Product Specification

Power Station

Item No. : 1010XXXX

Model Name : S1

Description : European socket, 1024Wh,AC 2000W 230V ,PV 800W,DC 120W,QC3.0*4+PD100W*2

Version : V0.9

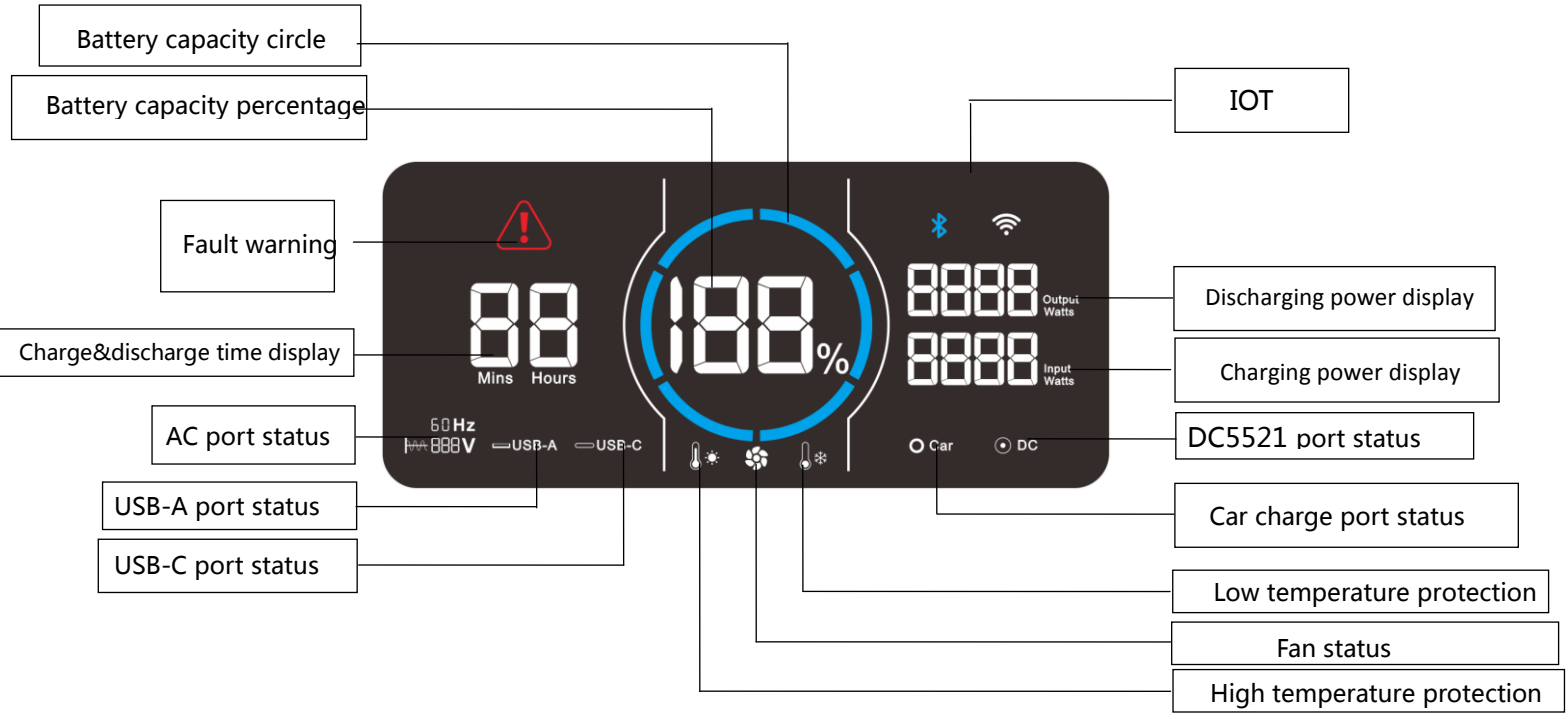
Issue Date : 2024-3-06

Product Introduction：

This product is a high-end fashion off-grid portable power station, independently developed by our company. Light and portable, stylish and generous, using automotive-grade LiFePO4 battery, safe, reliable, and durable; providing 230V/20V、15V、12V、9V、5V AC and DC output. This product supports expanding the battery packs and supporting the use of a dedicated gasoline generator to achieve oil electric mixing function. When the remaining battery capacity is less than 20%, the generator starts charging. When the charging capacity reaches 85%, the generator automatically stops working. It is suitable for various equipment such as aerial drones, portable ventilators, medical equipment, mobile phones, tablets, laptops, desktop computers, small printers, various lamps, small fish tanks, photographic equipment, electric balance wheelbarrows, etc. It’ s convenient for users to use at home, travel, outdoor work, camping picnics, mountaineering adventures, etc.

