



FICHE TECHNIQUE

PACK 6 kWh



Maluna Lighting

Tél. +33 (0)1 48 43 42 70
maluna@maluna.fr
www.maluna.fr

CONTENTS

1. Product introduction	1
2. Technical specification	2
3. Panel function description	3
4. Environment Conditions	5
5. Electricity specification	6
5.1-5.2 Input Specification	6
5.3-5.4 Output Specification	6
5.5-5.7 Protection Instructions	7
8. Operation instructions and precautions	8
6.1 Use environment	8
6.2 Precautions for first time use	8
6.3 Notes for using 220V/50HZ AC power	9
6.4 How to use 12V48V DC output	11
6.5 How to use the LED emergency light	11
7. How to charge for the AC/DC power pack	12
9. Common problems and solutions	14
10. Package information	15



1. Product introduction

PACK 6 kWh is a multi-functional and portable AC-DC portable power station. It adopts ternary polymer safe lithium-ion cell and advanced high-efficiency inverter management technology. It has the characteristics of light weight, large capacity, high power and multiple functions which can help you provide the emergency power solutions.

Its battery capacity is:

51.8V109.2Ah/5656.56Wh ; The main functions are as below

- 220V/50Hz or 110V/60Hz pure-sine wave AC output
- 12V10A, 48V50A DC output
- Smart display shows the battery capacity
- High-power LED emergency floodlights for option

PACK 6 kWh has higher power and large big battery capacity, designed in trolley suitcase, easy to carry and can widely use in the field of emergency telecommunications, medical facility, exploration and survey, military, fire rescue and somewhere lack of power energy..

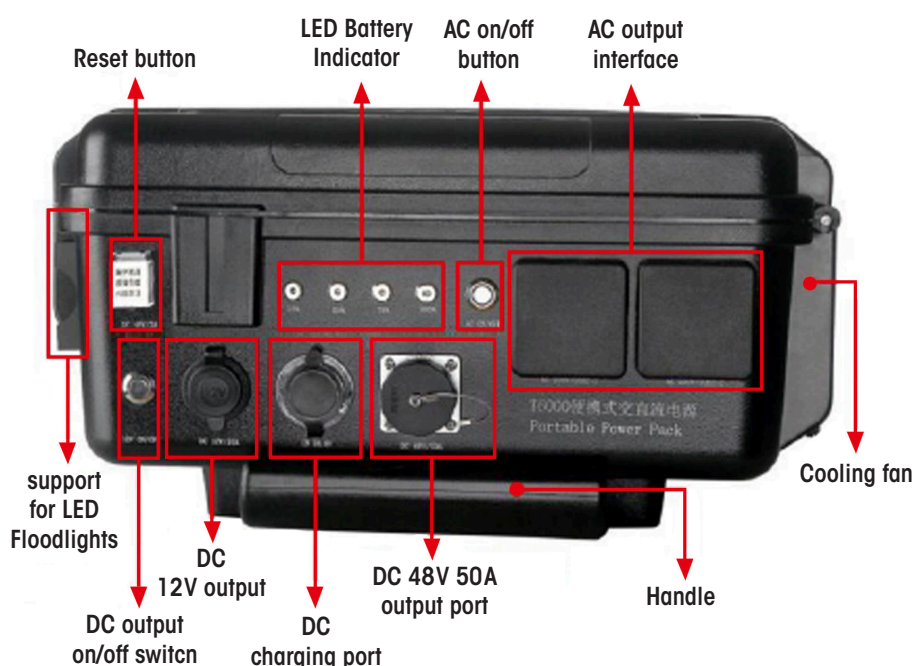


2. Technical specification

N°	Model	PACK 6 kWh
1	Rated power	3000W
2	Peak power	6000W
3	Output voltage	AC pure-sine wave 220V/50HZ or AC 110V/60HZ DC 12V10A 48V50A
4	Output wave	pure-sine wave
5-	Battery model	3.7V 2600mAh(14S42P)
6	Battery capacity	5656.56Wh(51.8V109.2Ah)
7	Battery type	18650 lithium-ion
8	Charging time	7~8H
9	Battery life	>1000Cycle 70%(3.7V 2600mAh)
10	Charging voltage and current	DC58.8V15A
11	Protection	Over-voltage, low-voltage, over temperature, overload, AC short circuit protection
12	LED lighting	60W*2 (for option)
13	Use Environment	0° C ~ 45° C (charging) / 20° C ~ 60° C (discharge)
14	Dimension (mm)	L580*W460*H250
15	Shell material	UL94-V0 ABS
16	Heat-Dissipation	Cooling fan
17	Net Weight (kg)	43



