

## **I-P-SPC Series LowFrequency Solar Power [Inverter with Built-in Solar ChargeController](#) 500W**



### **Component**

- 1)Highquality low frequency [pure sine wave inverter](#)(with utility charge function and UPS function)
- 2)Built-in PWM[solar power charge controller](#)

### **Application**

- 1)Off-grid solar power system
- 2) Utility and solar complementary power generation system

### **Features**

- 1) Easy to install. To configure a solarsystem, users just need to connect it with solar panels and batteries.
- 2)CPU management,Intelligent control,modulardesign
- 3)LEDs LCD display. LCD can display variousparameters(such as the output voltage, frequency, working mode)
- 4)Multifunction design, AVR UPS function.Users don't need to buy solar, controller, AC charger or stabilizer.
- 5) Externalbattery connection, it's convenient for users to expand use time and back-uppower time
- 6)With super load-carrying ability and highload capacity, this series of inverterscan not only drive resistance load; but also various kinds of inductive loads suchas motor, air conditioner, electric drills, fluorescent lamp, gas lamp. It candrive almost any kinds of load
- 7)Low frequency pure sine wave circuitdesign, stable quality, easy to maintenance, low failure rate and long servicelife (under proper operation, it can last at least 5 years)
- 8) Perfect protection: low voltageprotection, high voltage protection, over temperature protection, short-circuitprotection, overload protection

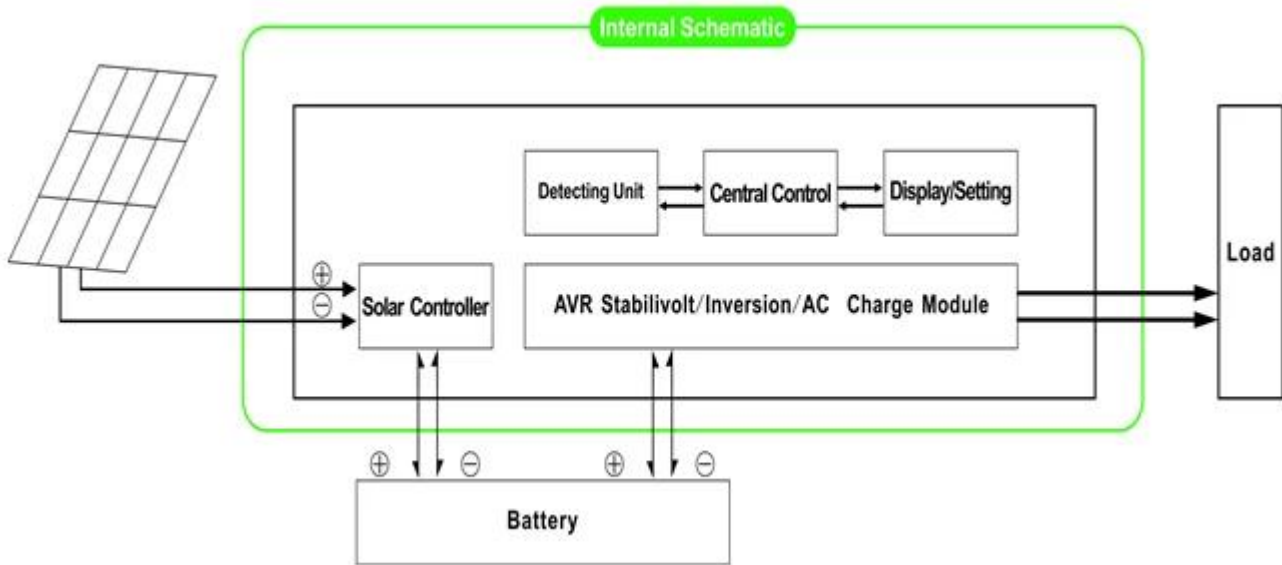
9) [CE / EMC / LVD/ RoHS /FCC](#) approvals

10) 2 years warranty, life-long technical support

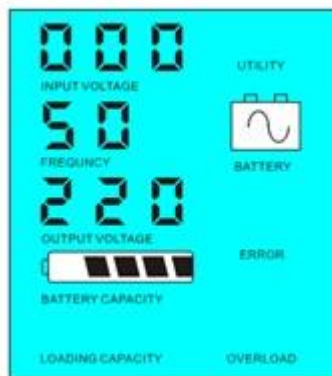
## Function

### Off-grid solar power system

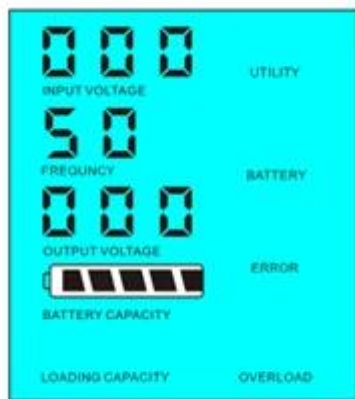
1. When connected with battery and AC loads, users can set it to normal working mode or sleep mode.



