

NC

Lithium-ion power battery Product Specifications

product name: Ternary lithium battery pack

Product number: KMW-S12V40A

Product Specifications: 12V 40AH

Compilation date: 2022-04-14

Producer	Auditor	Ratifier

Change log

NC		

Version Book	Change description		Reason for change	sign	Date
	Before the change	After the change			

1. Scope of use

This specification describes the technical requirements, measurement methods, transportation, storage, and precautions of lithium batteries produced by Shenzhen

Kaimeiweike Electronics Co., Ltd.

2. Product description

This product is an Ternary lithium battery pack. The battery pack is composed of three 40AH ternary cells combined in series and parallel. The battery pack adopts scientific internal structure design, advanced battery production technology, high specific energy and long life, safety and reliability, and wide operating temperature range. It is a green energy storage power product.

3. Product technical specifications

Batteries	Specifications model	Terpolymer-40AH
	Capacity	40Ah
	Nominal Voltage	3.7V
	Nominal internal resistance	≤2mΩ
	Combination way	3 series 1 parallel
	Matching standard	Tolerance≤1%
		The internal resistance range of a single cell is less than or equal to 0.2mΩ
		Single cell voltage difference≤5mV
		Charge retention capacity≥90%
Finished product parameters	Nominal voltage (V)	12
	Nominal capacity (Ah)	40
	Minimum capacity (Ah)	40
	Charge cut-off voltage (V)	12.6
	Discharge cut-off voltage (V)	8.25
	USB output voltage (V)	no
	Instantaneous maximum output current (A)	100

		Maximum continuous discharge current (A)	40
		Display screen	Color screen electricity meter
		Standard charging current (A)	6
		Charge suitable temperature	0℃~45℃
		Discharge suitable temperature	-20℃~45℃
		Battery size	125*120*180mm
		Battery weight	About 6Kg
		Storage temperature range	-40℃~55℃
		Storage Environment Humidity (RH)	5%~95%
	Management system	Single overvoltage protection value	4.2V
		Overvoltage release value	4.1V
		Single under-voltage protection value	2.75V
		Undervoltage release value	3V
		Overcurrent protection value	120A
		Charging time	7 hours

4. Test conditions, methods and performance

4.1 Test Conditions

Unless otherwise specified, all tests are carried out in an environment where the temperature is 15℃~35℃, the humidity is 25%~85%, and the atmospheric pressure is 86kPa~106kPa.

4.2 Measurement instrument

4.2.1 The accuracy of the DC voltmeter used for measuring voltage is not less than 0.5, and the internal resistance of the voltmeter is not less than 1kΩ/V;

4.2.2 The accuracy of the DC meter used for measuring current is not less than 0.5;

4.2.3 The thermometer used for temperature measurement should have an appropriate range, and its division value should not be greater than 1° C;

4.2.4 Timers used to measure time shall divide hours, minutes and seconds, and shall have an accuracy

of at least $\pm 1\%$.

4.3 Standard charge

Use a DC regulated power supply (switching power supply) to charge with a voltage of 14.6V and a current of 0.25C (A) until the current drops to 0.1A.

4.4 Standard discharge

After charging according to the method of (4.3), discharge with a constant current of 0.5C (A) with an electronic load until the total voltage is lower than 10V.

4.5 Battery capacity

Discharge according to the method of (3.4), record the discharge time (h), capacity (Ah) = current (A) * discharge time (h).

4.6 Electrical properties

Test items	Testing method	Skills requirement
Normal temperature performance	After the battery pack is charged according to the standard specified in 4.3, shelve it for 2 hours at room temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$, and then discharge it according to the regulations specified in 4.4 at the temperature.	1. Discharge time > 240min; 2. No fire, no explosion
High temperature performance	After the battery pack is charged according to the standard specified in 4.3, put it on hold for 2 hours at a high temperature of $55^{\circ}\text{C} \pm 2^{\circ}\text{C}$, and then discharge it according to the regulations specified in 4.4 at this temperature.	1. Discharge time > 240min; 2. No fire, no explosion
Low temperature performance	After the battery pack is charged according to the standard specified in 4.3, put it on hold for 2 hours at a low temperature of $-20^{\circ}\text{C} \pm 2^{\circ}\text{C}$, and then discharge it according to the regulations in 3.4 at this temperature.	1. Discharge time > 150min; 2. No fire, no explosion
Charge retention	After the battery pack is charged according to the standard specified in 4.3, shelve it for 30d at room temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$, and then discharge it according to the stipulation in 4.4 at this temperature.	Charge retention rate $\geq 95\%$
Rate discharge performance	After the battery pack is charged according to the standard specified in 4.3, shelve it for 10 minutes at room temperature, discharge it with a current of 1C, the cut-off voltage is	Discharge capacity $\geq 95\%$

