LiFePO4 Battery Specification
Model: AE460100F-TI40A

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1. General Information

This specification defines the performance of rechargeable LiFePO4 battery pack AE460100F-TI40A manufactured by ALENA ENERGY TECHNOLOGY CO., LTD, describes the type, performance, technical characteristics, warning and caution of the battery pack.

2. Battery system Specification（@ 25±5℃）

2.1 Cell parameters

NO	Items	Characteristics
1	Cell type	Prismatic
2	Nominal voltage	3.2V
3	Normal capacity	25AH
4	Nominal energy	80WH
5	Resistance	≤2mΩ @25℃1kHz AC
6	Allowed MAX charge current	1C
7	Recommended charge current	0.5C
8	Allowed MAX discharge current	6C @25±5℃, SOC＞20%
9	Maximum pulse discharge current	8C@25±5℃, 10s, SOC≥20%

2.2 Module parameters

NO	Items	Characteristics
1	Series and parallel mode	16S4P
2	Nominal voltage	51.2V
3	Normal capacity	100AH
4	Nominal energy	5.12KWH
5	Resistance	≤20mΩ @1kHz AC
6	Normal charge voltage	58.4V
7	End of discharge voltage	40V
8	Allowed MAX charge current	100A @ 25±5℃, Without BMS
9	Recommended charge current	≤50A
10	Allowed MAX discharge current	400A @ 25±5℃, Without BMS
11	Dimension	W:254±2mm (For reference only)
		D:695±2mm(For reference only)
		H:210±2mm(For reference only)
12	Weight	About:58kg

2.3 Battery String parameters

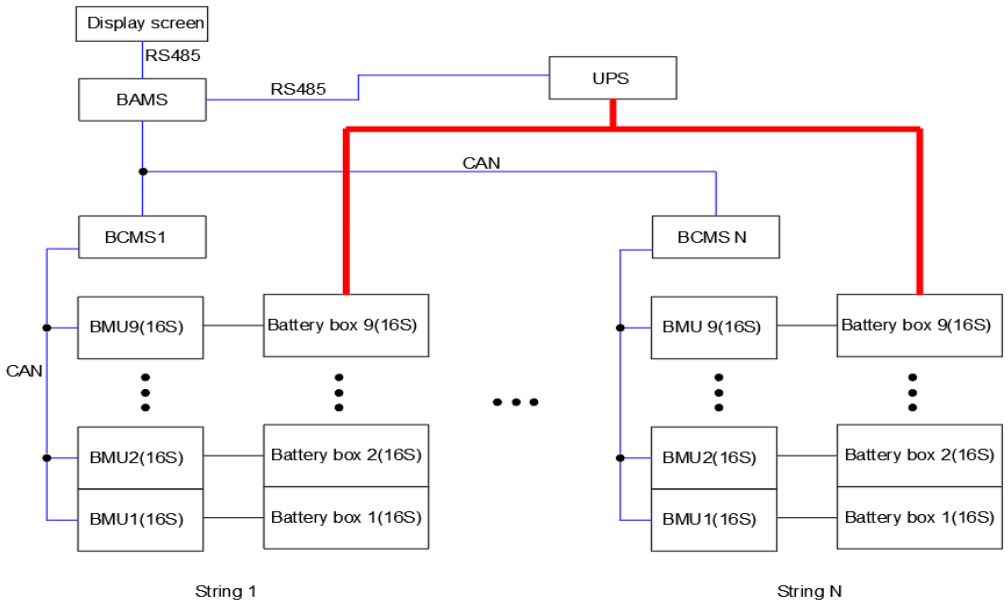
NO	Items	Characteristics
1	Series and parallel mode	144S4P
2	Nominal voltage	460.8V
3	Normal capacity	100AH
4	Nominal energy	46.08KWH
5	resistance	≤400mΩ @1kHz AC
6	Normal charge voltage	525.6V
7	End of discharge voltage	360V
8	Allowed MAX charge current	150A @ 25±5℃, Without BMS
9	Recommended charge current	≤50A
10	Allowed MAX discharge current	400A @ 25±5℃, Without BMS
11	Dimension	W:600*3±2mm mm(For reference only)
		D:850±2mm(For reference only)
		H:2000±2mm(For reference only)
12	Total Weight	About:800kg

2.4 Battery System parameters

NO	Items	Characteristics
1	Series and parallel mode	144S(4 *N)P (N is the number of battery clusters, N≤12)
2	Nominal voltage	460.8V
3	Normal capacity	100AH *N(N is the number of battery clusters)
4	Nominal energy	46.08KWH *N (N is the number of battery clusters)
5	Resistance	≤400mΩ @1kHz AC
6	Normal charge voltage	525.6V
7	End of discharge voltage	360V
8	Allowed MAX charge current	150A*N strings @ 25±5℃, Without BMS(N is the number of battery clusters)
9	Recommended charge current	≤50A*N strings(N is the number of battery clusters)
10	Allowed MAX discharge current	400A*N strings @ 25±5℃ (N is the number of battery clusters, N≤12)

3. BMS

3.1 The topology



4. Electrical Characteristics & Test Condition

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

Normal charge：Charge battery under CC(0.33C)/CV mode until over charge protection or the charge current reduce to 0.05C, and then rest for 1h.

NO	Items	Criterion		Condition
1	Normal Capacity	100Ah		After Normal charge, discharge @0.33C current to the end of discharge voltage.
2	Internal Impedance	≤400mΩ		@50% SOC @1kHz AC internal resistance test instrument.
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.
4	Cycle life @DOD100%	≥2500 cycles		After Normal charge, discharge @0.33C current to the end of discharge voltage. Repeat above process until discharge capacity reduce to 80% of initial value.
5	Discharge temperature characteristic @0.33C	-20℃(6h)	≥70%	$\frac{\text{Capacity @specified temperature}}{\text{Capacity @ 25℃}}$ the percentage accord with criterion
		0℃(6h)	≥80%	
		25℃(4h)	≥100%	
		55℃(4h)	≥95%	
6	Capacity retention rate	remain capacity ≥96%		After normal charge, store the battery @25±5℃ for 28days, then discharge capacity @0.33C, the retention capacity accord with criterion.

5. Circuit Protection

5.1 Protection parameters

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

1	Over charge	Over-charge protection for each cell	3.60±0.05V
		Over-charge release for each cell	3.50±0.05V
		Over-charge release method	Under the release voltage
2	Over discharge	Over-discharge protection each cell	2.70±0.05V
		Over-discharge release for each cell	2.90±0.10V
		Over-discharge release method	Charging
3	Over current	Charge over current protection	160A±10A, delay time 1~2s（1string）
		Charge over current release	Discharge or auto release after 1min
		Discharge over current protection	450A±10A, delay time 1s~2s（1string）
		Discharge over current release	Charge or auto release after 1min
		Short circuit protection	Fuse protection
4	Temperature	Charge over temperature protection	Protect@65±5℃; Release@50±5℃;
		Charge under temperature protection	Protect@0±3℃; Release@5±3℃

5.2 Transport & Store

The battery need to be charged every 3 months if out of use

No fall down, no pile up over 6 layers, and keep face up.

5.3 Warning & Tips.

Please read and follow the handling instructions before use. Improper use may cause heat, fire, rupture, damage or capacity deterioration of the battery. SHENZHEN TOPBAND BATTERY CO.,LTD. Describes is not 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 no exposed in sunshine for long time.
* Never throw the battery into water or fire;
* Never reverse two electrodes when use the battery;
* Never connect the positive and negative of battery with metal;
* Never knock, 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 see doctor immediately.
* Please far away from children or pets.