PV On/Off Grid Energy Storage System (ESS)

System Brief Introduction

- Flexible & modularized design, fully meets customized requirements;

- Simplified, quick and user-friendly installation;

- Pre-set expandable design, eases future system expansion;

- Designed with battery parallel function, for future battery capacity upgrade;

- Maintenance free;

Off/On Grid PV inverter

Features

- Wide input voltage range

- Compatible with lithium and lead-acid battery

- Air natural cooling, low noise

- Cabin design, eases installation and operation

- Battery reverse connection protection

- Compatible with anti-countercurrent function

- Full power discharge, charger auto disconnect when battery fully charged

- Household intelligent energy management terminal

- Micro station management

1. Application chart
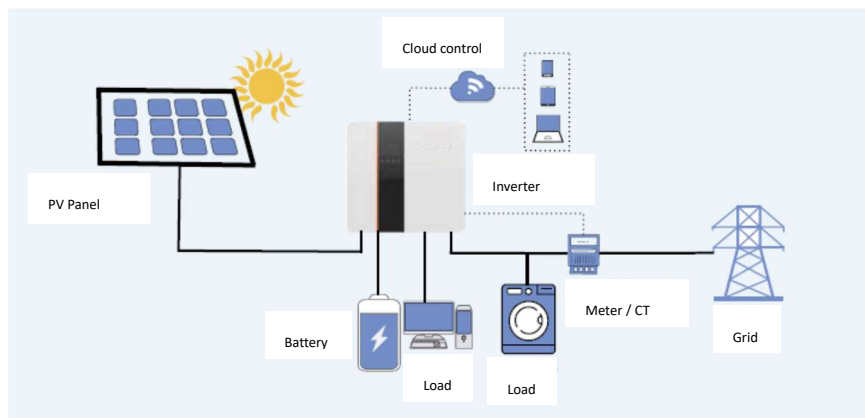
The system is a flexible intelligent hybrid inverter, using solar energy, ac power supply, and battery power supply, to provide continuous power supply. This system is a simple and intelligent solar energy storage system, users can store energy in the battery for use at night, or according to the need to set their own use time. Photovoltaic energy, battery storage energy and power priority can be programmed and set by themselves. At night or during power outages, it automatically uses up the battery's remaining power, reducing its dependence on the city's electricity.

3. Work mode

3.1 With sufficient solar energy, solar energy can simultaneously power the load, charge the storage battery, and integrate the excess power into the grid. When the battery and load are not used, the solar power is all integrated into the grid
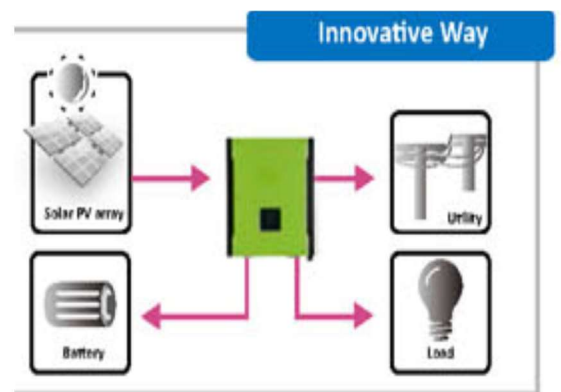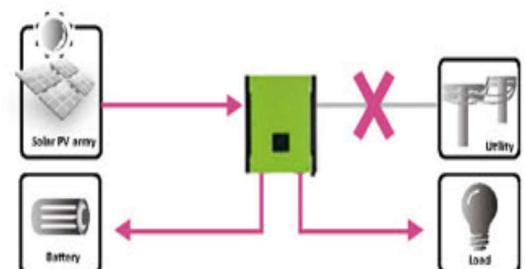

3.2 When photovoltaic power generation is low, the power supply will not work.

The battery powers the load until the battery consumption is very low, and the load uses the city grid.
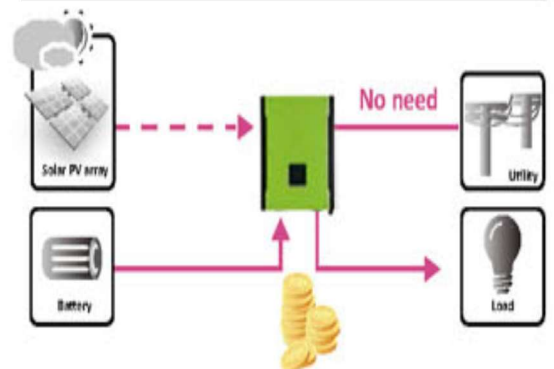
3.3