	19.25V, and record the discharge capacity.	
Cycle life	Under the condition of $20^{\circ}\text{C}\pm 5^{\circ}\text{C}$, the battery pack shall be charged according to the standard specified in 4.3, put on hold for 5 minutes, and then discharged to the termination condition according to the specified 4.4, and the cycle shall be repeated. The battery capacity is tested according to standard charge and discharge every 25 cycles, and the test is terminated when the capacity is less than 80% of the rated capacity	≥ 2000 times

4.7 Environmental performance

Test items	Test Conditions	Standard test
Constant temperature and heat experiment	After the battery pack has been charged according to 4.3, the battery pack should be left open for 48 hours under the conditions of an ambient temperature of $40^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and a relative humidity of 90 to 95%, and then returned to a temperature of $20^{\circ}\text{C}\pm 5^{\circ}\text{C}$ and a relative humidity of 25% to 85%. After the conditions, discharge to the standard of 4.4.	The battery pack has no obvious deformation, rust, smoke or explosion; the discharge capacity is greater than 80% of the rated capacity.
Temperature shock	After the battery pack is charged according to 4.3, open the circuit and place it in the thermostat 1) Start from $-40^{\circ}\text{C}\pm 2^{\circ}\text{C}$, keep low temperature for 120min; 2) Then raise the temperature to $75^{\circ}\text{C}\pm 2^{\circ}\text{C}$ at $10^{\circ}\text{C}/\text{min}$; 3) Keep high temperature at $75^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 120min; 4) Cool down to $-40^{\circ}\text{C}\pm 2^{\circ}\text{C}$ at $10^{\circ}\text{C}/\text{min}$ Repeat 4 times, return to normal temperature after four complete cycles, take out the battery pack, and let the lithium battery pack reach room temperature at 25°C for 120 minutes.	The lithium battery pack has no deformation, cracking and liquid leakage; the open circuit voltage and charging capacity meet the product specification requirements, and can still be charged and discharged normally.

5. Storage, maintenance and transportation

5.1 Storage

When the battery pack needs to be stored for a long time, please charge the battery pack to

about 50% of the power (after discharging, please recharge the battery until the battery display shows 50%), and place it in a dry and ventilated place. Cycle once every three months. The battery pack should be stored in a clean, dry and ventilated place, avoid contact with corrosive substances, and keep away from fire and heat sources.

5.2 Transportation

The battery pack should be packaged for transportation, and should be protected from severe vibration, impact or extrusion during transportation, and protected from the sun and rain. It can be transported by vehicles such as cars, trains, ships, and planes.

5.3 Maintain

5.3.1 When the battery pack is stored, it should be stored at a state of charge of 40% to 60%;

5.3.2 When the battery pack is not used for a long time, it is recommended to recharge the battery once every three months or so. Each time the battery is recharged, it can be charged until the display shows 50% of the power;

5.3.3 During the maintenance process, do not re-install or remove the batteries in the battery pack by yourself, otherwise the battery performance will be degraded;

5.3.4 Do not disassemble or replace any battery in the battery pack without authorization, and it is strictly forbidden to dissect the battery.

6. Battery usage precautions

6.1 Do not reverse the positive and negative poles to prevent short circuit;

6.2 Do not put the battery pack into water or soak it;

6.3 Do not charge the battery pack in the presence of fire or extreme heat! Do not use or store battery packs near heat sources such as fire or heaters;

6.4 It is strictly forbidden to pierce the battery pack casing with nails or other sharp objects, and it is forbidden to hammer or pedal the battery pack;

6.5 It is strictly forbidden to disassemble the battery pack and battery in any way;

6.6 If the battery pack emits peculiar smell, heat, deformation, discoloration or any other abnormal phenomenon, immediately remove it from the electrical appliance or charger, and stop using it;

6.7 If the electrolyte accidentally splashes into the eyes after the battery leaks, do not

wipe it, rinse it with water immediately, and seek medical assistance in time in serious cases;

6.8 The ambient temperature will affect the discharge capacity. When the ambient temperature exceeds the standard environment ($25^{\circ}\text{C}\pm 5^{\circ}\text{C}$), the discharge capacity will be slightly reduced;

6.9 During the charging process of the battery pack, if there is an odor or abnormal sound, please stop charging immediately;

6.10 During the discharging process of the battery pack, if there is any odor or abnormal sound, please stop discharging immediately;

6.11 If the above phenomenon occurs, please contact the manufacturer and do not disassemble it without permission.