LiFePO4 Battery Specification

Model: TB12V100Ah-HEAT-S

1. General Information

TB12V100Ah-HEAT-S

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

2. Battery Specification（@ 25±5℃）

NO	Items		Characteristics
2.1	Normal capacity		100Ah
2.2	Nominal energy		1280Wh
2.3	Nominal voltage		12.8V(LFP-4S)
2.4	Internal resistance		≤ 30mΩ @1kHz AC
2.5	Normal charge voltage		14.6± 0.2V
2.6	Float charge voltage(for Standby use)		13.8± 0.2V
2.7	Allowed MAX charge current		80A, 100A/60min
2.8	Recommended charge current		≤50A
2.9	Allowed MAX discharge current		80A, 100A/30min
2.11	Peak discharge current/time		/
2.12	Different port for charging and discharging		/
2.13	End of discharge voltage		10V
2.14	IP rating		/
2.15	Communication mode		/
2.16	Dimension		W 350± 2mm
			H 178.5± 2mm
			D 187.9± 2mm
2.17	Weight (No accessories)		≤ 12kg
2.18	Operation temperature	Charge	0~45℃
		Discharge	-20~60℃
2.19	Self-discharge rate	Residual capacity	≤3%/Month; ≤15%/ year
		Recover capacity	≤1.5%/Month; ≤8%/ year
2.20	Storage environment	≤1month	-20～+60℃、5～75%RH
		≥3month	-10～+45℃、5～75%RH
		Recommend environment	15～35℃、5～75%RH

3. Electrical Characteristics & Test Condition

Testing Conditions: Ambient Temperature: 25±5℃; Humidity:45%~75%.

CC(0.33C)/CV14.6V) 0.05C，1h。

Normal charge： Charge battery under CC(0.33C)/CV(14.6V) 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	≤30mΩ		@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 @DOD100%	≥2000 cycles		After Normal charge, discharge @0.2C 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	-20℃(6h)	≥60%	$\frac{\text{Capacity @specified temperature}}{\text{Capacity @ 25℃}}$ the percentage accord with criterion
		0℃(6h)	≥80%	
		25℃(4h)	≥100%	
		55℃(4h)	≥95%	
3.6	Capacity retention rate	remain capacity ≥96%		After normal charge, store the battery @25±5℃ for 28days, then discharge capacity @0.2C， the retention capacity accord with criterion.

4. Circuit Protection

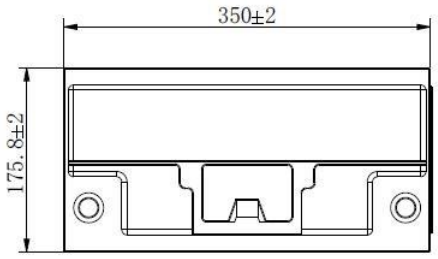
The batteries are supplied with a LiFePO4 Battery Management System (BMS)that can monitor and optimized each single prismatic cell during charge & discharge, to protect the battery pack overcharge, over discharge, short circuit. Overall, the BMS helps to ensure safe and accurate running.

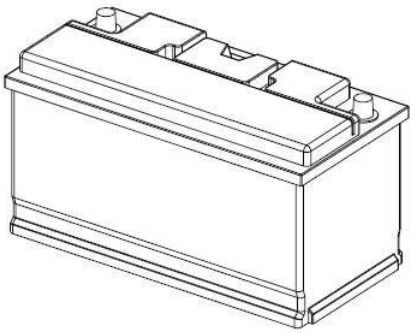
No	Item	Content	Criterion
4.1	Over charge	Over-charge protection Alarm for each cell	/
		Over-charge protection for each cell	3.75± 0.05V
		Over-charge protection delay time	1.0 ± 0.5S
		Over-charge release for each cell	3.60 ± 0.04V
		Over-charge release method	under the over-voltage recover value
4.2	Over discharge	Over-discharge protection alarm for each cell	/
		Over-discharge protection each cell	2.50 ± 0.04V
		Over-discharge protection delay time	1 ± 0.5S
		Over-discharge release for each cell	2.80 ± 0.04V
		Over-discharge release method	recovery through charging
		Charge over current protection1	一级：115±5A，25±3S
		Charge over current release1	about 30s later
		Discharge over current protection1	115±5A
		Discharge over current protection delay time1	25±3S
		Discharge over current release1	about 3s later after charging or remove the load
		Discharge over current protection2	300±20
		Discharge over current protection delay time2	3.5±0.5S
		Discharge over current release2	about 3s later after charging or remove the load
		Short circuit protection	500A/400us
		Short circuit protection release	about 3s later after charging or remove the load

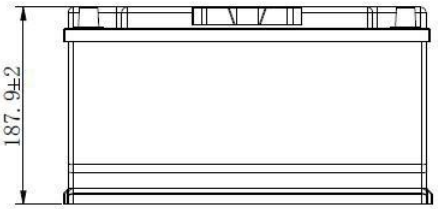
4.4	Temperature	Charge over temperature protection	Protect@65±2℃; Release@50±2℃
		Charge under temperature protection	Protect@-6±2℃; Release@4±2℃
		Discharge over temperature protection	Protect@65±2℃; Release@50±2℃
		Discharge under temperature protection	Protect@-20±2℃; Release@-15±2℃

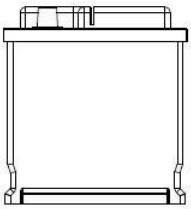
5. User guide

5.1 Product dimension









6. Transport & Store

The battery need to do a full charge&discharge cycle every 6 months if out of use

No fall down, not stack over 6 layers, and keep upwards.

7. Warning & Tps

Please read and follow the operation instructions before use. Improper operation may cause overheat, fire, rupture, damage or capacity deterioration of the battery. TOPBAND Describes is not responsible for any accidents caused by the action without following our instructions.

Warning

* Battery must be far away from heat source, high voltage, and no exposed in sunshine for long time.
* Never throw the battery into water or fire;
* Never reverse connect the positive and negative when use the battery;
* Never short connect the positive and negative of battery with metal;
* Never over impact , throw or trample the battery;
* Never disassemble the battery without manufacturer's permission and guidance.

Never use mixed with other type of 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 (≤15day).
* Please use the matched or suggested charger for this battery.
* If battery emit peculiar smell, heating, distortion or appear any abnormity, please stop using.
* If the battery leaks and get into the eyes or skin, do not wipe, instead, rinse it with clean water and look for medical help immediately.
* Please far away from children or pets.