFi, poll all of the WiFi enabled batteries on the same sub-network; Support max. 14 pcs in parallel
12	Series & Parallel Connection		No series connection; Support max. 14 pcs in parallel

4. Mechanical Drawing



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5. Installation

5.1 Required accessory list

No	Items	Description	QTY	Unit
1	Battery module	48 V -100 Ah - SPCC	1	pcs
2	INVERTER COM Cable		1	pcs
3	CAN communication line for Battery module		1	pcs
4	Lift handles		2	pcs
5	Expanding screw M8*60		12	pcs
6	Communication Debug cable Note		1	pcs
7	Wall mounting bracket		1	pcs
8	Terminal matching resistance_120Ω_RJ45		1	pcs

Note: Debug cable is non-standard parts, and supplied only for sampling debugging.

5.2 Installation

Step	Operation	Instruction
1	Check before install	Before open the package, please check if any broken of the package; after open the package, please check if all the accessories available, and any obvious external damage.
2	Prepare the tool	Before installation, please prepare all the tools, so as to install and connect smoothly.
3	Choose the installation position	Please choose proper installation position, so as to ensure the machine work normally and effectively.
4	Move the product to defined position	Please move the machine to the defined position, to make it easy to open the package and install.
5	Open the package	Please open the package and check if all the accessories available, if any damage of the machine.
6	Punch the installation hole on the ground	Punch 12 installation holes on the wall.
7	Fixed the bracket	Fix the bracket on the wall with screws.
8	Install the battery pack	Place the battery pack on the fixed bracket, then secure with additional screws to fix the battery pack. Better to keep the ambient temp. at 25°C.

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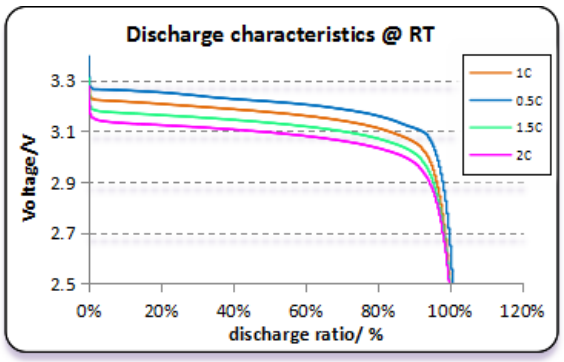
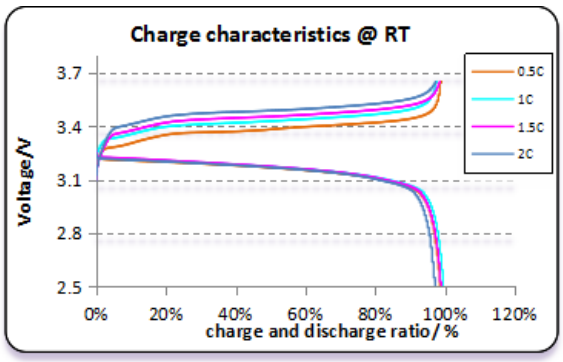
6. Cell Performance Curve





7. Operation Instructions

This product is of air-cooling. For long time use, please clean the dust of the product periodically, so as not to reduce the radiator efficiency due to dust or other objects accumulated on it. It is recommended to clean the product every month. After installation, if the product has not been using for long time, please make sure to charge the battery every three months.

8. Transportation & Storage

- For long-term storage of this product, it need to be placed in a dry, clean, lucifuge, well-ventilated indoor environment;
- This product needs to be stored and transported with around 60% SOC;
- For long-term storage, product need to be charged once every 6 months;
- During transport, no drop, no pile up, no turning, and make sure to place upward.

9. Warming & Cautions

Please read the specification carefully before using this product. Improper use of this product may damage the product. UPOWER, LTD. shall be exempt from any responsibility for accidents caused by the usage without following the specifications.

Warming!

- The battery must be far away from heat source, high voltage, and avoided to be exposed in sunshine for long time.
- Never throw the battery into water.
- Never connect the positive and negative of battery with metal.
- Never transport or store battery together with metal.
- Never disassemble the battery without manufacturer's permission and guidance.

Cautions!

Please do not use or store the battery at high environment temperature, otherwise it will lead to overheat, fire or lifecycle reduction.

- When battery run out of power, please charge the battery timely (≤ 15 day).
- Please stop using the battery if there is peculiar smell, color change, noise, leakage, severe distortion or other abnormal situations.
- If the battery leaks and gets into the eyes or skin, do not wipe, instead, wash it with running clean water and go to hospital immediately.
- Do not put scraped battery into water or fire.

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