Portable Solar Power Station with Sodium-ion battery

Model: Na+630Wh/30Ah

Model	Portable energy storage power (G1200)
Capacity	730000 mAh
Cell	Na-ion cell 3V 10 Ah (7Sx3P)
Battery Energy	630 Wh
DC Power	Sine wave AC 1200W 220V/50Hz
AC Peak Value	2400 Peak duration < 50ms
Conversion Efficiency	Over 90%

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1 Product information

This specification applies to the Na+630Wh/30Ah, a Portable Solar Power Station with a Sodium-ion battery The system consists of a 7Sx2P Sodium-ion battery, a protection board, a DC charging circuit, a MCU control circuit, an inverter circuit, and LCD screen.

The inverter delivers 1200W pure sine wave output at AC220V/50Hz, with a pure resistive load, and includes DC12V/10A, USB QC3.0, and TYPE-C PD3.0 outputs. It is suitable for applications such as camping, emergency communication, medical rescue, and firefighting operations.

2 Technical Parameters

Category	Items	Specification parameter
Input	DC input	DC7909 12-26V-7A AC/DC charger
	DC input	MPPT Solar interface 12-26V-7A
AC Out 220V	AC output voltage	2 AC sockets 220V ±5%
	AC output power	1200W
	AC output overpower protection	1350W
	AC output waveform	Pure sine wave
	AC output peak	2400W peak duration < 50ms
	Frequency	50Hz
USB output port	USB1 output	QC3.0 max 12 V/1.5 A
	USB2 output	QC3.0 max 12 V/1.5 A
	USB type-C1/C2 output	C1:PD/QC3.0 max 12 V/1.5 A, C2: 100 W
DC 12V output	DC1 DC2 cigarette lighter output	Max 12V/10A
Cell	Type	Na-ion cell 33120/10Ah
	Capacity	10 Ah
	Energy	30 Wh
	Cycle life	2000 cycles
Charging parameter		DC 12-26 V/7 A
Charging time	6 hours	Charge from 0% to 100% (automatic cut-off)
Full charge voltage	27.65 V	Maximum battery charging voltage
LCD display	Display charge, charging, stop charging status	Battery percentage and column display
	DC, AC and inverter status	Screen display
Power-on static loss		< 10 W
Protection functions		Short circuit, overload, over-temperature, over-voltage, over-current, under-voltage, etc
Over-temperature protection	Over-temperature protection	≥ 85°C
	Over-temperature recovery	≤ 70°C

Working temperature	Suggested charge temperature range	0 to 55 °C (if at -10 °C, please make sure charge current between 0.1C to 0.2C)
	Discharge temperature range	-40 to 60 °C

3 Electrical characteristics of the protection board

Items	Symbol	Definition	Standard value
Overcharge protection	VCU	Overcharge detection voltage	$4.05 \pm 0.025V$
	VCL	Overcharge release voltage	$3.75 \pm 0.025V$
Over- discharge protection	VDU	Over-discharge detection voltage	$1.50 \pm 0.05V$
	VDL	Over-discharge release	$1.90 \pm 0.05V$
		Over-current protection	$100A$
		Over-current release	load off
Over- temperature protection		Over-temperature protection	$\geq 60°C$
		Over-discharge release	$\leq 50°C$ charge activation
Short-circuit protection		Short-circuit protection	External short-circuit
		Short-circuit release	Disconnect short-circuit load or charge activation
Internal resistance	RDS	Main circuit on-state resistance	$RDS \leq 60m\Omega$
Current consumption	IDD	Internal circuit consumption during operation	$10\mu A$ Type $30\mu A$ Type

4 Product reliability test

Number	Tests	Testing criteria	Test result
1	Constant temperature and humidity	The fully charged power supply is placed in a temperature controlled box with a relative humidity of 90% to 95% at 40 °C ±5 °C for 12 hours, and placed at an ambient temperature 40°C ±5°C, of 25 °C ±5 °C for 2 hours, 90% to 95% and then the performance 12 of the product is tested. 25°C±5°C	OK
2	High-temperature test (discharge)	Put the fully charged power supply into a high temperature box with an experimental temperature of 55°C ±5 °C, place it for 2 hours, take it out and place it at an ambient temperature of 25 °C ±5 °C for 2 hours, and then test the performance of the product.	OK
3	Low-temperature test (discharge)	Put the fully charged power supply into the low-temperature box with the experimental temperature of – 20°C±5°C, place it for 2 hours, take it out and place it at the ambient temperature of 25°C±5°C for 2 hours, and then test the performance of the product.	OK
4	High-temperature test (charging)	Put the discharged power into a high-temperature box with an experimental temperature of 40°C ±5 °C, place it for 2 hours, take it out and place it at an ambient temperature of 25 °C ±5 °C for 2 hours, and then test the performance of the product.	OK