3. Panel function description



- **Support for LED floodlights:** support for LED high power floodlight, the bracket is for fix the led light.
- **DC output on/off switch:** Press on button, the indicator light shows blue color, DV 12V output interface is on state. Press off button, 12V output port is off. This button also control DC48V output port.
- **Reset button:** Please pull out the working machine and turn off the AC on/off button and DC on/off switch when it is in protection state. And press about 10s to activate again.
- **DC 12V output:** 12V output voltage, max current is 10A, for cigarette lighter socket.
- **DC Charging port:** Charging voltage is DC58.8V, max current is 20A(The charger cannot exceed 20A)
- **DC48V50A output port (1,3 is positive;2,4 is negative):** This port is for 32mm aviation plugs, DC output voltage range from 40V-58.8V.
- **LED battery indicator:** Shows the remaining battery capacity as 25% 50% 76% and 100%; During charging, the light flashes progressively and will be off after fully charged; When you turn on the AC/DC switch, the light will be on also.
- **AC on/off button:** Press the button, the indicator light shows blue color and start the power; When it is off state, the blue indicator light is out, no AC output in the surface. Press it, blue light will be on; inverter function and AC start to work; Turn off the switch, blue indicator will be off and AC output stops to work.



- **Support for LED floodlights:** support for LED high power floodlight, the bracket is for fix the led light.
- **AC output interface:** Multiple functions AC sockets, support different types of plug like Chinese standard, EU standard and UK standard and so on; The output voltage is 220V50HZ with pure sine wave. Japan or USA we can customized as 110V60Hz.
- **Handle:** Please do not use the device on bumpy road to prevent the damage of the internal parts of the pack.
- **Cooling fan:** It starts to work automatically when the internal temperature increases to 55°C; And it will stop to work when temperature decreases to 45°C.

Accessories:



Component description

AC charger: Supply power through city power plug which can be adjusted according to different countries. During CA/CV charging mode, first charge by constant-current and then constant-voltage; The charging current is 15A. Input voltage is optional (100~130V 200~240V 100~240V 50/60HZ)



Component description

WS32-4Pin aviation plug (1,3 pin is positive,2, 4 pin is negative; Each pin max current is 50A.Please use double wire when you use the biggest current of 50A for a long time;The connectors won't generate heat when passing large current if the 1 and 3 pin is positive, 2 and 4 pin is negative.



4. Environment conditions

N°	Test Item	Parameter	Unit	Remarks
1	Use Environment	0 ~45	°C	Reference for the working temperature
2	Storage Environment	- 20 ~ 60	°C	Reference for the working temperature
3	Humidity	45% ~ 85%	RH	Reference for the working temperature
4	Cooling method	Air cooling		Heat radiation≥45°C
5	Altitude	3500	M	
6	MTBF	≥5000	H	DC-AC(Inverter)

4.5. Electricity specification

5.1-5.2 Input Specification

N°	Test Item	Parameter	Unit	Remarks
5.1	AC input (charger)			
5.1.1	Rated voltage	100V ~ 130V / 200-240V	V	For option
5.1.2	Rated frequency	50/60 ± 3%	Hz	
5.1.3	Rated current	8/4	A	
5.1.4	Converter	≥ 86%		Vin=220V AC rated load
5.2	DC input			
5.2.1	Voltage	58.8	V	
5.2.2	Current	≤ 20	A	

5.3-5.4 Output Specification

N°	Test Item	Parameter	Unit	Remarks
5.3	AC output			
5.3.1	Rated voltage	220 ± 10%	V	
5.3.2	Rated frequency	50 ± 3%	Hz	
5.3.3	Rated power	3000	W	
5.3.4	Load power	3200	W	105%
5.3.5	Harmonic distortion	≤ 5%		
5.1.4	Converter	≥ 90%		
5.4	DC output			
5.4.1	DC output voltage	48	V	40V - 58.8V
5.4.2	DC output current	50	A	
5.4.3	DC output voltage	12	V	11V - 13V
5.4.4	DC output current	10	A	



