

## LiFePO4 Battery Specification

Model: TB12V100Ah-HEAT-L

## 1. General Information

This specification defines the performance of rechargeable LiFePO4 battery pack TB12V100Ah-HEAT-L manufactured by TOPBAND, it describes the type, performance, technical characteristics, warning and caution of the battery pack.

## 2. Battery Pack Specification (@ 25±2℃)

No.	Items		Parameters	
2.1	Nominal voltage		12.8V	
2.2	Nominal energy@0.2C		1280.0Wh	
2.3	Nominal capacity@0.2C		100.0Ah	
2.4	Internal resistance@1kHz AC		<30.0mΩ	
2.5	Charge voltage range		14.0~14.6V	
2.6	Float voltage range		13.6~13.8V	
2.7	Allowed MAX charge current		100.0A	
2.8	Recommend charge current		50.0A	
2.9	Allowed MAX discharge current		100.0A	
2.10	Recommend discharge current		80.0A	
2.11	Peak/Surge current limit		360A@3S	
2.12	Short circuit protection		Yes	
2.13	End of discharge	Inverter/Load cut off	11.2V	
		BLVD	10.0V	
		Re-connect voltage	12.0V	
2.14	Communication	Bluetooth	TBEnergy	
		Port	/	
2.15	Parallel and Series connection		Support Max. 4 in series or Max.4 in parallel	
2.16	Terminal and torque		M8/10N.M	
2.17	IP rating		IP54	
2.18	Dimension		L 306.8mm	
			W 167.8mm	
			H 210.6mm	
2.19	Weight (without accessories)		11.5±0.5kg	
2.20	Operation temperature <sup>1</sup>	Charge	-20~45℃	0~10℃: ≤0.3C (Force)
				10~20℃: ≤0.5C
				20~35℃: ≤1C

			35~45℃: ≤0.5C
		Discharge	-10~60℃
2.21	Operation altitude		<3000m
2.22	Self-discharge rate <sup>2</sup>	Residual capacity	≤3%/month   ≤15%/year
		Recover capacity	≤1.5%/Month   ≤8%/ year
2.23	Storage environment <sup>3</sup>	≤6 months	0℃<T<30℃
		≤3 months	-10℃<T<45℃
		Recommend environment	15~35℃   45~75%RH
2.24	Cycle life		>2000 times
Note	<sup>1</sup> Battery pack will stop work to protect itself when the temperature is out of the operation range. The optimum operating temperature range is from 15℃ to 35℃, Frequent exposure to the harsh temperatures may worsen the performance of the battery pack and cycle life. <sup>2</sup> These conditions is based on battery pack is in sleep or power off mode. <sup>3</sup> For long time storage, we recommend charge the battery over 50% SOC and if the battery does not have a sleep or power off mode, please consult TOPBAND first.		

### 3. Electrical Specification

Test conditions: Ambient Temperature: 25±2℃, Humidity:10%~75%.

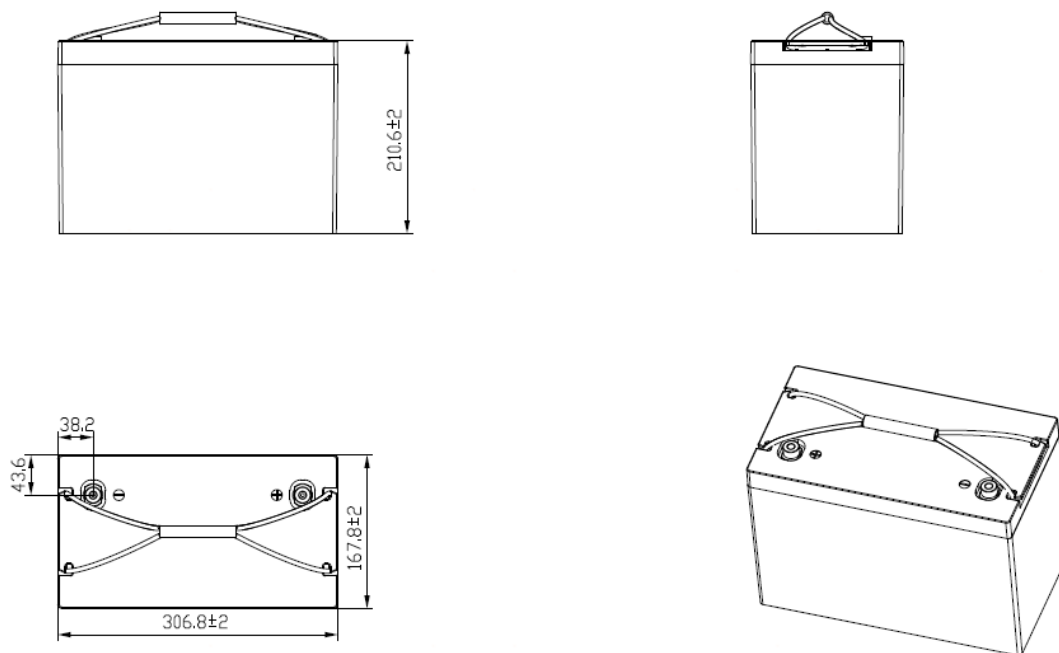
Normal charge: Charge battery under CC(0.2C)/CV(14.6V)mode until over charge protection or the charge current reduce to 0.02C, and then rest for 1h.