Model	AC Output Power	Battery Spec.	PACK Method	Battery Capacity
S1-E	2000W	IFP40135 LiFePO4 20Ah/3.2V	16 series (20Ah/51.2V)	1024WH


Expansion battery
Connection port


Battery capacity circle
Battery capacity percentage
Fault warning
Charge&discharge time display
AC port status
USB-A port status
USB-C port status
IOT
Discharging power display
Charging power display
DC5521 port status
Car charge port status
Low temperature protection
Fan status
High temperature protection
88
Mins
Hours
100%
8888
Output Watts
8888
Input Watts
60Hz
888V
USB-A
USB-C
Car
DC

1、Control and Display

Item	Function	Remark
Main power button	Master switch for each function	Long press for 3S to turn on or off the main power supply, when it is turned on, a circle of LED lights around the button will light up
DC power button	Control car charger DC552，USB-A，USB-C output or turn off	Under the condition that the main power switch is on, tap the button to turn on the car charger，DC5521，USB-A，USB-C output；Press again, turn off the charger，DC5521，USB-A，USB-C output. Automatically turn off the output if no equipment access, overload, short circuit, over temperature protection, etc. are detected within 6 hours
AC power button	AC output control switch	When the main power switch is on, press the button lightly to turn on the AC Output; press it again to turn off. After 6 hours, no device access, overload, short circuit, over temperature protection, etc. are not detected and the output is automatically turned off
Bluetooth WiFi button	Control Bluetooth/WiFi on or off	Need to turn on the main switch and click the button
Battery capacity circle and battery capacity percentage	Power display when charging or discharging	When charging, the battery capacity percentage is displayed in the middle, and the blue circle circulates in the form of marquee. When the battery is fully charged or the charger is disconnected, the battery display stops. Display the percentage and the outer ring according to the actual capacity. When discharging, the percentage of capacity is displayed according to the actual capacity. The blue circles decrease by percentage.
AC display	Display AC voltage frequency	Real-time display of AC voltage frequency
Charging power display	Display charging power	Display current charging power when charging
Discharge power display	Displays the remaining discharge time	Display current discharging power when discharging
Remaining discharge time	Displays the remaining discharge time	According to the current battery capacity and discharge power, the remaining discharge time is displayed in real time. Display logic: when the time exceeds 1 hour, it is displayed in X.Y hours, and when it is less than 1 hour, it is displayed in minutes.
Fault/protection warning	Indicate the station is in a fault state	This icon is displayed when the output interface is overloaded, short-circuited, or the internal temperature is too high or too low, and it will be closed after troubleshooting.
High temperature protection warning	Indicates the battery temperature is too high	When the internal temperature is too high, the icon will be displayed, and the icon will be closed when the temperature is restored.
Low temperature protection warning	Indicates the battery temperature is too low	When the internal temperature is too low, the icon will be displayed, and the icon will be closed when the temperature is restored.
Fan status	Indicate fan working status	When the fan is on, the icon is displayed. When closed, the icon is off.

Car charger port status	Indicate the working status of the car charger port	When the car charger is turned on, the icon is displayed, when it is turned off, the icon is off
DC5521 port status indication	Indicate the working status of DC5521 port	When DC5521 turns on the output, the icon is displayed, when it is turned off, the icon is off.
USB-C port status indication	Indicate the working status of USB-C port	When USB-C turns on the output, the icon is displayed, when it is turned off, the icon is off.
USB-A port status indication	Indicate the working status of USB-A port	When USB-A turns on the output, the icon is displayed, when it is turned off, the icon is off.
AC port status indication	Indicate the working status of AC port	When AC turns on the output, the icon is displayed, when it is turned off, the icon is off.
Backlight		When there is a button operation, it is fully lit., when no button operation is detected for 5 minutes, the screen backlight is off.
Power button breathing light		When charging, discharging, and standby, the breathing light flashes, and the breathing light goes out during sleep.
Note：Turn on the main power and the machine will automatically shut down after 5 minutes of standby without any operation.		