5.5-5.7 Protection Instructions

N°	Test Item	Parameter	Unit	Remarks
5.5.1	Inverter			
5.5.2	Over temperature	Inverter cooling $\geq 65^{\circ}\text{C}$	$^{\circ}\text{C}$	AC no output, until temperature is
5.5.3	Over load	> 3200	W	Lock-up; No output, until disconnected and restart
Remark	5.5.2 5.5.3 During protection, AC on/off button needed turn off, when restart AC on/off button will be on state			
5.6	Controller			
5.6.1	DC 12V over-current	> 15	A	Output turns off after over-current
5.6.2	DC 48V over-current	> 50	A	Output turns off after over-current
5.7	Battery packs			
5.7.1	Single-cell overcharge voltage protection	4.2V	V	Turn off charging and keep output
5.7.2	Single-cell over discharge voltage protection	2.8V	V	Shutdown output
5.7.3	Battery packs over temperature	≥ 65	$^{\circ}\text{C}$	Shutdown input and output
5.7.4	Short circuit protection	Yes		Shutdown output after short circuit
5.7.5	Battery packs over-current protection	70 - 130	A	Shutdown output after over-current

6. Operation instructions and precautions

To ensure safe transportation of the **Pack 6 kWh**, the battery is not full of power or in the low power mode during the transportation.

Please charge the device fully charge before use at the first time.

The battery has self-discharge feature and will loss power energy when it is on standby state. Please fully charged when storage if you don't use the power pack for long time to prevent the battery from being damaged.

Please fully recharged the battery when you need to use it if the battery have been storage for long time.

Due the feature for its self-discharge, the date on the LED battery indicator is not accurate. Only when the indicator light changed as green color, the battery is 100% full charged.

6.1 Use environment

Drying	Stay away from humidity
Cooling	The charging temperature of the lithium battery is $0^{\circ}\text{C} \sim 45^{\circ}\text{C}$
Ventilation	Ensure heat dissipation, and ensure that the air flow is at least 5cm around the converter
Safety	It is forbidden to use in the environment of coal mine or flammable and explosive products such as gasoline



6.2 Precautions for first time use

All products are tested before sale, so please fully charge the power pack when for first time use;

6.3 Notes for using 220V/50HZ AC power

Pack 6 kWh can supply continue load power of 3000W, lower than 3000W appliances can be used. Please confirm the power pack is full charged before using.

Operation:

- Step 1 : Press the AC on/off button or DC switch to check the remaining power capacity



- Step 2 : Check the voltage and frequency of your working device.
- Step 3: Check and confirm that the working power of the equipment does not exceed the maximum rated power of Pack 6 kWh.
- Step 4 : Plug the working device in the AC outlets of Pack 6 kWh



- Step 5 : Turn on the AC on/off switch, the indicator lights and then turn on the equipment.



- Step 6 : Turn off the AC on/off button after using it.
- Step 7 : Pls charge in time if it's in low power state to ensure the next usage;
(Attn : Pls be sure to turn off the switch of AC power when you stop to use it. Or it will be in high energy consume mode, consuming the energy in reserve).



Notes:

Pack 6 kWh is with 220V pure-sine wave AC output, 3000W rated power, 220V50Hz. Please read the following information before using:

- 1- The input voltage and frequency of appliances should be same with **Pack 6 kWh**.
- 2- Please ensure the rated power is lower than the output power 3000W.

*The appliance will be damaged once cannot meet the above requirements.

*Please choose another portable power pack with higher power once the power of appliances is higher than that of **Pack 6 kWh**

Remarks: Since the consumed power of some appliances is greater than its rated power on power-on, like, the starting current of inductive load equipment is generally 3-8 times of its rated power, the starting power of energy-saving light is dozens of times of its rated power; Their starting power is much more than the instant maximum power of the power pack therefore. Hence, the overload protection will occur and the power is off. This power supply has overload protection, short circuit protection, over temperature protection and automatic recovery functions.

3- When it has the following conditions, it will stop to work and protect the device:

- When the working power of the equipment is exceed the maximum load power of **Pack 6 kWh**.
- AC output or load circuit
- Internal temperature of the device is too high.
- The voltage of the internal battery is too low.