No.	Items	Criterion		Test Condition
3.1	Rated Capacity	100.0Ah		After Normal charge, discharge @0.2C current to the end of discharge voltage.
	Min. capacity	98.0Ah		
3.2	Internal Impedance	≤30.0mΩ		@50% SOC @1kHz AC internal resistance test instrument.
3.3	Short circuit protection	Auto cutoff load when short circuit		Connect the positive and negative of this battery pack through a lead with 0.1Ω resistance.
3.4	Cycle life	≥2000 cycles		After Normal charge, discharge @0.2C current with 80%DOD, Repeat above process until discharge capacity reduce to 80% of initial value.
3.5	Discharge temperature characteristic@ 0.2C	-20℃ (6h)	≥70%	<div><div><div>Capacity @specified temperature</div><div>Capacity @ 25℃</div></div><div>the percentage accord with criterion</div></div>
		0℃ (6h)	≥80%	
		25℃ (4h)	≥100%	

		55°C (4h)	≥95%	
3.6	Capacity retention rate	Remain capacity ≥80%	After normal charge, store the battery @25±2°C for 28days, then discharge capacity @0.2C to the end of discharge voltage, the retention capacity accord with criterion.	

## 4. Battery quick guide

### 4.1 Dimensions



### 4.2 Transport & Storage

- Do not violently shake, impact or squeeze, and prevent sun and rain during the transportation.
- Do light take and put and strictly prevent falling, rolling, and heavy pressure during loading and unloading.
- The battery should be placed in a dry, clean, dark, and well-ventilated indoor environment for long-term storage, and the recommended storage temperature range is 15~35°C.
- No harmful gases, flammable and explosive products and corrosive chemical substances in the storage location.
- The batteries should be stored and transported in close to 50% SOC.
- If do not use for a long time, the battery needs to be charged every 6 months according to the specs.
- No fall down, no pile up over 6 layers, and keep face up.

### 4.3 Warning & Tips.

Please read battery specification or manual carefully before use. Improper use may cause heat, fire, rupture, damage or capacity deterioration of the battery. TOPBAND will not be responsible for any accidents caused by the usage without following our handling instructions.

## Warning

- Battery must be far away from heat source, high voltage, and direct exposed to sunshine.
- Never throw the battery into water or fire.
- Never reverse two terminals when using the battery.
- Never connect the positive and negative of battery with conductor.
- Never knock, throw or trample the battery.
- Never disassemble the battery without manufacturer's permission and guidance.
- Never mixed battery with different capacity and brand;

## Tips

- It is suggested to fully charged the battery per month to correct the battery SOC.
- Please charge your battery timely ( $\leq 2$ day) when battery runs out of power.
- Please use the dedicated lithium battery charger to charge the battery.
- Stop using when battery emit peculiar smell, heating, distortion or appear any abnormality
- Please keep the battery far away from children or pets.
- If the battery pack leaks electrolyte, avoid contacting with the liquid or gas leakage if the electrolyte of battery pack leaks, please take these steps immediately:

**Gas Inhalation:** Evacuate the people in the contaminated area and seek medical aid as soon as possible.

**Eye Contact:** Flush your eye with clean and flowing water for 15 min, and seek medical aid as soon as possible.

**Skin Contact:** Thoroughly rinse the exposed area with soap and water to be sure no chemical or soap is left on them, and seek medical aid as soon as possible.

**Swallowing:** Try to induce vomiting, seeks medical aid as soon as possible immediately.

**Fire:** Please use carbon dioxide fire extinguisher rather than liquid to put out fires.