2、AC Input Parameters

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Input voltage range	Vin	Vac	180	190~250	255	Low voltage protection 180V, recovery 190V, high voltage protection 255V, recovery 250V (accuracy ±5%).
Input current range	Iin	A	/	12	/	
Input frequancy	/	Hz	42	50/60	65	Low frequency protection 42Hz, recovery 45Hz, high frequency protection 65Hz, recovery 62Hz (accuracy ±1%).
Switching time	/	ms	5	15	20	UPS switching time ≤20ms.
Recoverable insurance	/	A	/	16	/	Manual recovery is required after protection
Input port	/	A	/	/	16	IEC-C20 male socket
AC charging power	/	W	1300	1400	1500	0-80%≤46 minutes

3、Solar Input Parameters

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Input voltage range	Vin	Vdc	12	/	80	High voltage protection 80V, low voltage protection 11V, (accuracy ±5%)
MPPT voltage range	Vin	Vdc	18	/	75	
MPPT input current	/	A	/	13	14	
Solar charging power	/	W	/	/	800	
Solar charging time	/	Hrs	/	/	/	Maximum charging time depends on light intensity and solar panel power.
Maximum charging interval time	/	month	1	3	6	Store when the remaining power is greater than 50%
Car charging input voltage range	/	Vdc	12	14	15	
Car charging input current	/	mA	7.7	8	8.3	
Input port	/	/	/	/	/	Anderson port, car charing port and solar cherging port is the same port

4、DC Output Parameters

4.1、Car Charger Output Parameters

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Output voltage range	Vo	Vdc	12	13	14.5	
Output current range	Io	A	/	/	10	
Overload protection	/	A	11	12	14	When the output current exceeds this limit, the output will be turned off. After the overload is released, the output must be restored by pressing the DC switch manually.
Short circuit protection	/	/	/	/	/	If the output terminal, wire or external device is short-circuited, the output port will stop output. When short-circuit is removed, you need to manually press the DC switch to restore the output.
Output port	/	/	/	/	/	One cigarette lighter output

4.2、DC5521 Output Parameters

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Output voltage range	Vo	Vdc	12	13	14.5	
Output current range	Io	A	/	/	10	Two DC5521 parallel outputs, with a total current of<10A compared to the car charger (cigarette lighter)
Overload protection	/	A	11	12	14	When the output current exceeds this limit, the output will be turned off. After the overload is released, the output must be restored by pressing the DC switch manually.
Short circuit protection	/	/	/	/	/	If the output terminal, wire or external device is short-circuited, the output port will stop output. When short-circuit is removed, you need to manually press the DC switch to restore the output.
Output port	/	/	/	/	/	Two DC5521

4.3、USB-A Output Parameters

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Output voltage range	Vo	Vdc	4.75	5.0	5.25	The default output is 5V, automatically recognizes the QC protocol, and outputs the corresponding voltage, DCP/QC2.0/QC3.0/FCP/AFC.
			8.55	9.0	9.45	
			11.55	12.0	12.45	
Output current range	Io	A	2.8	3	3.5	@5.0V
			1.8	2	2.2	@9.0V
			1.3	1.5	1.7	@12.0V
Overload protection	/	W	/	/	18	When the output power exceeds the maximum power, the output will be turned off and will automatically recover after the over-power state is released.
Short circuit protection	/	/	/	/	/	If the output terminal, wire or external device is short-circuited, the output port will stop outputting. When the short-circuit is removed, it will automatically recover.
Output port	/	/	/	/	/	Four USB-A independent outputs

