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Model: P-IN G230

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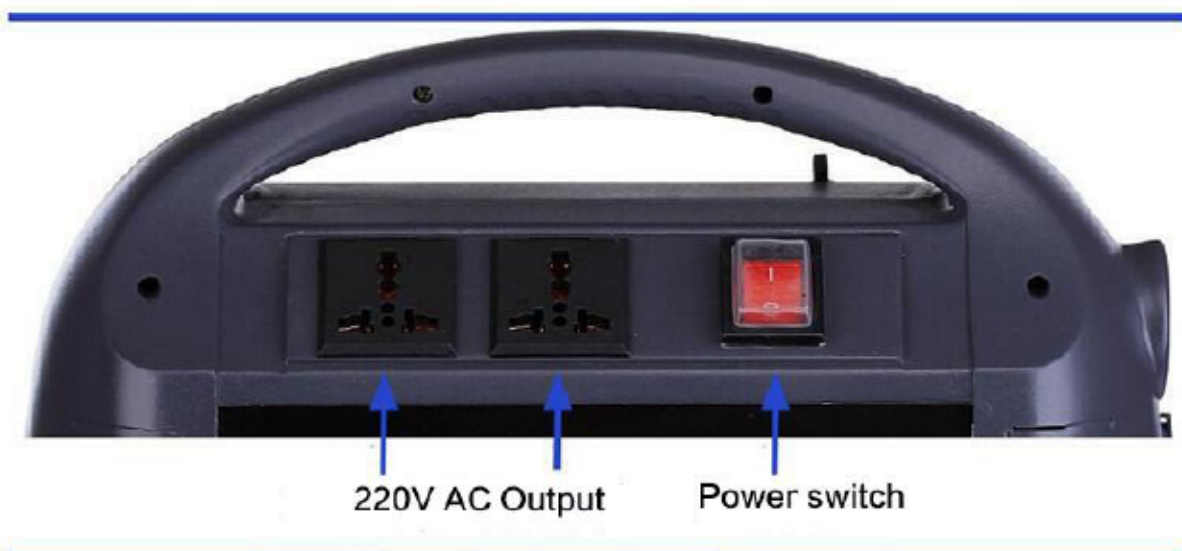
1. Product introduction :

P-IN G230 is a multiple portable AC&DC mobile power generator which is designed with the safe lithium-ion battery and inverter technology with SPWM; It's a kind of standby power station with light weight, large capacity and big power and is widely used in the fields of mobile field office, bank, medical care, repair of power equipment, fire emergency rescue, protection for environment, emergency situations for electric and so on. The device is with capacity of 25.9V41.6AH/1078WH and please see its main functions as follows:

- ◆ 220V/50Hz pure-sine wave AC output (110V/60Hz);
- ◆ 12V/10A DC output, 5V/2A- dual USB output 12V/10A and 24V/20A DC output
- ◆ LED emergency light;
- ◆ Smart displays indicating battery volume, power of input and output and the remaining working hours
- ◆ Car charger and solar charger for option

can meet power supply for many kinds of appliances such as mobile phone ,satellite phone,digital camera,mobile hard disk , tablet computer, LED lamp, laptop computer, car boot ,outdoor lighting,water pump, telecommunications,medical equipment,etc. And it can also be used in the following fields like finance, first aid, mining, exploration,military,science, media, tourism, disaster relief, medical aid and and somewhere lacking of advanced technology.

2. Panel function description: Back Panel



- ◆ AC output: Both AC output sockets are with AC220V, 50HZ and output can be customized as 110V,60HZ output for Japanese and USA markets;

- ◆ Power switch: Press it, AC 220V output will work, and the switch indicator lights; Press it again, output stops working and indicator is off.

Front Panel



- ◆ DC power plug: DC12V cigar lighter can supply power for 12V DC appliances with stable voltage of 12V and max current of 10A; When load is smaller than 0.1A, it may have problem to recognize the load ,causing that standby protection program is ready and output closed; Only when you press the power display button again, the output will continue to work.
 - ◆ LED light switch: Press twice to open the light; Double press it again to turn off it;
 - ◆ Intelligent display screen : Show the most precise remaining battery volume;The power won't varies as the voltage changes because of the electricity coulometer technology. And you can see the power and working hours during charging and discharging. During charging , the time is hours fully charged; During discharging, the time is hours for load work. When the battery has been working for several years, if the remaining power shows XX%, it means that the battery is in low voltage state and is unable to work, indicating the attenuation of the battery capacity;
 - ◆ Power display button : Press the button, display lights, indicating remaining battery capacity; And the display will be off automatically after 20S. The button is also a switcher for DC12V and USB 5V; When DC is in the standby mode, you can start the DC output by pressing this button;
 - ◆ USB 5V output ports: Supply power for appliances of DC5V with 2A output

