台塑電池
FORMOSA BATTERY

Energy Creation, Storage, and Saving.

HGEMS offers a three-phase integrated energy management solution

We committed the development of energy management system for solar energy and household energy storage cabinets, the application of renewable energy, peak-filling and valley filling from industrialization to ordinary household. In order to improve the efficiency of household energy storage cabinets, design HGEMS (system architecture to improve power efficiency)

(1) Effectively integrate the management mechanism for power generation, storage and energy consumption.
(2) Visualization of energy status and form of electricity bills.
(3) Remote security monitoring and control mechanism.
(4) Emergency disaster prevention and continuous power functionalization.
(5) Intelligent balance high-value electricity price function optimization (Intelligent balance peak / off peck function optimization)

Integrate multiple solar power generation mode

Smart system function with mutable mode selection allow users to set up for different needs or weather, for solar power and storage optimization




Charging in the daytime and discharging in the nighttime, providing emergency power

HGEMS system is equipped with storage function. If the household electricity demand is low during the day, the system will store the electricity, when the electricity demand is high in the nighttime, using surplus electricity could reduce household electricity expenses. When the supply mains is interrupted, the system can take power from the energy storage pack for emergency electricity. If the system is designed for regional applications, the HGEMS can be parallel connected for bigger power demand.

System host and related kits

- Home energy management server
- High-energy backup storage array
- Smart socket and power switch
- DC/AC power distribution panel and cable suite
- Integrated solar power supply

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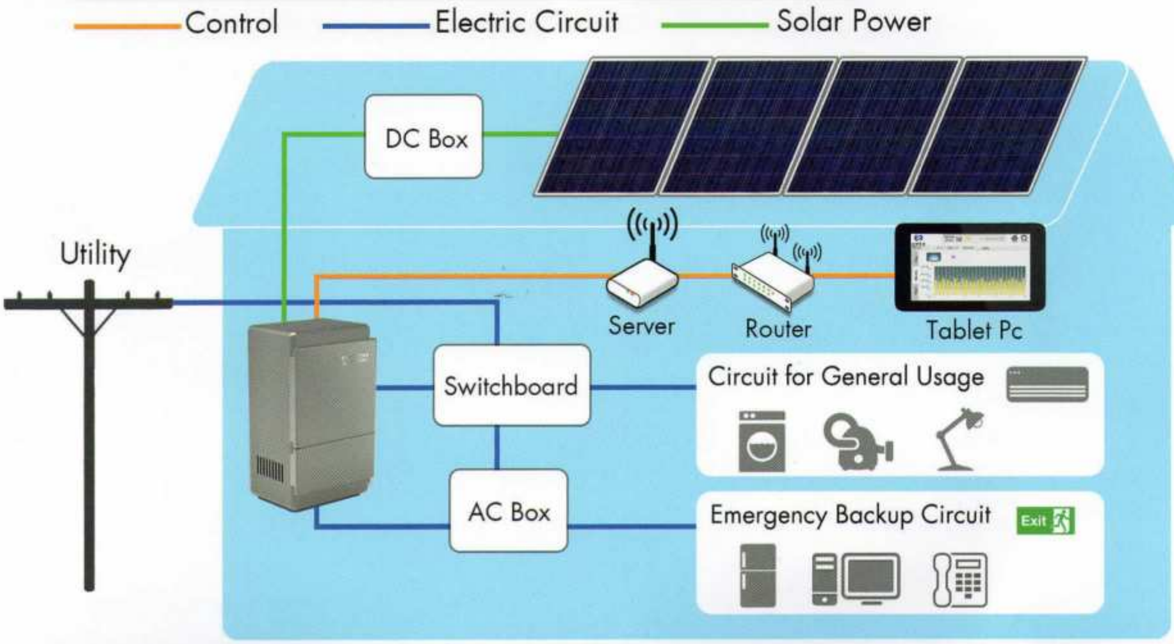
Graphical user interface

Provide users to understand clearly of power generation and power usage status.

