

Function Overview

PV off-grid ESS is a small off grid household energy storage system. It's integrated with solar charge controller, system controller, inverter and lithium ion battery with BMS (Battery Management System), converts the cleaning solar energy to output household power and meets the basic house electricity needs. This system is suitable for energy shortage area or electricity unstable area, supplying cleaning energy or backup power supply; it's also suitable for disaster emergency or non-electrified area, like islet, frontier sentry, etc. The system is reliable, safe and easy to use, and performance stably.

Example of Package (4 PV-modules + one battery):

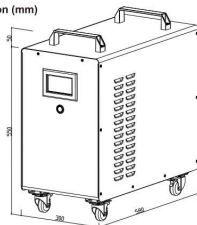
1) Battery (PS4020B) with 4 kWh capacity and the rated output power of 2000 W (3000 W peak for 10 s). Output is AC and with EU-plug, or US/UK.

2) 4 pieces of PV modules, each around 190~200 W.

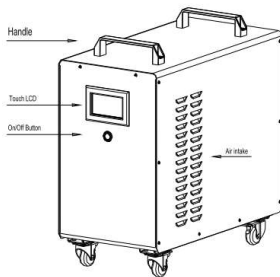
Flexible and lightweight modules are a fast growing niche that allows for new and creative PV applications, such as; membrane roofs, portable power plants, marine installations, vehicle usage, landfill covers or other infrastructure projects. New applications combined with fast and easy installation create new and profitable business opportunities for both PV manufacturers and system integrators.



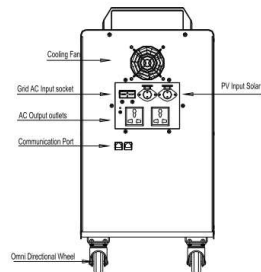
Outer Dimension (mm)



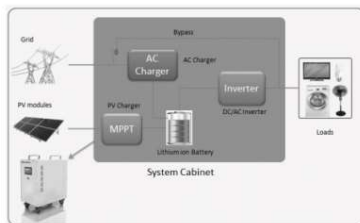
Appearance



P1: Front&Side



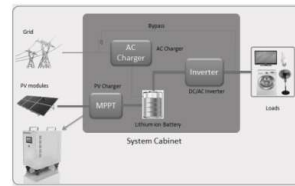
P2: Back



System Sketch

System Energy Distribution

➤ Inverter Output

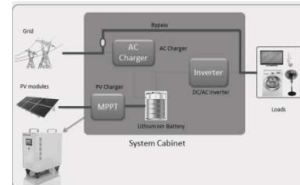


Inverter outputs when battery capacity is sufficient or no mains supply

1) When the solar power exceeds needs of load and the battery is not fully charged, solar energy powers the load and charges battery by redundant energy at the same time.

2) When solar energy is insufficient or no solar energy, battery and solar panels offer energy for inverter simultaneously until battery runs out.

➤ Grid Powers Loads&Solar Charges Battery

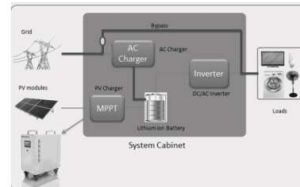


Grid powers loads when it's forced or battery capacity is insufficient.

1) PV modules charge battery until reaches the conditions for inverter switching.

2) When battery is forced to charge, grid and PV modules charge battery simultaneously until it's fully charged.

➤ Grid Powers Loads&No Solar



Grid powers loads when it's forced or battery capacity is insufficient.

1) Battery needs to be charged by grid when its capacity is too low.

2) Grid supplies power first and battery capacity is lower than its set minimum retention percent.

3) When battery is forced to charge, grid charges battery until it's fully charged.



