

# Specification

ZH-CN-2400A portable power station

Product: 2400W portable power station

Version No.: VER-1.0

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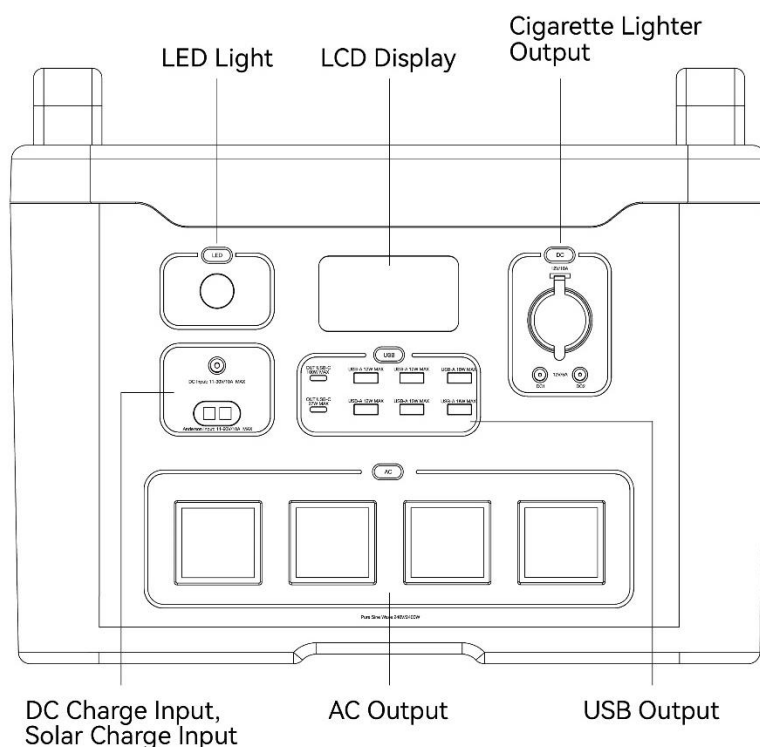




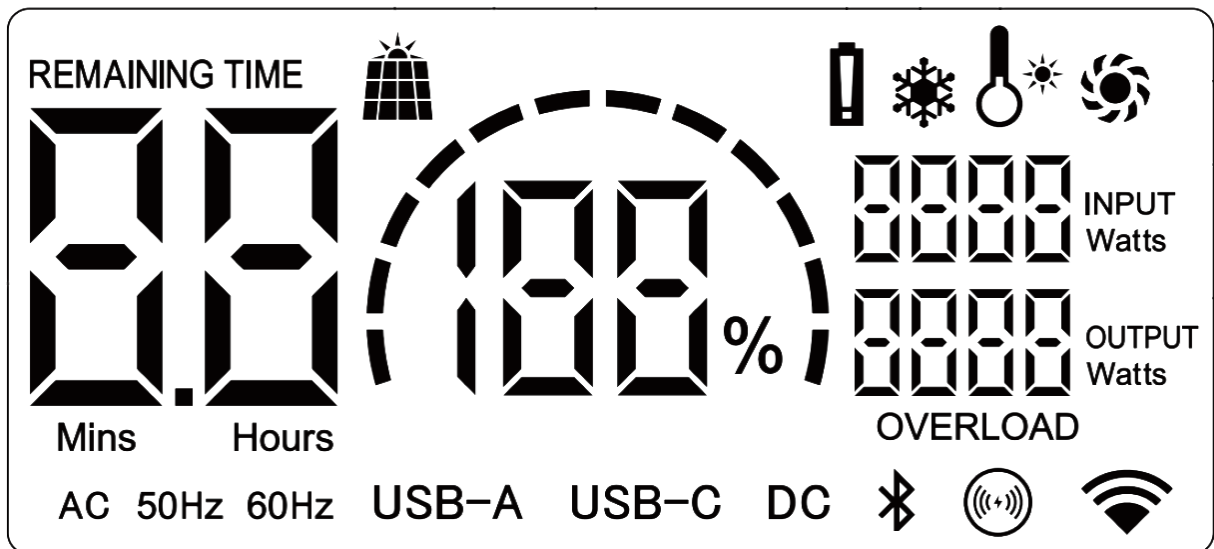
## 1. Application Environment

- 1.1 As an energy storage power station for out door/office use, it can be connected with mobile phones tablet computers, laptops and other consumer digital devices.
- 1.2 Car charging output port: car refrigerator, air pump, vacuum cleaner.
- 1.3 DC output port: UAV, router, car refrigerator and other 12V power equipment, outdoor photography, off-road enthusiasts use electricity in the field, as well as outdoor electricity for TV camera equipment.
- 1.4 AC output port: electricity consumption for outdoor lighting, emergency electricity for field maintenance of telecommunications departments, emergency electricity for mine, oil field, geological exploration and geological disaster rescue, etc.