The Wi-Fi and power consumption module built into the intelligent power socket of the HGEMS can operate through the wireless switch and transmit the instantaneous power consumption data on each smart socket to the management server. The data database is built in the server to accumulate data of the FPG generator side and the HSPS user side. The user can analyze the data according to the required data, and execute energy saving and power optimization adjustment according to the statistical data.



We can provide modulations and settings for different needs or individual users. Through suggestions of system management, service are designed from the initial concept, with detailed engineering design, construction, remote monitoring services through local or cloud, and sustainable operation and management after construction.

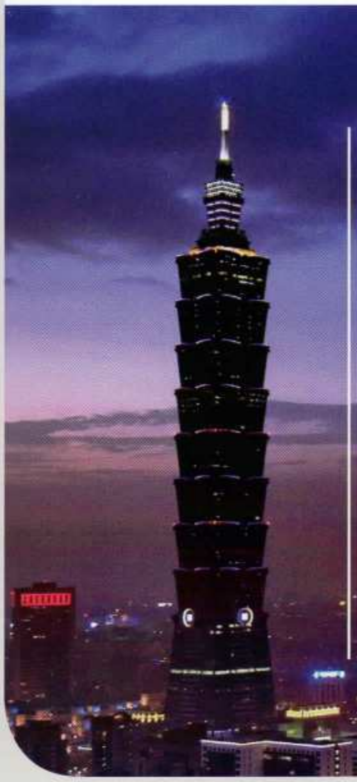
We are looking forward to developing long-term and close business relationships with the same trades who are already involved in the energy industry, and those who are about to invest in the green energy industry. We are also pleasure to share projects of mature and practical applications with you.

Home Green Energy Management System

Have you thought about that you can check the phone bill when find it to be abnormal, but cannot call up the household electricity usage for details?

Whether it is the high energy consumption caused by old or outdated electronic products, lighting fixtures in the household, the electronic leakage caused by the wirings or home appliances, it is extremely dangerous and not cost-effective. With the rise in electricity prices and the international environmental issues, household energy management is particularly important on how to reduce unnecessary electricity usage and use all electronic products more efficiently for the household.

The "Household Green Energy Management System" is a three-in-one energy demand that integrates complex and diverse requirements into the most simple and convenient operation model to enable households to create energy and storage safe energy. High electricity prices and sudden power outages are indeed difficult for every household.



System Management Interface

- Integrate energy creation, energy storage and energy saving, integrating "solar power generation, diversified power storage, energy consumption management", with a whole system pricing and one-time construction fee.
- Reliable energy status and visualization: You can watch real-time power generation and loading data, access historical data, viewing the content according to the usage status, print out a list of reports, and compare the electricity bills.
- Set the power safety management mechanism: When the utility power is interrupted or the power is abnormal, the system will automatically send an emergency notification by using the email and GSM text message.
- Emergency & fire emergency service: When the mains supply is interrupted, the system can automatically provide the long-term backup source power supply and start the mains interruption power load management mode, and extend the power supply time.
- Wise balance high-value electricity price function: set the "off-peak charging, peak discharge" mode, with night-time savings from the peak electricity price and together with solar power supply load demand.

System Communication

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FPG "Integrated Solar Power Supply" is the core of the power generation system. The main unit is equipped with a network communication module. The system can be connected to the network route or external Wi-Fi AP to generate the power, power storage and abnormalities of the solar system, etc. and transmit such information to "Household Energy Management Server".

The HSPS "Smart Socket and Power Switch" has built-in Wi-Fi and unlimited communication module. Each terminal can send the statistics to the "Household Energy Management Server" through the unlimited transmission mode.