1.1 Normal working mode□FREQUENCY in the LCD display is set to 01. No matter it's connected AC loads or not, the inverter always convert DC to AC. It's ready to supply power to the AC loads. In this mode, the LCD will display output voltage as below:



1.2 Sleep mode□FREQUENCY in the LCD display is set as 02. If the power of the connected AC loads is lower than 5% of the inverter's rated power, there will be no output from the inverter. Only the chip of inverter is working. The power consumption of the inverter is only 1-6W. The LCD shows the output voltage 0. If the power of the connected loads is over 5%, then the inverter will automatically convert DC to AC to supply power for the loads within 5s. The LCD shows the output voltage. As shown below:



Load's power < 5% of inverter's rated power

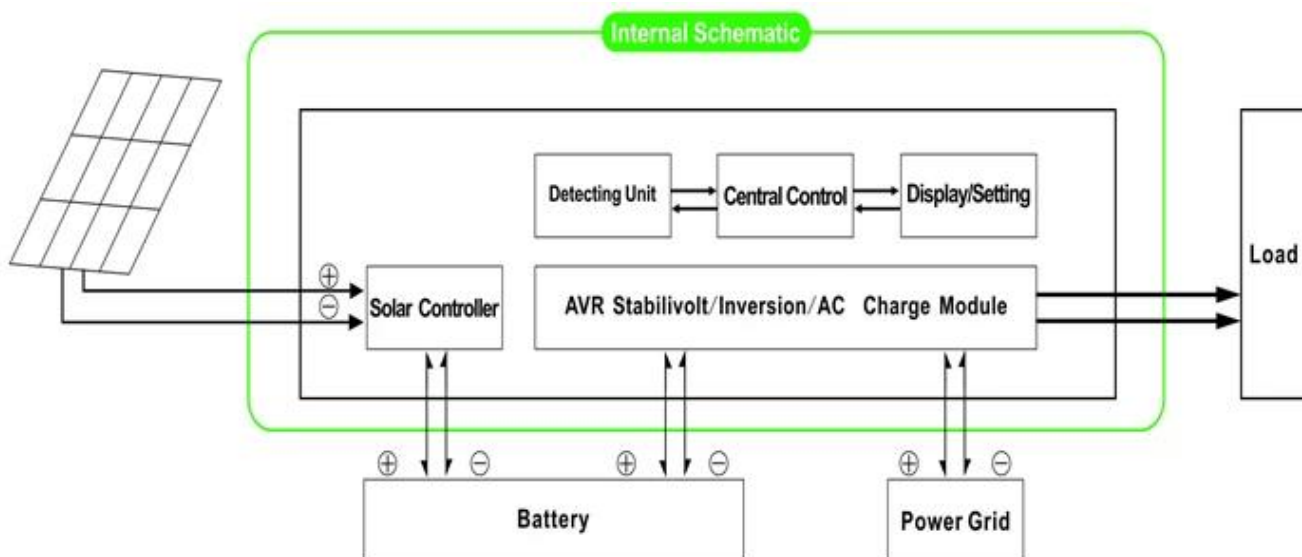


Load's power > 5% of inverter's rated power

Kindly note:

- 1) Only the solar panel charges the battery
- 2) Off-grid solar power system. It is suitable for areas that are lack of utility or plentiful solar

### Utility and solar complementary power generation system



2. UPS function When the inverter is connected to battery and utility, users can set it to utility first (AC first) battery standby mode or battery first (DC first) utility standby mode.

2.1. Utility first (AC first) battery standby mode : FREQUENCY in the LCD display is set to 01. When utility and battery are connected to the inverter, utility will supply power to the loads prior. When utility is cut off, the battery will automatically continue to supply power via power inverter.

Steps are as follows:

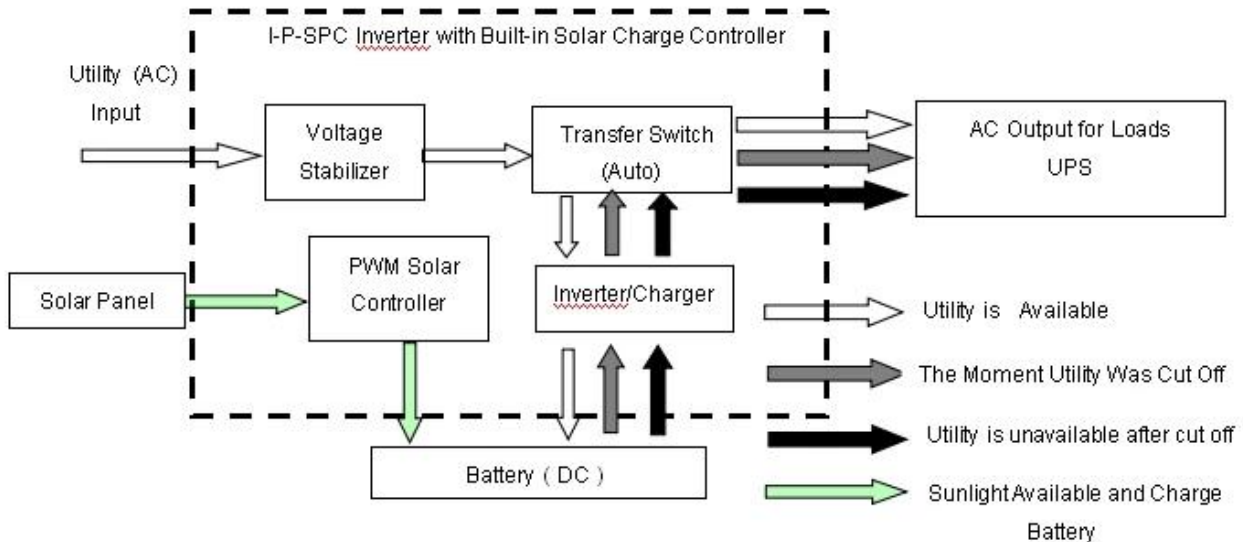
Step1: When utility is available, it will drive the loads directly after voltage being stabilized and at the same time charge batteries via power inverter .

Step2: When utility is cut off, the inverter will convert DC to AC automatically to ensure

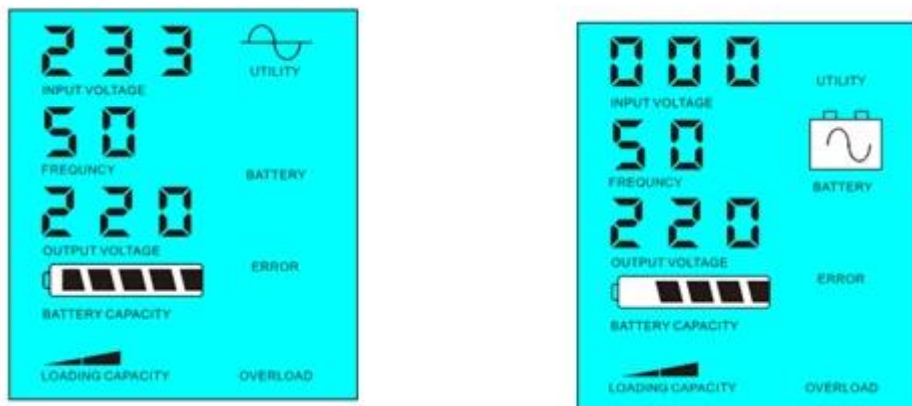
uninterrupted power supply within 5ms.

Step3: When utility is available again, inverter will automatically transfer toutility supplying power to loads and charge batteries via power inverter at thesame time.

See Workflowas below.



LCDdisplayed as bellow:



charge battery                      Without utility and battery supply power

Kindly note:

- 1) There are 2 ways to charge the battery, utility and solar panel
- 2) This system is suitable for power systems built in areas that are lack of utility. Or people can use solar and utility at the same time.

2.2. Battery first (DC first) utility standby mode: FREQUENCY in the LCD display is set as 03. When utility and battery are connected to the inverter, battery will supply power to the loads prior to utility. When battery capacity is not enough, utility will continue to supply power automatically.