## 2. Product Description and Display Indications



Button Functions	
Button function	When the power is off, any key can wake up the system. The first time you press the button the display will light up, the second time you press it will turn on the corresponding function.
DC key switch	Controls 12V DC5521, cigarette lighter. Indicator icon lights up when the switch is open and goes out when it is closed.
USB key switch	Controls USB-A and Type-C. Icon indicator illuminates when switch is on, off when switch is off.
AC key switch	Controls the inverter AC output. Icon illuminates when the switch is turned on, indication goes off when it is turned off.
Illuminated key switch	Control LED lighting, SOS warning light.



	Indicates the current power level of the product. Uses a percentage (%) display. Blinking indicates a charging state.
	Indicates the remaining charging time when charging and the remaining available time when working.
	Indicates the total power currently being output.
<b>DC</b>	When clicking the DC button while the display is lit, the icon shows that the car charger or DC1/2 output port is operational.
<b>USB-A</b>	If the icon is displayed when the USB button is clicked while the display is lit, the USB output port is operational.
<b>USB-C</b>	Plug in the Type-C cable when the USB button is clicked while the display is lit, and the icon shows that the USB-C port is operational.
<b>AC 50Hz</b>	When you click the AC button while the display is lit, the icon shows that the AC output port is operational.
	When the temperature reaches 40 degrees, the cooling fan works.
<b>OVERLOAD</b>	Indicates an overload protection alarm.
	Indicates an inverter temperature alarm with an action condition of 90-95 degrees.
	Battery temperature below 0°C, no charging.
	Tap the USB button when the display is lit, the wireless charger is in standby mode and works normally when touching the wireless charging device.

## 3. Power Supply Specifications

3.1 AC Input Port				
Item	Input Voltage $\pm 10\%$	Input Current (Max.)	Input Frequency	Remark
AU	240V	14.8A	47-63Hz	
3.2 DC6530 Input Port				
Item	Min	Standard	Max	Remark
Input Voltage Range	11Vdc	---	30Vdc	
Rated Input Current	---	---	10A	Maximum input power 100W
Reverse Polarity Protection	---	Yes	---	
3.3 Solar Energy Input Port				
Item	Min	Standard	Max	Remark
Input Voltage Range	11Vdc	---	90Vdc	
Rated Input Current	---	---	10A	Maximum input power 800W
Reverse Polarity Protection	---	Yes	---	
3.4 DC5521 Output Port (DC1, DC2)				
Item	Min	Standard	Max	Remark
Output Voltage Range	11.4Vdc	12Vdc	12.6Vdc	
Rated Output Current	---	5A	5A	Double DC ports and cigarette lighter output 12V120W in total, 10A in total
Current limiting	10A	11A	12A	If the output current exceeds this current limiting point, the output will be closed, After the over current is relieved, the system automatically recovers the output
Short Circuit Protection	---	Yes	---	Output terminals and wires connected to external devices are short-circuited, and the output port stops outputting
				When the short-circuit is lifted, the system automatically restores the output, and the product does not cause malicious events during the short-circuit process
Remarks: Overload and short circuit are destructive tests, which cannot be operated continuously for more than 3s.				

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## 3.5 DC (Cigarette Lighter) Output Port

Item	Min	Standard	Max	Remark
Output Voltage Range	11.4Vdc	12Vdc	12.6Vdc	
Rated Output Current	---	---	8.3A	
Current limiting	10A	11A	12A	If the output current exceeds this current limiting point, the output will be closed, After the over current is relieved, the system automatically recovers the output
Short Circuit Protection	---	Yes	---	Output terminals and wires connected to external devices are short-circuited, and the output port stops outputting When the short-circuit is lifted, the system automatically restores the output, and the product does not cause malicious events during the short-circuit process

Remarks: Overload and short circuit are destructive tests, which cannot be operated continuously for more than 3s.