5	Low-temperature test (charging)	Put the discharged power into a low-temperature box with an experimental temperature of -20°C±5°C, place it for 2 hours, take it out and place it at an ambient temperature of 25°C±5°C for 2 hours, and then test the performance of the product.	OK
6	Vibration test	The frequency of harmonic vibration is 100Hz the vibration is not less than 10 minutes, the time is 10 minutes, and then the product performance is tested after the experiment.	, OK
7	Drop test	The product is freely dropped from the height of 0.5 meters to the thickness of the hardwood is 18 20mm, (X, Y, Z positive and negative 6 directions fall once, respectively), the shell does not crack, and then the product performance is tested after the experiment.	OK
8	ESD test	Contact discharge: 3KV 10 seconds once every 1 second for 10 seconds, and then test the product performance after the experiment.	OK

5 Product panel description

Port ID	Port status	Quantity
1	DC12V/10A(DC5521)	3
2	USB QC3.0×2 C1:18W C2:100W	4
3	MPPT input port 7909 Input port 180W	2
4	Display area	1
5	AC output 220V/1200W	2
6	LED light	1
7	Switch (main switch AC switch DC switch USB LED switch)	5

6 Operation instructions

6.1 Key instructions

- **Main Switch**: Press and hold to power on the system or to turn off all outputs.
- **LED Light Switch**: Single press to toggle the LED light on or off.
- **DC Switch**: Press and hold to enable or disable DC5521 and car cigarette lighter outputs.
- **USB Switch**: Press and hold to enable or disable USB1, USB2, and TYPE-C1/C2 outputs.
- **AC Switch**: Press and hold to enable or disable inverter output.

6.2 Two USB sockets for QC3.0 output

1. Turn on the switch to enable the corresponding output.
2. When the switch is turned on, the display will show the USB symbol, indicating the output is active.
3. Insert a load into the TYPE-C2 PD100W port, and it will discharge automatically.
4. Press the DC output and car charger output buttons to enable DC12V output. The display will show the DC symbol.
5. Press the LED light button to turn on the LED illumination.
6. In case of any operational anomaly, immediately turn off the power switch and check for issues with the connected device.
7. After use, unplug the device's power cord and turn off the power switch.
8. When the battery voltage approaches the protection voltage or reaches low-voltage protection, the system will shut down all outputs.

6.3 Two AC sockets 220V/1200W output

1. Turn on the AC switch to start AC output.
2. When the AC output is normal, the display will show the AC symbol.
3. If AC output is abnormal, turn off the AC switch.
4. Verify the rated power of the connected device to ensure it does not exceed the 1200W limit of the AC port.
5. Connect the device properly and plug it into the AC port for charging.
6. In case of operational anomalies, immediately turn off the power switch and check the connected device for issues.
7. After use, unplug the device and turn off the power switch.

6.4 Battery voltage protection

When the product's voltage is low, the LCD screen will display an empty battery icon and shut down all outputs. Please recharge the product promptly.

7 Product size

(Max) 295 × 206 × 228.5 mm

8 Packing list

	Material name	Specification and models	Unit	Qty
1	Host	Na+630Wh/30Ah (G1200)	PCS	1
2	Instruction manual	Instruction manual	PCS	1
3	Graphic box	Portable	PCS	1
4	Adapter charger	DC7909-180W	PCS	1

9 Packing instructions

1. Package quantity: 1pcs
2. Box size: 345 × 255 × 355 mm
3. Gross weight of the packaging box: 10kg

10 Operation precautions

1. Strictly follow the instructions when using this product.
2. To allow heat dissipation, make sure there is at least 5 cm space is reserved o all sides of the powerstation.
3. When the battery capacity is low, or the load power exceeds the rated power or the ambient temperature is too high, then the powerstation will automatically shut down the output.
4. When charging at high power, refrain from using any high power load.
5. Leaving the powerstation unused for a long time will slowly drain the battery. It is recommended to charge the powerstation every 6 months.
6. The AC output power is the nominla value. However, be aware that AC equipment can require a much higher start power (example: motors, refrigirators, power saving lamps, …) If the peak power is too high and too long, then the protection function of the powerstation will disable the output.
7. Do not use this product in explosive, inflammable or corrosive gas environments (gasoline, gas).
8. If the power station is contaminated with water of other fluids, make sure the powerstation is powered down and the foreign substance is completely removed. As this can result in a damaged powerstation with safety risks, in case of doubts, return it to the supplier for verification and cleaning before reusing it.

11 Elementary toubleshooting

1. When there is no AC output, check whether the power display screen is displayed. If it is not displayed, try to charge the product for 1-2 minutes to activate the product.
2. When no DC output is turned on, check whether there is no issue with using connected loads (especially electronic products) and the connecting cables.

12 Warnings when using the powerstation

1. Do not put the powerstation in the water.
2. Do not expose the powerstation to excessive heat.
3. Do not disassemble or modify the powerstation.
4. Do not subject the powerstation to heavy impacts by dropping or accident.