4.4、USB-C（PD100W） Output Parameters

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Output voltage range	Vo	Vdc	4.65	5.0	5.35	Automatically recognize PD protocol and output corresponding voltage. PD3.0, PD2.0, QC2.0/3.0/ 4.0,FCP, SCP, AFC, Apple2.4A,PPS
			8.55	9.0	9.45	
			11.25	12.0	12.5	
			14.25	15.0	15.75	
			19.0	20.0	21.0	
Output current range	Io	A	3.2	/	3.9	5V,9V,12V,15V Overcurrent only has hardware protection
			/	5	5.5	20V
Overload protection	/	A	5.3	5.5A	5.7	When the output power exceeds the maximum power, the output will be turned off and will automatically recover after the over-power state is released.
Short circuit protection	/	/	/	/	/	If the output terminal, wire or external device is short-circuited, the output port will stop outputting. When the short-circuit is removed, it will automatically recover.
Output port	/	/	/	/	/	Two USB-C output

5. AC Output Parameters

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Output voltage range	Vo	Vac	220	230	240	/
Output power	Po	W	0	/	2000	
Peak output power	/	W	/	/	4500	Duration≦200mS
UPS output	Po	W	/	/	2000	When the load is ≥2000W, the output will be shut down after a delay of 1S to report overload, and the machine can be charged.
Switching time	/	mS	5	15	20	
Output AC frequency	F	Hz	49	50	51	50HZ/60HZ can be set

Output AC waveform	/	/	/	/	/	Pure Sine wave
Overload protection	/	W	101%	/	105%	If the output current exceeds this current limit point for 5 seconds, the output will be turned off. After the overcurrent is relieved, you need to manually press the AC switch to restore the output.
	/	W	105%	/	110%	If the output current exceeds this current limit point for 1 second, the output will be turned off. After the overcurrent is relieved, you need to manually press the AC switch to restore the output.
Short circuit protection	/	/	/	/	/	If the output terminal, wire or external device is short-circuited, the output port will stop outputting. When the short-circuit is removed, you need to manually press the AC switch to resume output.
Output port	/	/	/	/	/	One European socket

6、Battery Pack Parameters

Parameters	Symbol	Unit	Mini	Typical	Max	Remarks
Cell model	/	/	/	/	/	IFP40135 $LiFePO_4$
PACK Method	/	/	/	/	/	16 series 1 parallel
Voltage	/	Vdc	44	51.2	57.2	
Battery capacity	/	Ah	/	40	/	

7、System Protection Function

Parameter	Symbol	Unit	Min.	Typical	Max.	Remarks
Battery undervoltage protection	Vo	Vdc	43	43.2	44	
Battery overvoltage protection	Vo	Vdc	58.75	59.2	60	
Charging high temperature	/	℃	52	55	58	

protection						
Charging high temperature protection recovery	/	℃	47	50	53	
Charging low temperature protection	/	℃	-5	-2	1	
Charging low temperature protection recovery	/	℃	0	3	6	
Discharge high temperature protection	/	℃	57	60	63	
Discharge high temperature protection recovery	/	℃	53	55	57	
Discharge low temperature protection	/	℃	-20	-15	-10	
Discharge low temperature protection recovery	/	℃	-8	-5	-2	
Overload protection	/	W		/		Refer to the overload protection of each port.
Short circuit protection	/	/		/		Refer to the overload protection of each port.
Total power protection	/	W	/	2100	/	When AC and DC are loaded at the same time, priority is given to DC output. When the AC load is greater than 2100VA, the AC is turned off.

Note: When discharging from 100% capacity to 30% in an environment above 30 ℃, it is recommended to use a load below 1600W, otherwise it will trigger high temperature protection of the battery cell.

8、Environmental Requirements

Parameter	Symbol	Unit	Mini	Typical	Max	Remarks
Working temperature		℃	0	25	40	
Working humidity			10%	--	90%	
Storage temperature		℃	-20	25	60	
Storage humidity			5%	--	95%	
Altitude		m	-50	--	3000	

Cooling method			Fan forced cooling	

9、Other Parameters

Parameter	Symbol	Unit	Mini	Typical	Max	Remarks
Life time	Lf	year		3		
Mean interval failure time estimation	MTBF	hours		200000		Ta 25℃ (MIL-HDBK-217F)
Weight	N.W	g		12600		
Dimension	DIM.	mm (inch)		L*W*H 384*232*295mm		

Remarks: Unless otherwise specified, all the above parameters are measured under the fully loaded state of the product and at 25°C.