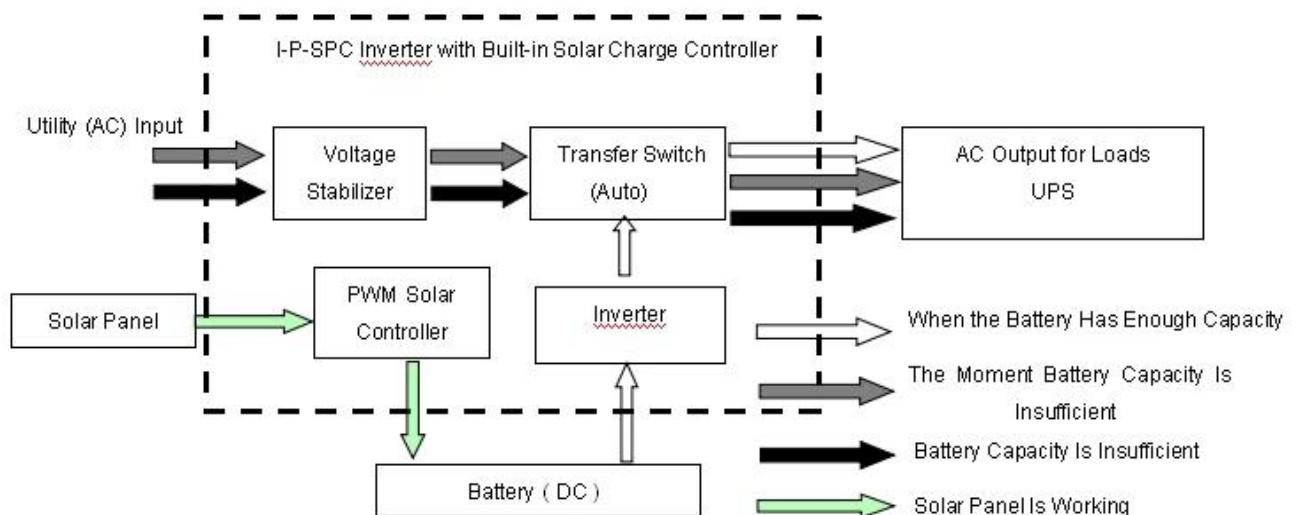
Steps are as follows:

Step1: When battery is available, it will drive the AC loads via power inverter.

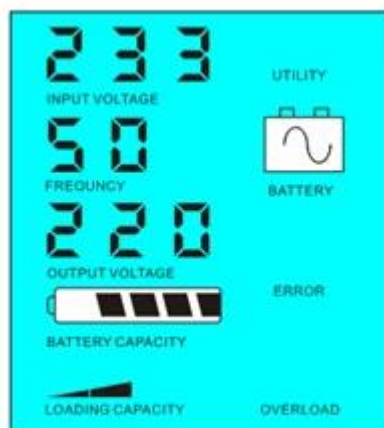
Step2: When battery does not have enough power, it will automatically transfer to utility supplying power to the loads

Step3: After the battery is fully charged (e.g. by solar or wind charge controller), it will automatically transfer to battery supplying power to the loads via power inverter.

See Workflow as below.



LCD displayed as bellow:



power Battery available to supply power  
Battery unavailable, utility supply power

Kindly note:

1) There is only one way to charge the battery: solar panel

2) This system is suitable for areas where electricity is expensive or environmental areas where solar power can be fully used to save utility bill, such as home solar & wind system, street light solar & wind system

## Parameter

Mode		700VA
Rated Output Capacity		500W
Peak Power		1000W
Battery Voltage(DC)		12V or 24V
PWM Solar Controller	Voltage	12V or 24V
	Current	20A
	PV Max Input	12V System □25V
	Voltage	24V System □50V
Size W×D×H(mm)		335*165*375
Packing Size W×D×H(mm)		355*185*395
Net Weight (kg)		8
Gross Weight (kg)		9
General Parameter		
Working Mode (Setting)	1	Utility first (AC first) battery standby mode
	2	Sleep Mode, no utility, load's power is over 5% of rated output power, Inverter start to work automatically
	3	Battery first (DC first) utility standby mode
AC Input	Voltage	220V±35% or 110V±35% □Optional □
	Frequency	50Hz±3% or 60Hz±3% □Optional □
AC Output	Voltage	220V±3% or 230V±3 or 240V±3% or 100V±3% or 110V±3% (Optional)
	Frequency	50Hz±0.5 or 60Hz±0.5 (Optional)
Utility charge	AC Charge Current	0~15A
	Charge Time	Depend on battery capacity and quantity
	Battery Protection	Automatic detection, Charge and discharge protection □Intelligent Management
PV Charge		Total Current of PV Input Should Be Less Than Rated Current of PWM solar controller
Display	Display Mode	LCD+LED
	Display Information	Input voltage □output voltage □output frequency □battery capacity □Load condition □Status Information
Output Wave Type		Pure sine wave output, Total Harmonic Distortion THD≤3
Overload Ability		□120% 1 min □□130% 10s
Power Consumption	Sleep Mode	1~6W
	Normal Mode	1~3A
Conversion Efficiency		80%~90%
Transfer Time		□5ms □AC to DC / DC to AC □
Protection		Overload output □short-circuit □high-voltage input □low-voltage input □overheat
Environment	Temperature	-10℃□50℃
	Humidity	10%□90%
	Altitude	≤4000m



The above is our standard parameter. Subject to change without prior notice.

We have our own professional inverter and controller R&D team and we provide technical support and OEM ODM service

The controller information above is our company's standard parameter. It can be changed to other PWM solar charge controller.

Connection Diagram



Others

Please see the outline of the design, technical documents, user manuals, product brochures, etc. Research and development department made 1<sup>st</sup> edition on May 5, 2014