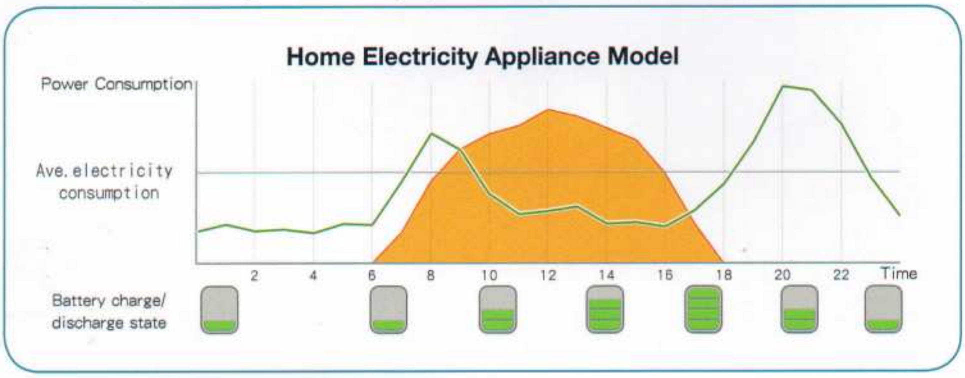
The "Household Energy Management Server" can store the power generation and the status of the solar system, together with the data status from the load-end and upload the data to the cloud database through the internet network or 3G wireless communication in order to provide to the users. Users can link to the database with a remote network or 3G APP to read relevant information.

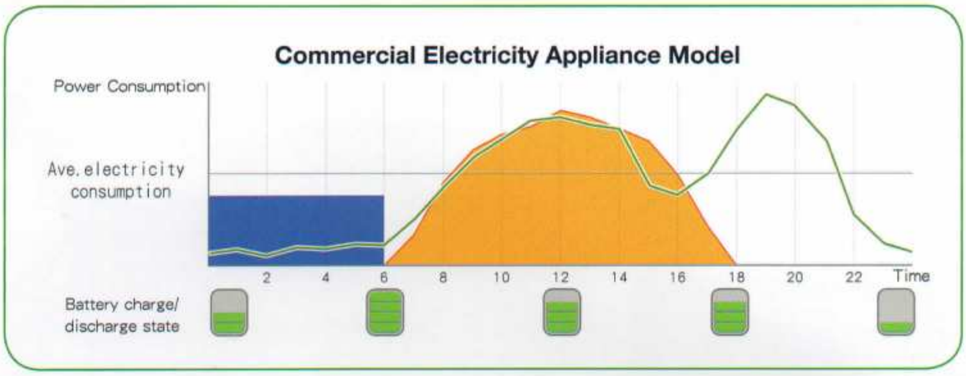
System Management Interface

Enter the main system
FPG solar power generation and storage
Enter system administrator
HSPS smart socket and power switch
System monitoring status

Circumstances 1

Select different solar charging and discharging application modes according to the mode required by the family (or user).





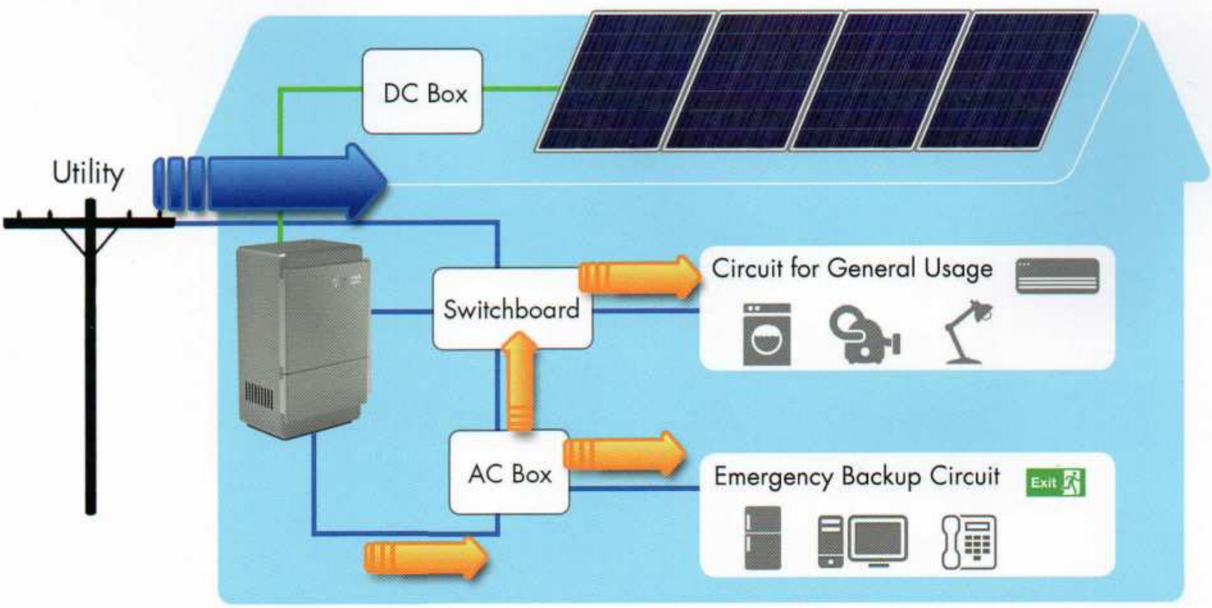
Supply mains recharge at off-peak hours — Actual power usage — Solar Power Generation