When there is a long-term shortage of main power or no main power, the system can be used as off-grid inverter to provide continuous power to the load. Mainly solve remote areas or

field ac power applications

4. Technical data

Model	HZ3000-48	HZ4000-48	HZ5000-48	HZ6000-48
Input data PV				
Max. Power W	4600	5600	5600	6000
Startup voltage V	125			
Max. DC voltage V	550			
MPPT working voltage range V	125V~550V			
MPPT rated voltage V	360			
MPPT lines	2			
MPPT Max. Input current A	14A/14A			
Output data （AC）				
Rated output power W	3000	4000	5000	6000
Max. output current A	13	17.4	23	26
Grid voltage/range V	230V/180~280VAC			
Grid frequency	50/60HZ			
Power factor	1（0.8....0.8）			
THDI	<3%			
Grid connection type	L+N+PE			
Battery data				
Voltage range V DC	42~59			
Max. charging voltage VDC	58			
Max. charging current A	75	110	110	110
Communication	RS485、CAN			
Emergency power data				
Rated power W	3000	4000	5000	6000
Rated output voltage V	230			
Rated output current A	13	17.4	23	26
Rated frequency HZ	50			
Auto changeover time ms	<20			
THDU	<2%			
Parallel connection	yes			
Other data				
Battery charge/discharge efficiency	95%			

City grid Max. efficiency	97.6%
MPPT efficiency	99.9%
IP level	IP65
Noise dB	<35
Ambient temp. ℃	-25~+60
Cooling	Air natural
Humidity	0~95% condense free
Altitude	Performance guarantee under 3000 m
Dimension （W*D*H） mm	550*200*515
Weight Kg	25
Standby loss	3W
Display	
Display	LCD
Communication	
RS485/Can	Standard

Lithium battery (LPF)

1. Model：HZLP51.2V100AH
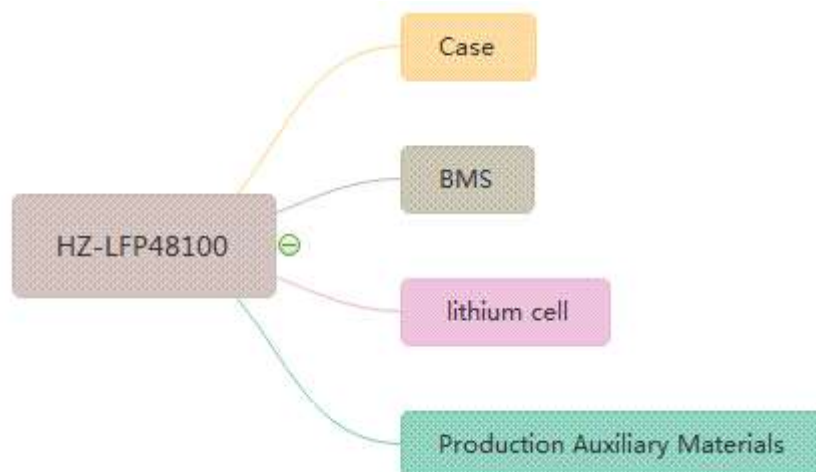
2. BMS data

1) 16 series battery manage system

2) BMS function: controls overall voltage of lithium battery pack, and protection against single cell over voltage, under voltage, charge/discharge over voltage, over temp, under temp and short circuit.

3) Supports high precision monitor of voltage, current and temperature.

4) Supports RS485/CAN communication.

5) Capacity calculation function, real-time display of battery SOC through LCD/LED screen.

6) Charge/discharge on/off function..

7) Standby function, low loss at "no operation" mode.

8) Battery cell balancing function..

9) Supports multiple battery monitoring with software through RS 485&CAN, to alter battery pack data.

10) Support RTC and data storage function, read system operation log through software.

11) Supports intelligent control of heating system.

System data

NO.	Item	Data	Remark
1	Model	HZ-LFP51.2V100Ah	
2	Rated voltage (V)	51.2	
3	Rated capacity (Ah)	100	
4	Rated charging voltage (V)	58.4	
5	Float charging voltage (V)	58.4	
6	Charge/discharge type	Same hub	
7	Max. charging current (A)	100	
8	Max. discharging current (A)	130	
9	Charging off voltage (V)	60	
10	Discharging off voltage (V)	40	
13	Dimension　(W*D*H)	484*500*176	4U
15	Max. charging temp(℃)	55	
16	Min. charging temp (℃)	0	

17	Max. discharging temp (℃)	70	
18	Min. discharging temp (℃)	-20	
19	BMS static current (mA)	≤1	
20	BMS charging limit current (A)	20	
22	Communication	RS-485/CAN	
23	Humidity (%)	0 ~ 90	RH (Non-Condensing)
24	Altitude (m)	0 ~ 3000m**	
26	Weight　(Kg)	46	

Product demonstration

Single pack

Multi-pack installation

Remark：Battery packs can be stacked as below, or expanded as per customer requirement.

System configuration

1. System model selection and configuration procedure

1）Confirm application range of load power, in KW, take 3.6 kW as example.

2）Choose ESS power, at 80% of load power, 3.6KW÷0.8=4.5KW.

3）Configure solar panel, according to the maximum power of the system.

4）Plan battery backup time, according to the average load data. Example: average load 2kW, back up time 5 hrs, battery capacity set to 2 x5 = 10KWh, 2 battery packs.

Installation demonstration

Installation

1. Wall mounted installation for inverter

2. Ground stacking installation for battery packs

3. Flexible solar panel installation according to site condition.