## 3.6 QC3.0 (USB-A1,A2: support BC1.2, Apple, Qualcomm QC2.0 and QC3.0, Huawei FCP and SCP, Samsung AFC (MAX 12V), MTK PE+1.0 and MTK PE+2.0, Spreadtrum SFCP, OPPO VOOC)

Item	Min	Standard	Max	Remark
4.5V Output Voltage	4.2V	4.5V	4.8V	
4.5V Output Current	---	5A	---	
5V Output Voltage	4.7V	5.0V	5.3V	
5V Output Current	---	3A/4.5A	---	
9V Output Voltage	8.5V	9.0V	9.5V	
9V Output Current	---	2.0A	---	
12V Output Voltage	11.4V	12V	12.6V	
12V Output Current	---	1.5A	---	
Protocol automatic recognition	---	Yes	---	Output corresponding voltage and current according to different protocols

Remarks: Overload and short circuit are destructive tests, which cannot be operated continuously for more than 3s. The short-circuit overload can only be tested at 5V. Overload and short circuit can work normally after removing the load.

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## 3.7 5V 2.4A (USB-A2,A4: Support DCP {BC1.2, Apple and Sumsung}: Dual DCP Protocol)

Item	Min	Standard	Max	Remark
Output Voltage	4.7V	5.0V	5.3V	
Output Current	---	2.4A	---	Max.12W (A1/A3; A2/A4)

## 3.8 Type-C Output Port (PD3.0/27W)

Item	Min	Standard	Max	Remark
5V Output Voltage	4.7V	5.0V	5.3V	
5V Output Current	---	3A	---	
9V Output Voltage	8.5V	9.0V	9.5V	
9V Output Current	---	3A	---	
12V Output Voltage	11.4V	12V	12.6V	
12V Output Current	---	2.25A	---	
Protocol automatic recognition	---	Yes	---	Output corresponding voltage and current according to different load

## 3.9 Type-C Output Port (PD3.0/100W)

Item	Min	Standard	Max	Remark
5V Output Voltage	4.7V	5.0V	5.3V	
5V Output Current	---	3A	---	
9V Output Voltage	8.5V	9.0V	9.5V	
9V Output Current	---	3A	---	
12V Output Voltage	11.4V	12V	12.6V	
12V Output Current	---	3A	---	
15V Output Voltage	14.2V	15V	15.8V	
15V Output Current	---	3A	---	
20V Output Voltage	19V	20V	21V	(electricity $\geq$ 10%)
20V Output Current	---	3A	5A	5A current output in standard E-MARKER communication line
Protocol automatic recognition	---	Yes	---	Output corresponding voltage and current according to different protocols

Remarks: Overload and short circuit are destructive tests, which cannot be operated continuously for more than 3s. The short-circuit overload can only be tested at 5V. Overload and short circuit can work normally after removing the load.

## 3.10 AC Output Port

Item	No-load Output Voltage	Output Voltage with load	Remark
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AU	240V		240V	± 10%
Output Wave	---	Pure sine wave	---	Rated resistive load
Output Frequency	49Hz	50Hz	51Hz	AS/ES (AS 60Hz± 1Hz)
Rated Output Power	2400W	---	---	
Transient Power			4800W	2400-4800W into constant power (output dropout voltage) > 4800W
Output Power Factor	---	1	---	
Efficiencies	88%	---	92%	Resistive load, full load output
Short Circuit Protection	---	Yes	---	Output terminals and wires connected to external devices are short-circuited, and the output port stops outputting
Overload Protection	---	---	2400W	Output power greater than 2400W more than 0.5S, reduce the output voltage, when the voltage is reduced to 170Vdc below the shutdown protection, need to manually restore
Inverter Over Temperature Protection	90°C	---	---	Inverter output stops after protection and needs to be restored manually

Remarks: Overload and short circuit are destructive tests, which cannot be operated continuously for more than 3s.

## 3.11 LED Light / SOS

Item	Min	Standard	Max	Remark
Power of Light	1W	2W	3W	
CCT	5500K	6000K	6500K	
Working Mode	Press once for a short time to keep it on, and the brightness is 30%			
	Then press the brightness for one more time, and the brightness is 100%			
	Then press the brightness for one more time to trigger SOS			
	Then press the brightness for one more time to close			

## 3.12 Wireless Charge (Support 5W、Apple 7.5W、 Samsung 10W、 15W Charging)

Item	Min	Standard	Max	Remark
Charge Power	5W	10W	15W	Automatic recognition of phone charging power

## 3.13 Battery pack specifications

Item	Standard	Remark

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Rated Voltage	51.2V	
Rated Power	2304wh	
Single-cell AC internal resistance	$\leq 3.0\text{m}\Omega$	

## 3.14 Battery Pack System Protection

Item	Min	Standard	Max	Remark
Undervoltage protection	31.5V	32V	32.5V	When the discharge voltage reaches the low protection voltage, the product stops working

## 3.15 Product Shutdown Self Consumption Current and Sleep

Item	Standard	Remark
Shutdown Self Consumption	$\leq 100\text{Ua}$	10-15s into shutdown after all outputs are turned off

Remark: Hibernation function, any output port of the product has a corresponding control switch button. When not in use, it is necessary to turn off the output of this port to reduce the standby power consumption of the unit. If the whole machine is not used for more than 10s and no output is detected, the system will automatically shut down to prevent the product from self consumption. (Hibernation is to reduce the power consumption of the switchboard and improve the battery utilization.)

