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# 1. General Information

This specification defines the performance of rechargeable LiFePO4 battery pack UE-24Li75 manufactured by UPOWER, S.L., describes the type, performance, technical characteristics, warning and caution of the battery pack.

## 2. Specification

NO.	Items	Description				
Normal Specification						
1	Nominal Voltage	25.6V				
2	Normal Capacity	75Ah				
3	Internal Resistance	≤30mΩ				
Standard Charge						
4	Battery operation temperature range @charging	0~45°C				
5	Normal charge voltage	29.2±0.2V				
6	Recommended float charge voltage (for Standby use)	27.6±0.2V				
7	Allowed MAX charge current	35A @ Battery initial Temp 25±5°C				
8	Recommended charge current	≤35A				



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UE-24Li75

NO.	Items		Description				
Standard Discharge							
9	Battery operation temp @discharging	perature range	-20~60°C				
10	Output Voltage Range		20~29.2V				
11	Allowed discharge current		35A @Battery initial Temp $25\pm5^{\circ}C$				
12	Peak discharge current		300A withstand 3s				
13	Discharge Cut-off volto	age	18.4V				
Mechanical Characteristics							
	Dimension		Length: 483.5±3mm				
14			Width: 170±3mm				
			Height: 241±3mm				
15	Weight		Approx.: 24.5±0.8Kg				
Storage							
16	Storage Temperature & Humidity Range	Short: within one month	-20~35°C, 45~75% RH				
		Long term: above one month	-10~30°C, 45~75% RH				
17	Self-discharge rate	Residual capacity	$\leq$ 3% per month; $\leq$ 15% per year				
		Reversible capacity	$\leq$ 1.5% per month; $\leq$ 8% per year				



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## 3. Electrical Characteristics & Test Condition

Testing Conditions: Ambient Temperature: 25±5°C; Huminity: 45%~75%.

NO.	Items	Criterion		Condition	
1	Internal Impedance	≤30mΩ		Test the internal resistance of 50% SOC battery pack with 1 kHz AC internal resistance test instrument.	
2	Capacity	≥75Ah		Rest for 1 hour after fully charged, then discharge with 0.33C current until the battery reaches the discharge cutoff voltage. Repeat above process for three times, if the discharge time is not less than 180 minutes, you can stop and define the Discharging current*time value (Ah) as battery capacity.	
3	Short circuit protection	/		Not allowed.	
4	MAX charge Current	35A		Charging with this current for more than 0.5h and the added temperature of battery pack less than 20°C.	
5	MAX discharge Current	75A		Discharging with this current for more than 0.5h and the added temperature of battery pack less than 35°C.	
6	Cycle life (DOD%100)	≥2500 cycles		Discharge with the current of 0.5C until it can't discharge, and then rest it for 1h. Charge the battery following CC (0.33C)/CV (14.6V) mode to full capacity, and then rest it for 1h. Repeat above process until full charged capacity is no more than 80% of normal value. Accumulated times is defined as cycle life.	
	Discharge Temperature Characteristics	-20°C	70%	At 25±5°C discharge the battery with the current of	
7		0°C	80%	0.33C to the cut-off voltage. Store the battery at	
		25°C	100%	battery with 0.33C to the cut-off voltage. Record the	
		55°C	95%	ratio between discharging & charging capacity.	
8	Charge Retention ability	Remain capacity ≥90%		Charge the battery to full capacity and store it for 28 days, and then discharge it with 0.33C to the cut-off voltage.	



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#### 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 overcharge, over discharge, short circuit. Overall, the BMS helps to ensure safe and accurate running.

Test Item	Content	Criterion
	Over-charge protection for each cell	3.90±0.03V
Over charge	Over-charge release for each cell	3.60±0.05V
	Over-charge release method	Under the release voltage
	Over-discharge protection for each cell	2.30±0.05V
Over discharge	Over-discharge release for each cell	2.80±0.05V
	Over-discharge release method	Above the release value
	Discharge over current protection	400±100A
Over current	Protection delay time	50~200ms
	Over current release method	Release after cutoff the load
	Rattany aver tomporatura	Protection @65±5°C
Battery	builey over lemperdiale	Release @55±5°C
Temperature	Charge lower temperature	Protection @-10±5°C
		Release @0±5°C



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### 6. Transportation

- Based on the character of cell, proper environment for transportation of LiFePO4 battery pack need to be created to protect the battery.
- Battery should be stayed in the warehouse -20°C  $\sim$  35°C where it's dry, clean, shade and well-ventilated.
- The battery should be stored in 50% SOC during transportation.
- The battery need to be charged every 6 months if out of use.
- Keep the battery against dropping, turning over and serious stacking during loading.



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#### 7. Warning & Tips

Please read and follow the specification and caution remarks on battery surface before use the battery. Improper use may cause heat, fire, rupture, damage or capacity deterioration of the battery. UPOWER, S.L. Describes is not responsible for any accidents caused by the usage without following our specification.

### Warning!

- The battery must be far away from heat source, high voltage and avoid 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 sheep or store battery together with metal.
- Never reverse two electrodes when use the battery.
- Never disassemble the battery without manufacturer's permission and guidance.
- Never knock, throw or trample the battery.

# Tips!

- Keep the battery against high temperature. Otherwise it will cause battery heat, get into fire or lose some function and reduce the life.
- When battery run out of power, please charge your battery timely ( $\leq$ 15 day).
- Please use the matched or suggested charger for this battery.
- If battery emit peculiar smell, heating, distortion or appear any abnormity during working or storage, please stop using and take it out from device.
- If the battery leaks and get into the eyes or skin, do not wipe, instead, rinse it with clean water and see doctor immediately.
- Please far away from children or pets.
- Do not put disuse battery into a fire or water.
- If user needs to parallel several battery packs, please charge them to full capacity with same type of matched charger, and set it aside for 8 hours, professionals only. This battery pack supports application no more than 20 group parallel. If user needs to apply this product to more groups parallel, please reconfirm details with us.
- It is strictly prohibited any series between the battery packs. Any requirements on serials connection, please contact UPOWER for details.



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