Circumstances 2

The typical home solar power system adopts the "Daytime storage, nightime discharge" usage mode and is connect with the home distribution panel, or directly into the home interior to provide home appliances：

1.Install solar power and use with utility power

2.Due to the fixed placement of the storage system, when the mains supply is interrupted, it is not necessary to move out the standby generator to function.



Circumstances 3

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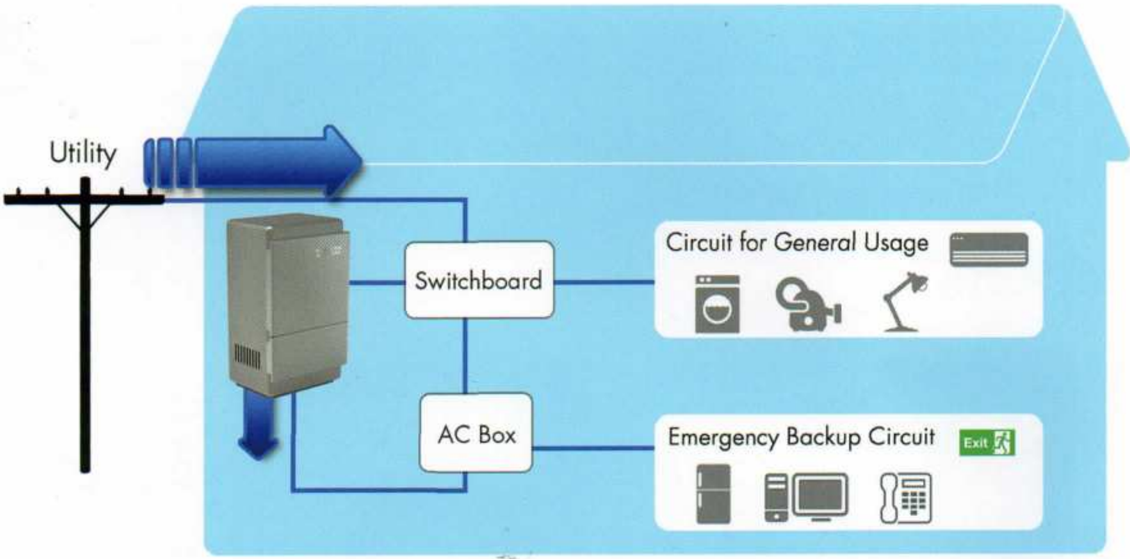
When the system is connected to the mains power, the system will use the differential electricity price policy of the power company to set the economic operation mode of the peak discharge automatically.

1. Built-in intelligent management software, which can flexibly set the most economical mode of system discharge or charging, and play the best power saving function.
2. It can automatically maximize the solar energy efficiency when the maximum solar power generation efficiency, and reduce the electricity cost is the most significant.

