

# Hybrid off-grid inverter 3KW built-in MPPT charging controller

## Introduction

[Pure sine wave inverter](#) with built-in [MPPT controller](#) I-P-HPC-Series is a module design. It has the advantages of high conversion efficiency, low power consumption and strong load-carrying ability. With intelligent control, users can set charging mode, (Utility as complementary power) AC first mode or DC first mode, timing inversion mode and timing utility mode, on/off mode. It is one of advanced hybrid inverter & controller in the world.



## Application

1. Off-grid solar power system
2. Solar and utility complementary power system

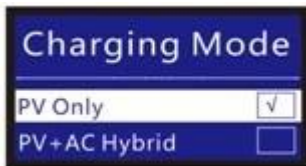


## Feature

1. Easy to install. To configure a solar system, users just need to connect it with solar panels and batteries
2. CPU management, intelligent control, modular design, LCD display
3. Built-in MPPT controller, high charging efficiency
4. Low power consumption, high conversion efficiency
5. Intellectual multi-function, it's convenient for users to make full use of solar energy in different situation
6. External battery connection, it's convenient for users to expand back-up power time
7. Strong load-carrying ability, low failure rate, easy to maintenance and long service life (under proper operation, it can last at least 5 years)
8. Perfect protection: low voltage protection, high voltage protection, over temperature protection, short-circuit protection, overload protection
9. CE / EMC / LVD/ RoHS Approvals
10. Two years warranty, life-long technical support

## Function

1. Charging function
  - 1.1 PV only mode: when PV and utility are both connected to the inverter, only the PV will charge the battery while utility will not charge the battery.
  - 1.2 PV+AC hybrid mode: when PV and utility are both connected to the inverter, both PV and utility will charge the battery.



2. Utility as complementary power UPS function
  - 2.1 AC first, DC standby UPS mode

When utility and battery are connected to the inverter, utility will supply power to the loads preferentially. When utility is cut off, the battery will automatically continue to supply power to the loads.

Steps are as follows:

- Step 1: When utility power is available, it will drive the loads directly after voltage being stabilized and charge batteries at the same time.
- Step 2: When utility power is cut off suddenly, the inverter will convert DC to AC automatically to ensure uninterrupted power supply within 5ms.
- Step 3: When utility power is available again, it will automatically transfer to utility supplying power to loads and charge batteries at the same time.

- 2.2 DC first, AC standby UPS mode:

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:

- Step 1: When battery has enough power, it will drive the loads directly via power inverter
- Step 2: When battery does not have enough power, it will automatically transfer to utility supplying power to the loads
- Step 3: 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.



### 3. Timing function

3.1 On/Off mode: Users can set specific time to turn on/off the output of the inverter.

3.2 Working mode: Battery or utility switchable mode. Users can set specific time when to use battery or utility supplying power (suitable for areas where electric fee is charged differently in different period)



### 4. Recording/checking function

4.1 Inverter fault checking: Users can check the inverter fault information

4.2 Discharge time checking: Users can check the discharge time of the battery

### Parameter

Parameter	Model	1000W	1500W	2000W	3000W	4000W	5000W
Rated Output Power		1000W	1500W	2000W	3000W	4000W	5000W
Peak Power		2000W	3000W	4000W	6000W	8000W	10000W
Battery (Lead-acid battery)		24V	24V/48V(optional)			48V	
Charging Parameter							
Charge Mode[setting]		PV charge PV charge + utility charge					
MPPT Solar Controller	Voltage	24V	24V/48V			48V	
	Current	20A	25A	30A	40A	40A	40A
	Max PV Input Voltage	100V					
	PV Charge Efficiency	95%~99%					
Utility	Max PV Input Power	568W	24V: 710W 48V:1420W		24V: 852W 48V: 1704W	24V:1136W 48V: 2272W	2272W
	AC Charge Current	0~15A					
Charge Mode		3-Stage Charging					
<b>Inversion parameter</b>							
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)					
Output wave type		Pure sine wave output, Total Harmonic Distortion THD≤3					
Overload ability		>120% 1 min, >130% 10s					
Power Consumption (under normal working mode)		0.4A	24V: 0.5A 48V: 0.4A	24V: 0.7A 48V: 0.45A	24V: 0.7A 48V: 0.5A	0.6A	0.65A
Power Consumption (under sleep mode)		1-6W					
Inverter Conversion Efficiency		85%~92%					
<b>Utility Mode</b>							
AC Input	Voltage	220V±35% or 110V±35%[optional]					
	Frequency	The same as utility's frequency					
AC Output	Voltage	220V±5% or 110V±5%[optional]					
	Frequency	The same as utility's frequency					
Overload Ability		>120% 1 min, >130% 10s					
<b>AC first or DC first) priority</b>							
UPS Output[setting]		AC first, DC standby DC first, AC standby					
Switch Time		<5ms [AC to DC / DC to AC]					
Power On [Setting]		Set by users Timed on / off AC output automatically					
<b>General Parameter</b>							
Display	Display Mode	LCD+LED					
	Display Information	Input voltage, output voltage, output frequency, battery capacity, load condition, status Information					
Protection		Overload, short-circuit, high-voltage input, low-voltage input, overheat					
Environment	Temperature	-10℃~50℃					
	humidity	10%~90%					
	Altitude	≤4000m					
Size W×D×H(mm)		438*208*413				450*246*468	
Packing Size W×D×H(mm)		520*310*460				540*300*518	
Net Weight (kg)		15	17	19	25	34	35
Gross Weight (kg)		16	18	20	27	40	41

### Pictures





Rs232

B0  
B1  
B2  
B3  
B4  
B5  
B6  
B7  
B8  
B9  
0.1

MONITOR BATTERY VOLTAGE DETECTION

Battery Switch

AC Input Switch

Solar Input

DC Output



Battery input



Input voltage  48VDC  96VDC

AC INPUT N L  $\oplus$   $\oplus$   $\oplus$   $\oplus$   $\oplus$   $\oplus$  AC OUTPUT



⚠ Pay attention to high voltage ⚠