

**YIY**

# **Commercial & Industrial Energy Storage Solutions**

*May energy and ecology be more harmonious*

# YIYEN HOLDING GROUP

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YIYEN HOLDING GROUP is a high-tech company that focuses on researching and manufacturing power electronic technology, integrating design, research and development, manufacturing, sales and service. YIYEN is dedicated to reducing electricity costs, improving electricity efficiency, and providing core power equipment and system solutions for the energy Internet of Things. With electrochemical energy storage and energy efficiency management as its core industry, YIYEN provides energy-saving service for power system, communication system, financial system, education system, medical system, and large industrial and mining enterprises.

Energy storage and energy efficiency management are critical reducing carbon emissions and promoting sustainable development. YIYEN's mission is to help make energy and ecology more harmonious by providing advanced energy storage and power quality solutions which improve efficiency, reduce costs, and promote clean energy. YIYEN will always continue to devote ourselves to the research and development and manufacturing of power electronic technology, and be committed to delivering cutting-edge solutions helping customers meet their energy management goals while contributing to a more sustainable future for all.



**300+**  
Staff



**15+**  
Years Experience



**30000m<sup>2</sup>+**  
Plant Area



**3GWH+ / year**  
Delivered Capacity





**50+**  
R&D Staff



**BMS Platform**  
12V~1500V Voltage Class



**100+**  
Intellectual Properties

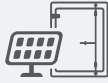


**130+**  
Export Countries

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# Battery Energy Storage Solution



YIXI

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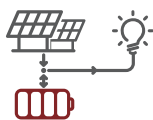


# CLIENT END

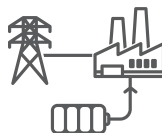


## • Overview

YIY string energy storage system can provide customers with peak-to-valley arbitrage mode and backup power guarantee, as well as dynamic capacity expansion. YIY string energy storage system can be applied to household energy storage, large industrial and commercial, 5G base stations, micro-grids, virtual power plants and other livelihood areas, helping customers to reduce electricity costs, provide emergency protection, and promote green energy to benefit all people.