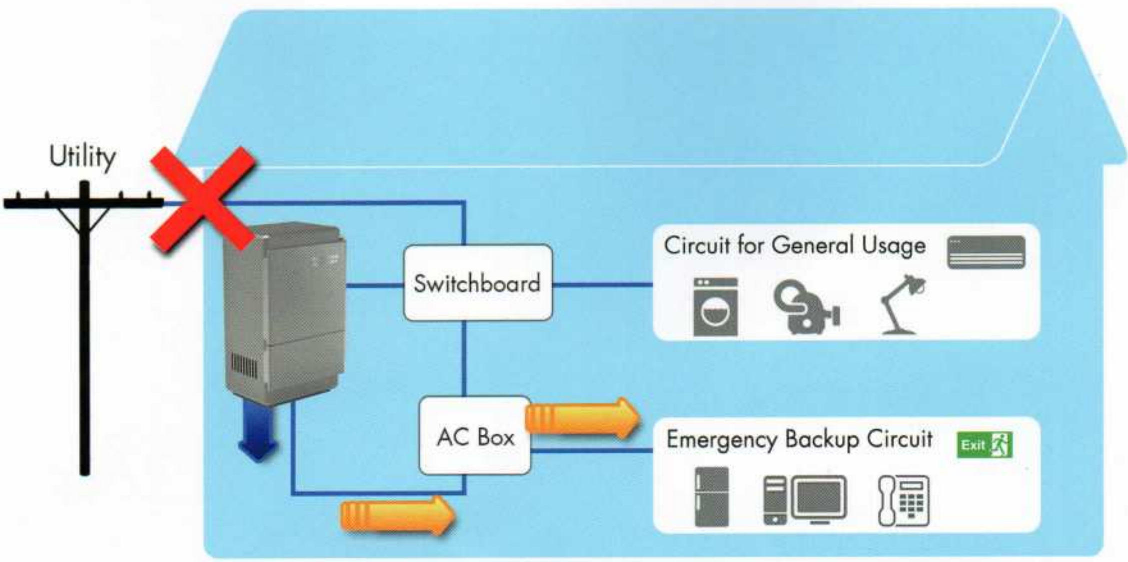


Circumstances 4

When the city power is interrupted, Formosa Lithium-Ion Batteries will quickly provide the selected loads for lighting, security, communications, refrigerators, and air conditioners required for electrical loads, and can be used continuously for up to 12 hours or more.

1.When there is no sunshine and the mains is cut off, it can be used as an uninterruptible power system.
2. When the sunshine is sufficient, the solar energy can be used to charge the Formosa lithium iron battery.

With larger battery capacity, independent operation time can be supported longer, and the energy saving effect of the energy storage cabinet can gain more benefits.

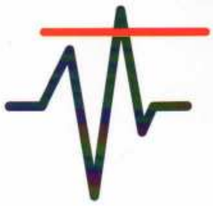


Commercial Energy Storage System

- One 624V 84Ah(52.42kWh) battery cabinet module consist of 13 48V 3U battery in series.
- Integrated inverter with plug-and-play function to reduce construction difficulties.
- Battery modular design, fast and safe installation
- Equipped with a high-performance, high-reliability battery management system with intelligent active balancing to significantly extend battery life
- Remote monitoring function to monitor battery voltage, charge and discharge current, battery temperature, SOC, and abnormal information alarms to ensure optimal operation of the system
- Over ten years of service life and reduced maintenance costs
- Passed IEC62133 safety certification.

Applications

- Energy Arbitrage
- Demand Charge Management
- EV Charging + Storage
- Solar Power+ Storage