## 3.16 Weight and Size

N.W.	21.6KG
G.W.	22.9KG
Product Dimension	378*297*30+mm
Package Dimension	463*382*375mm
Master Carton Dimension	485*400*395mm 1pcs/Ctn

## 4. Operating Environment

Working Environment Temperature				
Item	Min	TYP	Max	Remark
Working Temperature	-10°C	---	35°C	The ambient temperature at which the product works normally
Storage Temperature	-20°C	---	60°C	It is suitable for storage when produce is not working
Charging Environment Temperature	0°C	---	35°C	When Environment gets below -10°C, Charging efficiency will decline which will affect the service life of the battery
Discharge Operating Temperature	-10°C	---	35°C	

Remark	1. When the product is working for discharge in a high-temperature environment (35 °C), system will detect that the temperature of the battery exceeds 65 °C. To ensure the safe use of the electric core, all output ports are turned off. At this time, the battery will be prohibited from discharging.
	2. When the product is working for discharge in a low-temperature environment (0 °C), system will detect that the temperature of the battery under 0°C. To ensure the safe use of the electric core, all output ports are turned off. At this time, the battery will be prohibited from discharging.
	3. All test items should be tested at ambient 25±2°C

## 5. Battery Compatibility

### 5.1 EMS

The power station shall be compliant with the following criterion:

- 1) ESD  
\*GB17626.2-1998/IEC61000-4-2
- 2) EFT  
\*GB17626.4-1998/IEC61000-4-4 1KV

## 6. Safety Specifications

6.1 Power supply safety meets the following criteria (under application)

- ① TEL
- ② CE/FCC
- ③ PSE
- ④ UN38.3

6.2 Insulation properties

6.2.1 Dielectric withstand voltage

Primary to secondary: 2000VAC 5mA 60S

AC ground and output negative are to be disconnected.

## 7. Precautions

1. For the first time, it is recommended that the mobile power supply should be fully charged and the three-plug word input line should be used.
2. Insufficient power is shown during use, please recharge as soon as possible.
3. When the power port is not in use, press the on key to turn it off to save power.
4. If the product is not used for a long time, it should be recharged every 3 months. It is better to keep the electricity at 60%, 80%, and store it in a cool and dry place.
5. After long-term storage, the product needs to be charged and discharged several times to obtain the best use effect.
6. The screen shows that the current energy available time of the product varies with the change of the current output power, the power of the load is not constant, and the display time is only roughly estimated based on the current power.
7. When the device power of the AC output port is less than 2W, the output will be turned off automatically after 45 minutes of work.

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8. When the USB output port uses the device power less than 1W, the product will automatically turn off the output after working for 8 hours.
9. When the DC or the vehicle charging output port uses the device power less than 1W, the output will be turned off automatically after working for 8 hours.
10. AC output power lasts 2400W (peak 4800W), exceeding the maximum power of 2400W 0.5s, the product will automatically turn off the power supply to protect the product from damage due to overload use. The AC output side overload short circuit will alarm flicker, the screen appears exclamation point, remove the fault and then re-open the AC button.
11. The USB output terminal is overloaded, short-circuited and has no output. Remove the load fault device and release it.
12. DC and car charging output short-circuit overload will alarm, DC symbol flashes, re-open the DC button to release.
13. The charging voltage shall not exceed the maximum value specified in this specification. Exceeding the nominal input voltage may cause permanent damage to the product and may cause problems with the charging and discharging performance, mechanical performance and safety performance of the battery core.

## 8. Aging Test Standards

Aging Sequence In Mass Production	
No.	Step
1	Charged full
2	Discharged
3	Recharge 40% to 50%

Remark: Need to record aging results

## 9. Packing List

No.	Item / Specification	Num
1	Product Unit	1
2	User Manual	1
3	AC Three-Plug Charging Cable	1
4	Car Charging Cable	1
5	MC4 Adapter Cable	1