6.4 How to use 12V48V DC output

The DC 12V output of **Pack 6 kWh** is cigarette lighter sockets; DC12V output will work and current indicator will light once you turn on the switch; The max current of cigar lighter is 10A; over-current is 15A; no limited-current output function but short-circuit protection;



DC48V output is without switcher since it's connected to the battery directly (pass fender);When you connect the load, pls connect well the aviation plug to the required cable first, and then plug into the opposite connector jacks; Pls do not connect without using the connector jacks;



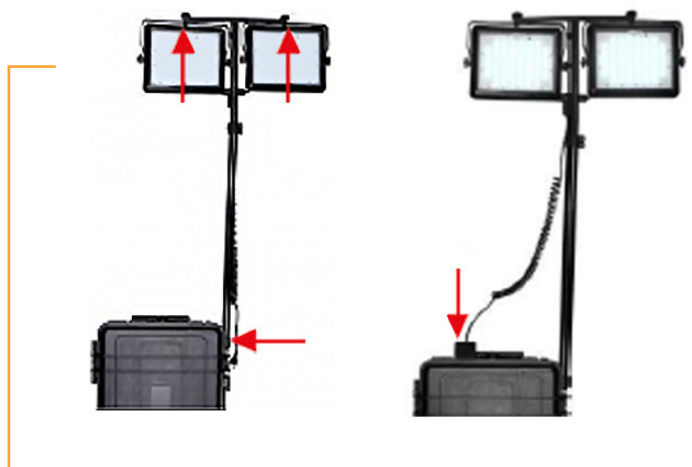
Notes:

- 1- The max current of 12V DC output is 10A
- 2- During DC48V output, the led battery indicator don't work

6.5 How to use the LED emergency light

The LED emergency light is 60W*2 with total power of 120W,220V AC power supply; 2m expansion pole, first insert the 2m expansion pole on the LED floodlights bracket, the put the led light on the head of expansion pole, and then fix them with screws, see as below picture:

Plug in the 220V AC wall socket and turn on the AC on/off switch, then it works. The LED can be adjust according to different angles;



7. How to charge for the AC/DC power pack

It can be charged by the following ways at present.

Notes for operating AC charging Operating steps :

- Take away all working equipments and turn off the AC on/off button.
- Plug the charger in the AC wall sockets.
- Plug the other side into the AC/DC charging port.
- When charging, the green light will flash continuously. When the green light is steady(100%),it means fully charged.

Notes:

Please use the original charger produce from the manufacturer, the max current for charger is 51.8V20A.



8. Function Testing

It can be charged by the following ways at present.

Notes for operating AC charging Operating steps :

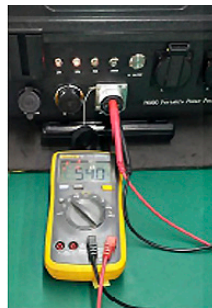
- Take away all working equipments and turn off the AC on/off button.
- Plug the charger in the AC wall sockets.
- Plug the other side into the AC/DC charging port.
- When charging, the green light will flash continuously. When the green light is steady(100%), it means fully charged.

Notes:

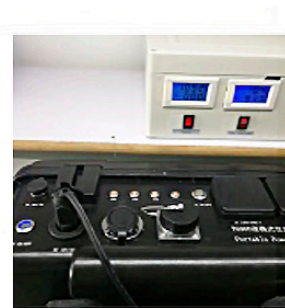
Please use the original charger produce from the manufacturer, the max current for charger is 51.8V20A.



8.1 AC 220V
output testing



8.2 DC 48V
output testing



8.3 DC 48V
output testing



5.5-5.7 Protection Instructions

Error	Root	Solution
No LCD display after pressing any switch	Interior battery power out	Charge up
No AC output after pressing AC switch	Interior battery power out	Charge up
Outage and warning when power pack is working	Load power is over the rated power which causes over-temperature protection	Turn off AC switch; use it after the temperature is decreased and reduce the service load power
LED flashing but power is not increased during charging	AC socket bad contacts or the charger is damaged	Plug in repetitively or change a new charger
No output for 12V or 48V	1.Output short-circuit 2.over-load	1. Check the output circuit, disconnect and turn on the DC switch again. 2. Check the power for load equipment, and confirm not exceed the max current.
Buzzer on (Warning)	Interior battery power almost being out ;The power pack will be off soon	Charge up
Not full charged by solar panel charger	Too larger charger power Too higher charger voltage	choice the smaller solar panel, to get the charger current less than 20A
LED emergency light no working	Bulb is burnt out	Change a bulb with same specifications
Overload Protection	The working power of the equipment is exceed the max load power of the power pack	Pull out the appliance and ensure its power to be lower than 3000W

N°	Packing list	Quantity(pcs)
1	Pack 6 kWh power pack	1
2	Charging adapter and cable	1
3	Aviation plugs	1
4	LED floodlight(for option)	1
5	Manual instruction	1

Pack 6 kWh gross weight(kg): 52.3
 Carton size (mm) : L710*W610*H385
 Package quantity (pcs) : 1 pcs / carton