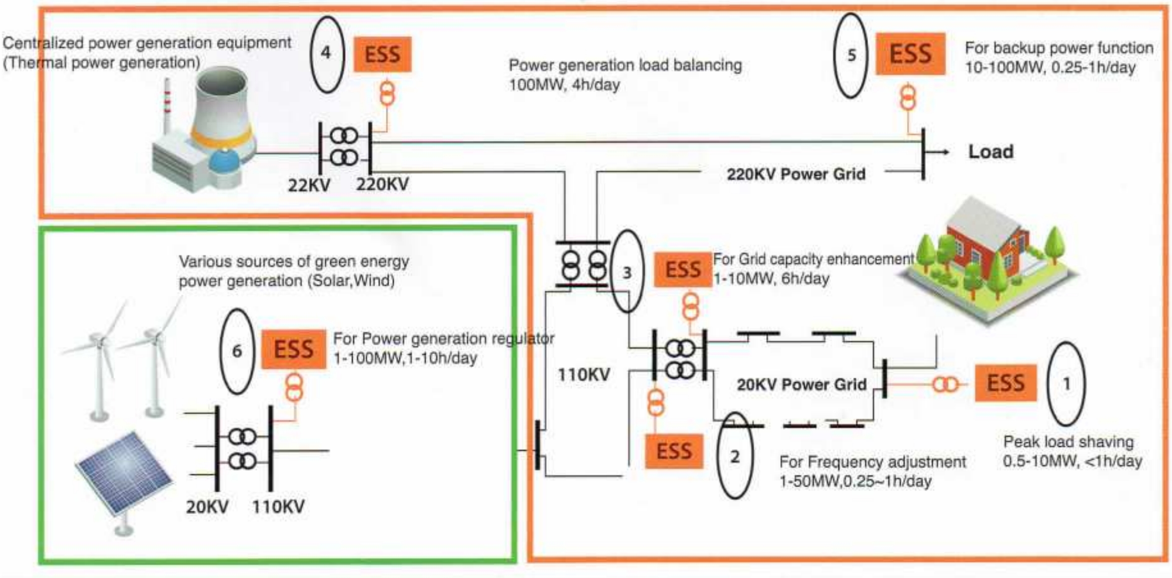
Industrial Energy Storage System

Main Function:

- Load balancing of generator, power generation regulator, peak load shaving
- Stabilizing the output power of the renewable energy
- Grid system frequency stabilizing

1.Peak load shaving 2.Frequency adjustment 3.Grid capacity enhancement

4.Load balancing of generator 5.Backup power 6.Power generation regulator



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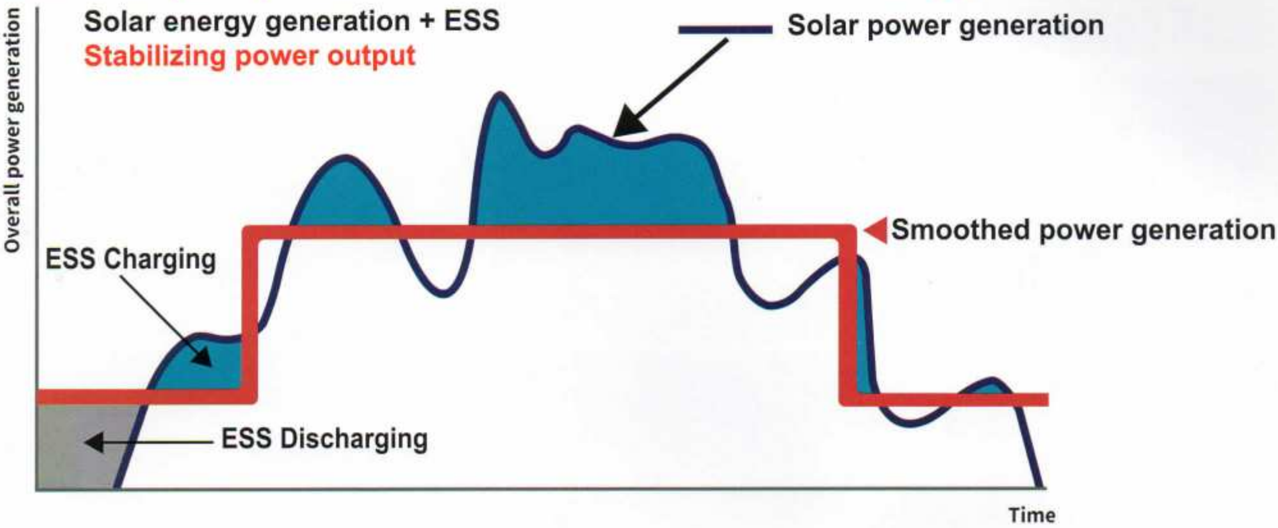
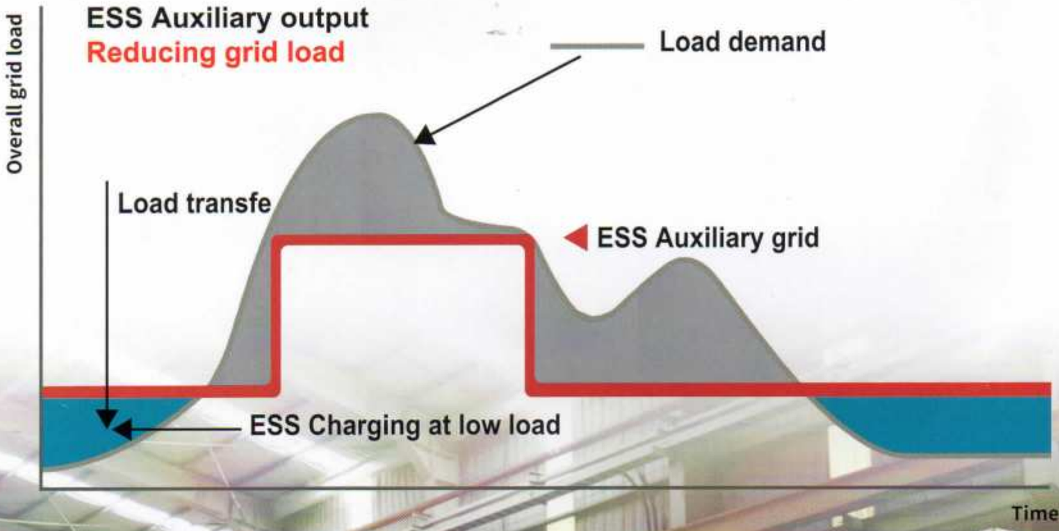
Grid regulation principle –Stabilizing the output power of the renewable energy