Model	PS3215 B	PS4020 B
Battery Capacity	3.2KWh	4.0KWh
OUTPUT		
Rated Output Power	1500 W	2000 W
Peak Output Power(10s)	2200 W	3000 W
Rated Output Voltage	200Vac-240Vac	200Vac-240Vac
Frequency	50/60Hz	50/60Hz
Power Factor	1	1
THDV	<3%	<3%
Overload Ability	120%<load<130% @10min; 130%<load<145% @10s	120%<load<130% @10min; 130%<load<166% @10s
Quiescent Dissipation(No Load)	<20W	<20W
Maximum Efficiency(>70% Load)	92%	92%
AC CHARGE		
Input Voltage Range	230Vac; 200~264Vac	230Vac; 200~264Vac
Maximum Charge Power	600W	600W
Maximum Efficiency	>92%	>92%
PV CHARGE		
Maximum Input Power	1200W	1500W
Start-up Voltage	75Vdc	75Vdc
MPPT Input Amount	2	2
MPPT Voltage Range	75-140 Vdc	75-140 Vdc
Maximum Input Voltage	150Vdc	150Vdc
MPPT Efficiency	99.50%	99.50%
Maximum Efficiency	>96%	>96%
Solar Charge Controller	MPPT	MPPT
Isc PV	15A	20A
I-Feedback	0A	0A

Model	PS10B-P1	PS10B-P2
Battery Capacity	700Wh 1200Wh 1500Wh	700Wh 1200Wh 1500Wh
Rated Output Power	500VA	
Peak Output	650VA.20s	
Output Voltage	100/110/120Vac	220/230/240Vac
Output Frequency	50Hz/60Hz	
Overload Ability	Load = [101%, 102%] Alarm Load = [103%, 115%] Alarm, shutdown in 60s Load = [116%, 130%] Alarm, shutdown in 20s Load >= 131% Shutdown immediately	
Max Efficiency	90% (>70% load)	
Car Plug Output	DC12V8A	
Input Voltage	100~240Vac	
Power Factor	>0.94(full load)	
Input Frequency	50Hz/60Hz	
Max Charge Power	327W	
Max Input Power	210W	
Start-up Voltage	18Vdc	
MPPT Input Voltage	18~50Vdc	
Max Input Voltage	54Vdc	
Working Condition	Relative Humidity: 5%~90% Temperature: 0~40°C	
Dimension (mm)	L405xW215xH261 (Product) L485xW300xH415 (Packing)	
Weight (Kg)	7.8/10/12 (Net Weight) 10/12/14.2 (Gross weight)	

Due to product improvement, product function and appearance change won't be informed in advance.

BATTERY		
Rated Voltage	51.8Vdc	51.8Vdc
Rated Capacity	61.7Ah	77.2Ah
Battery Type	Li-ion	Li-ion
Maximum Charge Voltage	58.5V	58.5V
Discharge Cut-off Voltage	42.0V	42.0V
Charge Temperature	0°C~45°C	0°C~45°C
Discharge Temperature	-20°C~60°C	-20°C~60°C
GENERAL		
IP Protection	IP21	
Communication	RS485	
Working Conditions	Relative Humidity : 5%~90%	
	Temperature : 0~40°C	
Warranty	5 Years	
Cooling	Fan Cooling	
Dimensions(mm)	580 x 300 x 600 mm (Product Size)	
	657 x 375 x 645 mm (Packing Size)	
Weight(Kg)	47Kg (N.W.)	59Kg (N.W.)
	50Kg (G.W.)	62Kg (G.W.)



		PS10B-P2	PS3215 B	PS4020 B
				
Battery	Capacity	1500 Wh	3200 Wh	4000 Wh
	Output power	500 W	1500 W	2000 W
	Peak power (30s)	650 W	2250 W	3000 W
Solar	Max PV-power	210 W	1200 W	1500 W
	Start-up voltage	18 VDC	75 VDC	75 VDC
	MPPT input voltage	18-50 VDC	75-140 VDC	75-140 VDC
	Max input voltage	50 VDC	150 VDC	150 VDC
	Suitable number of PV-modules			
Load	Scenario 1 - Constant load of 800 W	Won't work!	4h without charging during night	5h without charging during night
	Scenario 2 - Constant load of 500 W	3h without charging during night	6,4h without charging during night	8h without charging during night
	Scenario 3 - Constant load of 300 W	5h without charging during night	10,7h without charging	13,3h without charging