- ◆ LED emergency light: It's used when there is no electricity or outage. Its power is 1W. Do not look steadily at the LED light in order to protect your eyes.
- ◆ DC 24V output end: Supply power for 24V load with max current 20A. And the current range of this port is 20V~29.4V. Please consider to change a wiring for large current.
- ◆ DC input plug: Supply power by charger through this port or by car charger, solar panel and wind driven generator. The standard charging voltage is DC29.4V first charging by constant-current and then by constant-voltage. The biggest voltage is 8A; When you choose to charge through the wide voltage charging module, the range of voltage is 10~40V and the max current is 8A;



3. Technical specification:

NO.	Model	
1	Continuous output power	1000W
2	Peak output power	2000W
3	Output voltage	220V/50HZ AC pure-sine wave DC 12V10A 5V2A 24V20A
4	Battery model	Lithium-ion18650-16P7S(3.7V 2600mAh)
5	Battery capacity	25.9V 41.6AH
6	Working life	70%@1000cycle
7	Charging time	8 ~ 9 H (29.4V5A charger) 5 ~ 6 H (29.4V8Acharger)
8	Charging voltage and current	DC10~40V 8A(wind, solar energy and car charger)
9	Protection	Over-voltage, low-voltage, over temperature, overload ,AC short circuit protection and automatic recovery
10	Working environment	-20°C ~ 60°C
11	LED lighting	LED 1W
12	Heat dispatch methods	Cooling fan
13	Dimension(mm)	345*246*172(L*H*W)
14	Weight(kg)	8.0

4. Environment Conditions:

NO.	Test Item	Parameter	Unit	Remarks
1	Work Temperature	-20 ~ +60	°C	
2	Storage Temperature	-5 ~ +45	°C	
3	Humidity	45% ~ 85%	RH	
4	Cooling method	Air cooling		Heat radiation≥ 45°C
5	Altitude	3000	m	
6	MTBF	≥50000	H	

5. Electrical specification:

5.1 ~ 5.2 Input

NO .	Test Item	Parameter	Unit	Remarks
5.1	AC Input (charger)			
5.1.1	Rated voltage	80V ~ 260V	V	
5.1.2	Rated frequency	50/60±5%	Hz	
5.1.3	Rated current	0.8-1	A	
5.1.4	Converter efficiency	≥86%		Vin=220Vac rated load
5.2	DC Input			
5.2.1	Voltage	10V ~ 40V	V	Wide voltage charging module for option
5.2.2	Current	≤8	A	

5.3 — 5.4 Output

NO .	Test Item	Parameter	Unit	Remarks
5.3	AC Output			
5.3.1	Rated voltage	230±5%	V	
5.3.2	Rated frequency	50±1%	Hz	
5.3.3	Rated power	1000	W	
5.3.4	Harmonic distortion	< 5%		
5.3.5	Converter efficiency	≥92%		
5.4	DC Output			
5.4.1	USB voltage	5	V	
5.4.2	USB current	2	A	
5.4.3	Cigar socket voltage	12	V	
5.4.4	Cigar socket current	10	A	
5.4.5	DC output voltage	24	V	19.6V~29.4V
5.4.6	DC output current	20	A	

5.5 ~ 5.6 Protection Instructions

NO .	Test Item	Parameter	Unit	Remarks
5.5.1	Overcharge, overall, overload, over temperature and short-circuit protection of lithium battery			
5.5.2	Over voltage (battery)	4.2 V	V	
5.5.3	Low voltage (battery)	< 2.8V	V	
5.5.4	Over temperature	Inverter cooling ≥ 65°C	A	Lock-up; No output until temperature is decreased
5.5.5	Over load	1200	W	Lock-up; No output,until disconnected
5.5.6	Output short circuit	—	W	Locked,no output,until disconnected
Remarks	5.5.3 5.5.4 5.5.5 During protection, AC switch should be turned off. open again, DC output will be opened when the switch is turned on again.。			
5.6	DC Output			
5.6.1	USB over current	2.2± 10%	A	
5.6.2	Cigar lighter over current	11± 10%	A	
5.6.3	Dc output connect over current	-	A	Connect output of battery with max current 50A

6. Operation instructions and precautions::

In order to ensure the safety , the battery is not full of power or in the low power state during the transportation. Please charge the device when you use it first time.

Please use the original charger provided by the manufacturer or use the solar panel of max 8A current;。

During charging, LED indicator will flash continuously and will stop flashing when the power volume is 100% charged.(standard output of AC charger is 29.4V5A; DC connector is

XT-30)

During charging, please use 18-36V solar panel to charge for MT210S. But the max current is 8A. To enhance the charging efficiency, we suggest you charge by 36V solar panel with power lower than 300W and open-circuit voltage lower than 40V.