Grid regulation principle –Reducing transient grid load



家用儲能系統

鋰鐵電池規格	5KWh (48V 100Ah)	10KWh (48V 200Ah)
交流輸出	220V/110V 60Hz 單相	
輸出功率	7.5kW(最大) 5kW(持續)	15kW(最大) 10kW(持續)
電池充電功率	5kW(最大) 2.5kW(持續)	10kW(最大) 5kW(持續)
運轉模式	併網模式：削峰填谷(尖峰時間供應電源，離峰時間充電) 獨立模式：不與電網連接直接供電	
保護功能	過電壓、過電流、過溫、低電量、漏電偵測、器件故障	
尺寸 (DxWxH)mm	450x600x1000	
總重量(Kg)	約100	約140
操作溫度	-10°C ~ 50°C	
保固	5年	

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Household Energy Storage System

LFPO Battery Capacity	5KWh (48V 100Ah)	10KWh (48V 200Ah)
AC Output	220V/110V 60Hz Single phase	
AC Output Power	7.5kW(Max.) 5kW(Continuous)	15kW(Max.) 10kW(Continuous)
Battery Charge Power	5kW(Max.) 2.5kW(Continuous)	10kW(Max.) 5kW(Continuous)
Running Mode	On-Grid: Peak shaving Off-Grid: Emergency power supply	
Protection Function	Over voltage、Over current、Over temperature、 Low SOC、Leakage detection	
Battery Cabinet Dimensions (DxWxH)mm	450x600x1000	
Total Weight(Kg)	About 100	About 140
Operating Temperature Range	-10°C ~ 50°C	
Warranty	5 years	

商用儲能系統

鋰鐵電池規格	50KWh	100KWh	150KWh	200KWh
交流輸出	380V 60Hz 三相			
輸出功率	100kW(最大) 50kW(持續)	150kW(最大) 100kW(持續)	225kW(最大) 150kW(持續)	300kW(最大) 200kW(持續)
電池充電功率	50kW(最大) 25kW(持續)	100kW(最大) 50kW(持續)	150kW(最大) 75kW(持續)	200kW(最大) 100kW(持續)
運轉模式	併網模式: 削峰填谷(尖峰時間供應電源，離峰時間充電) 獨立模式: 不與電網連接直接供電			
保護功能	過電壓、過電流、過溫、低電量、漏電偵測、器件故障			
電池櫃尺寸 (DxWxH)mm	660x515x2350			
電池櫃數	1	2	3	4
逆變器尺寸 (DxWxH)mm	800x1000x2000			
總重量(Kg)	約1000	約1500	約1900	約2300
操作溫度	-10°C ~ 50°C			
保固	10年			