10、Safety Regulation

Certification	Safety standard	Status	Remarks
CE		Yes	
ROHS		Yes	

11、Electromagnetic Compatibility

EMI/EMS Item	Standard	Criterion
Conduction CE	FCC part 15	Class B
Radiation RE	FCC part 15	Class B
Harmonic	IEC/EN 61000-3-2	Class C

12、Safety Test Projects

Safety test	Technical requirement	Remarks
Resisting Voltage	400Vac/5mA/60S	AC output-ground, no breakdown, no arcing
Insulation resistance	≥100Mohm	AC output to ground, test voltage 500Vdc
Leakage current	≤0.75mA	230Vac

13、Error Code

Error code	Error information	Status	Remarks
E000	AC short circuit protection	 +  Flashing, no output	Manually press the AC switch button to restore
E001	Output overload protection	 +  Flashing, no output	The function icon represents which circuit is overloaded. Overload protection needs to be manually restored, and the UPS function is overloaded for 2000W for 1 second
E002	AC battery low voltage protection	The corresponding function icon flashes, and the corresponding port has no output	After protection, restart the corresponding function button to restore the function and charge in time
E003	AC Output over voltage and low voltage protection	 Flashing, AC no output	Manually press the AC switch to restore
E004	Abnormal AC input frequency	 Flashing, AC no input	Normal frequency automatic recovery
E005	Bus high and low voltage, over current	 Flashing，No output for each function	Manually press the AC switch to restore
E006	Inverter over-temperature Charging over-temperature protection	 +  +  Flashing，No output for each function	Normal automatic recovery after temperature recovery
E010	Cigarette lighter port overload and short circuit	 +  Flashing， No output for each function	Manually press the DC switch button to restore
E011	USB-A port overload and short circuit	 +  Flashing，No output for each function	Manually press the DC switch button to restore
E012	USB-C port overload and short circuit	 +  Flashing，No output for each function	Manually press the DC switch button to restore
E013	DC discharge battery low voltage protection	E013 code flashing，no output for each function	After protection, restart the corresponding function button to restore the function and charge in time
E016	Inverter input battery overvoltage	E016 code +  flashing	
E020	BMS communication fail	 Flashing	Check the BMS communication line
E021	High battery cell alarm	Capacity percentage flashing	Put the device aside and wait for the battery voltage to recover automatically
E022	High battery cell alarm	E022 code flashing，no output for each function	Connect the AC charging cable and charge until the voltage returns to normal
E023	Total battery voltage is too high	E023 Code flashing, not turn off output	Put the device aside and wait for the battery

			voltage to recover automatically
E024	Total battery voltage is too low	 Flashing，no output for each function	Connect the AC charging cable and charge until the voltage returns to normal
E025	Cell high temperature	 +  Flashing，No output for each function	Automatic recovery after temperature recovery
E026	Cell low temperature	 +  Flashing，No output for each function	Automatic recovery after temperature recovery
E027	System overload	The AC icon flashes to turn off the AC function, the DC output is normal, the AC is greater than 4000VA or the AC+DC is greater than 2100W	Manually press the AC switch button to restore
E028	Charging overheating	 +  Flashing, the device stops input	Automatic recovery after temperature recovery
E029	MOS tube overheating	 +  Flashing, the device stops input	Automatic recovery after temperature recovery
E030	Abnormal battery pack connection	Battery pack connection error	

14、Accessories List

No.	Accessory name	Quantity	Remarks
1	S1	1	
2	power cable	1	
3	Car charger to Anderson charging cable	1	
4	Anderson to MC4 adapter cable	1	
5	User manual	1	
6	Warranty card	1	

15、Package

- Single product N.W. : 12.6Kg±0.5
- Quantity : 1PCS
- Package Dimension : L*W*H=489*337*425mm
- N.W./G.W. : 12.6/15.5Kg

Precautions:

- If the product packaging is damaged, please confirm whether the appearance of the product is complete, and the external structure of the product is not allowed to have cracks.

Transportation:

- Suitable for transportation by car, ship and plane. During transportation, it should be covered with awnings, protected from the sun, and handled in a civilized manner.

Storage:

- Product storage should comply with the provisions of GB 3873-83.
- For long-term storage, it is recommended to charge the battery every 3 months to prevent the battery from being damaged due to overcharging.

RoHS:

- The product complies with European Directive 2011/65/EC.

Change History

Version	Change Content Description	Change Date	Remark
V0.9	Initially drafted	2024/3/6	