In order to ensure the charge safety, please use the original charger provided by the manufacturer. When the device is full charged, the charger will stop working automatically with LED indicator turning red to green.

Notes: To enhance the charging efficiency or shorten the charger time, we suggest you use larger power charger (max. 29.4V 8A) and we suggest you to charge without any load.

6.1 How to use 220V50Hz AC power

is with 220V pure-sine wave AC output , 1000W rated power, 220V50Hz. Please not the following points before using it.

- 1 、 The input voltage and frequency of appliances should be same with that of MT210S
- 2 、 Please ensure the rated power is lower than 1000W power of the device;

* The appliance will be damaged once above needs are not met.

* Please choose another portable power pack with higher power once the power of appliances is higher than 1000W

Remarks: Since the consumed power of some appliances is greater than its rated power on power-on, the overload protection will occur and power output will turnoff. For example, the general starting current for inductive load equipment is up to 6~8 times of its rated power. And its starting power for energy saving lamp is up to dozens of times of its rated power; Their starting power is much more than the instant maximum power that the power pack can bear, so the load protection works automatically. MT210S is featured with overload protection, short-circuit protection, over-temperature protection, over voltage protection and so on.

3、 will stop to work to protect the device once following conditions occur.

- ①、 When external load exceed the rated power load
- ②、 AC output or load circuit
- ③、 Internal temperature of the device is too high.
- ④、 Voltage of internal battery is too low

6.2 How to operate:

Step 1: Press the **battery display button** once to check remaining power capacity.



Step 2: Check the working voltage and frequency of the load.

Step 3: Check the load power and ensure it's not more than the rated power of the device.

Step 4: Plug AC load into to MT210S and turn on the load switch



Step 5: Turn off AC output after using it

Step 6: In order to use directly next time, pls charge it on time if the power use up or it's low battery.

(**Note:** 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.)

6.3 How to charge the battery:

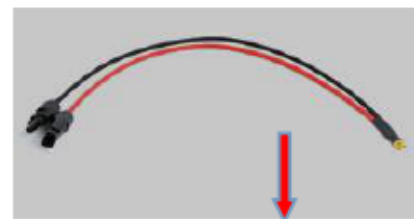
Power of **P-IN G230** is 1000W with battery capacity of 25.9V41.6AH ; It can be charged by the following three ways at present.



①



②



③ (optional)

① Standard common cable from our company: The device is charged by connection charging port to the socket with 220V city power.

② Standard car charging cable from our company: the device is charged by connecting the cigar socket to the charging port. And it will start to charge when you start the car engine.

(must choose the wide voltage charging module)

③ Charge by solar panel: connect one end of the cable to the solar panel, and the other end to charging port(must choose the wide voltage charging module, or choose solar panel with 36V power.

Notes:

1. Only suitable for matched power device and avoid rain.
2. Please pay attention to the connection on '+' and '-' pole and no reversed connection when using car charger or solar charger.
3. Suggest to charge by 36V solar panel for solar charging since there is a built-in MPPT module with much higher efficiency in the device.
4. Please charge the device every 6 months to avoid power consumption due to be idle for long.

6.4 How to use DC 24V:

DC 24V is long output voltage whose voltage range is 19.6V~29.4V and biggest working current is 20A. And one end of the default setting of charger is EC5, the other is immersion Tin cable of 5mm without plug.

6.5 How to use 12V and 5V DC connectors



=> 12V DC cigar socket with 10A rated power and 11A over-current; Please make sure if the port can pass large current when you use it to prevent over-temperature and device damaged.



=> DC 5V dual USB ports: current for single USB is 2A, no switch for DC output; 12V and 5V connectors can be used once you press the energy display button. DC 12V and DC 5V are on-load and the device is in standby mode once you turn off all switchers. Please press the 'battery indicator' switch to use the 12V and 5V current again.

6.6 How to use LED emergency light



=> Press LED switcher twice to turn on or turn off the emergency light whose power is 1W and continuous working time is 500H.

6.7 How to use the cascade function of the power

During power supply, if the load should be used in a row, the power from main power supply should be input all the time. The cascade function can be realized through the following two ways at this time:

1. To charge main power supply by connecting the secondary power supply through AC charger. But it needs to ensure the power of load is smaller than charging power, or main power supply will be lack of power and stop to work. The disadvantage of this way is low efficiency, since the effective output power of secondary power supply is only about 60%.
2. To charge the main power supply by connecting the cascade cable to 24V output end of the secondary power supply(taking advantage of the wide voltage charging of the main power supply).The cascade power is up to 200W, accounting to 98% efficiency. But it also need to ensure load power is smaller that charging power.