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Commercial Energy Storage System

LFPO Battery Capacity	50KWh	100KWh	150KWh	200KWh
AC Output	380V 60Hz Three Phase			
AC Output Power	100kW(Max.) 50kW(Continuous)	150kW(Max.) 100kW(Continuous)	225kW(Max.) 150kW(Continuous)	300kW(Max.) 200kW(Continuous)
Battery Charge Power	50kW(Max.) 25kW(Continuous)	100kW(Max.) 50kW(Continuous)	150kW(Max.) 75kW(Continuous)	200kW(Max.) 100kW(Continuous)
Running Mode	On-Grid: Peak shaving Off-Grid: Emergency power supply			
Protection Function	Over voltage、Over current、Over temperature、 Low SOC、Leakage detection			
Battery Cabinet Dimensions (DxWxH)mm	660x515x2350			
Battery Cabinet Amount	1	2	3	4
Inverter Dimensions (DxWxH)mm	800x1000x2000			
Total Weight(Kg)	About 1000	About 1500	About 1900	About 2300
Operating Temperature Range	-10°C ~ 50°C			
Warranty	10 years			

工業用儲能系統

貨櫃種類	20呎	40呎	40呎+10呎
系統容量	500kWh	1.3MWh	2.1MWh
Rack並聯數	10	25	40
電池電壓	624V		
輸出功率	250kW (瞬間) 125kW (持續)	500kW (瞬間) 250kW (持續)	500kW (瞬間) 250kW (持續)
交流系統	220V/380V/440V 60Hz		
運轉模式	併網模式: 削峰填谷(尖峰時間供應電源，離峰時間充電) 獨立模式: 不與電網連接直接供電		
操作溫度	-10°C～+50°C		
消防系統	溫度偵測、偵煙 藥劑:HFC-227 (七氟丙烷)		
貨櫃尺寸 (L x W x H)	標準20呎貨櫃 6.0 x 2.4 x 2.6 m	超高40呎貨櫃 12.2 x 2.4 x 2.9 m	標準10呎貨櫃 超高40呎貨櫃
總重量	約11噸	約25噸	約32噸
保固	10 年		

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Industrial Energy Storage System

Container Type	20'	40' HQ	40'HQ + 10'
System Capacity	500kWh	1.3MWh	2.1MWh
Battery Rack Amount	10	25	40
Battery Voltage	624V		
Output Power	250kW (Max.) 125kW (continuous)	500kW (Max.) 250kW (continuous)	500kW (Max.) 250kW (continuous)
AC Output	220V/380V/440V 60Hz		
Running Mode	On-Grid: Peak shaving Off-Grid: Emergency power supply		
Operation Temperaturet	-10°C～+50°C		
Fire System	High temperature detection、Smoke detection Fire extinguisher: HFC-227		
Container Dimensions (L x W x H)	20' General Container 6.0 x 2.4 x 2.6 m	40' High Cube 12.2 x 2.4 x 2.9 m	10' General Container 3.0 x 2.4 x 2.6 m 40' High Cube 12.2 x 2.4 x 2.9 m
Total Weight (ton)	About 11	About 25	About 32
Warranty	10 years		

System Structure

FPG "Integrated Solar Power System" is equipped with DC, AC, independent power supply with multi-use features, integrated functions and solar systems into one unit. After the installation of the power storage unit, with "connection", "independent", and "UPS", three-in-one multi-functions operation integrated system.
HSPS "Smart Socket and Power Switch" with built-in micro-electricity detection and Wi-Fi wireless communication module. Unlimited communication can eliminate the trouble of checking the wiring during indoor operating and subsequent maintenance. The communication frequency is transmitted at a standard of 2.4 GHz, it is an infinite transmission technology with high reliability and safe use.

台塑汽車貨運股份有限公司
FORMOSA PLASTICS TRANSPORT CORPORATION