Multi-application - LiFePO4 Power

UE-12Li40

LITHIUM IRON PHOSPHATE BATTERY

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1. General Information

This specification defines the performance of rechargeable LiFePO4 battery pack UE-12Li40 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	12.8V
2	Normal Capacity	40Ah
3	Internal Resistance	≤50mΩ
4	Series-Parallel application	non support
Standard Charge		
5	Charge operation temperature range	0~45°C
6	Normal charge voltage	14.6±0.1V
7	Recommended float charge voltage (for Standby use)	13.8±0.1V
8	Allowed MAX constant charge current	40A @Battery initial Temp 25±5°C
9	Recommended charge current	≤20A

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NO.	Items		Description
Standard Discharge			
10	Discharge operation temperature range		-20~60°C
11	Output Voltage Range		8.0~14.6V
12	Allowed MAX constant discharge current		40A @Battery initial Temp 25±5°C
13	Discharge peak current		50A/30min, 170A/3s
14	Discharge end voltage		2.0V for single cell
Mechanical Characteristics			
15	Dimension		Length: 196±2mm
			Width: 165±2mm
			Height: 175±2mm
16	Weight		Approx.: 6.0±0.5Kg
Storage			
17	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
18	Self-discharge rate	Residual capacity	≤3% per month; ≤15% per year
		Reversible capacity	≤1.5% per month; ≤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	Min Capacity	≥39.0Ah		Rest for 1 hour after fully charged, then discharge with 0.33C current until the battery reaches the cutoff voltage, you can stop and define the Discharging current*time value (Ah) as battery capacity.
2	Cycle life (DOD%100)	≥2500 cycle		Charge / CC (0.33C)/CV (14.6V); End current: 0.05C; Rest time: 1h; Discharge / CC (0.5C); End voltage: 8.0V; Repeat above process until discharge capacity is no more than 80% of normal value. Accumulated times is defined as cycle life.
3	Discharge Temperature Characteristics	-20°C	≥70%	At 25±5°C discharge the battery with the current of 0.33C to the cut-off voltage. Store the battery at various temperatures for 2h and discharge the battery with 0.33C to the cut-off voltage. Record the ratio between discharging & charging capacity.
		0°C	≥80%	
		25°C	100%	
		55°C	≥95%	
4	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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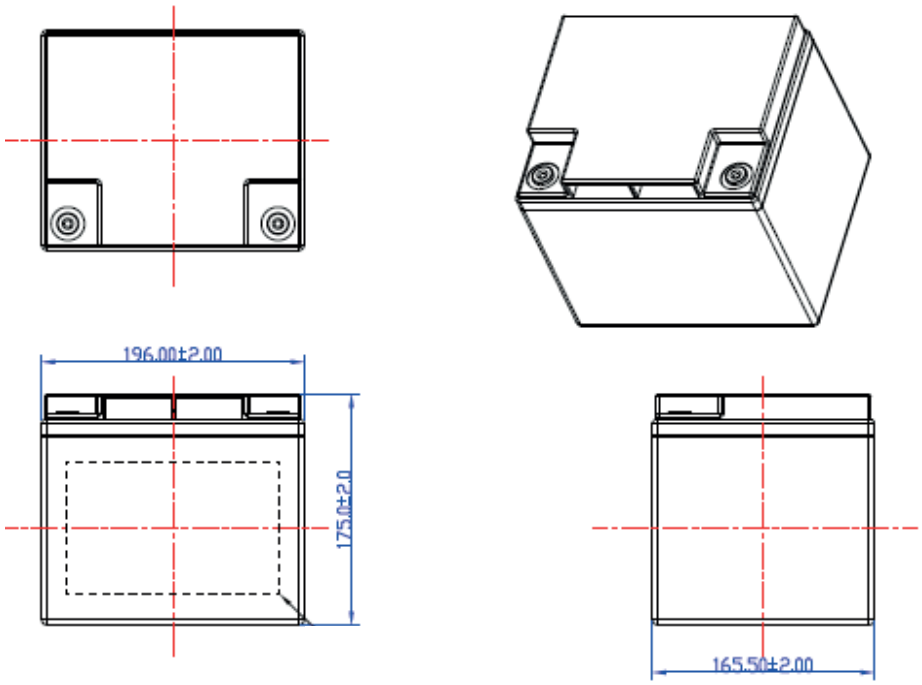
4. Circuit Protection

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	Over-charge protection for each cell	3.80±0.03V
	Over-charge release for each cell	3.60±0.05V
	Over-charge release method	Under the release voltage
Over discharge	Over-discharge protection for each cell	2.00±0.05V
	Over-discharge release for each cell	2.30±0.05V
	Over-discharge release method	Charging
Over current	Discharge over current protection	170~220A
	Protection delay time	10~40ms
	Over current release method	Release after cutoff the load
Over Temperature	Battery over temperature	Protection @65±5°C
		Release @50±5°C

5. Dimensional Drawing (Unit: mm)



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6. Storage & 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 ~ 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.

7. Warning & Tips

Please read and follow the specification or 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. is not responsible for any accidents caused by the usage without following our specification.

- Never throw the battery into water or fire.
- Never connect the positive and negative of battery 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.
- The battery must be far away from heat source, high voltage, and avoid to be exposed in sunshine for long time, or lose some function and reduce the life..
- When battery run out of power, please charge your battery timely (≤15day).
- 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 be far away from children or pets.

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