Self-consumption

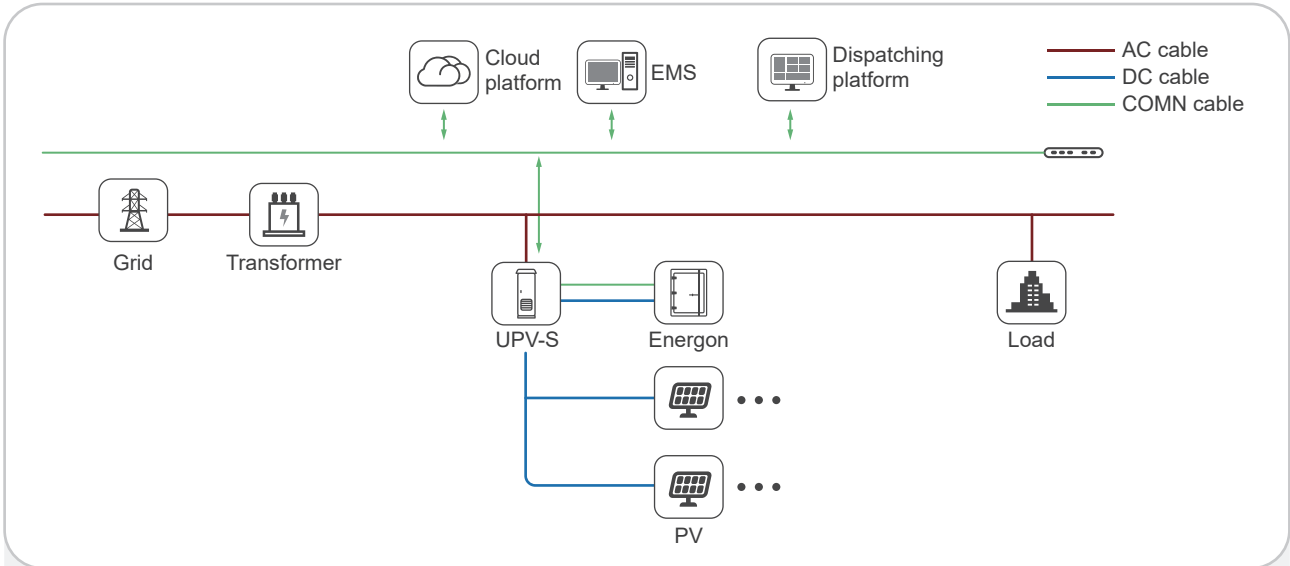


Time-of-use optimisation



Reduce electricity costs

**• Solar Energy Storage**



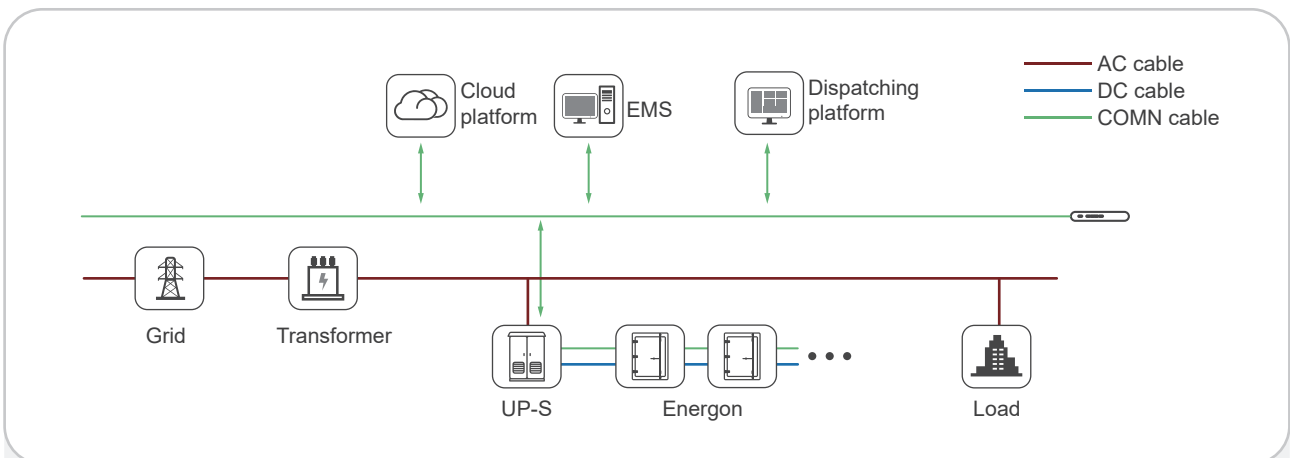
**Applications:**

- Electricity for remote areas
- Residential
- Commercial and industrial electricity
- Electricity for public places

**Recommended products:**

- Option 1:** UPV-S series + Energon
- Option 2:** BESS series (All-in-one solutions)

**• Energy Storage Power Station**



**Applications:**

- Peak shaving
- Load balancing
- Backup power

**Recommended products:**

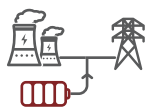
- Option 1:** UP-S series + Energon
- Option 2:** BESS series (All-in-one solutions)

# GENERATION-SIDE END

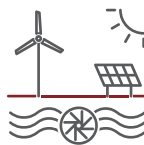


## • Overview

Energy storage plants play an important role on the generation side by providing a buffer between electricity generation and consumption. They allow excess energy to be stored when demand is low and released when demand is high, which can help improve the efficiency and reliability of power generation. It can also help mitigate the impact of intermittent renewable energy sources such as wind and solar. By storing excess energy generated during periods of high production, energy storage power plants can help ensure a consistent supply of electricity when these sources are not producing.



Load shifting



Renewable energy integration

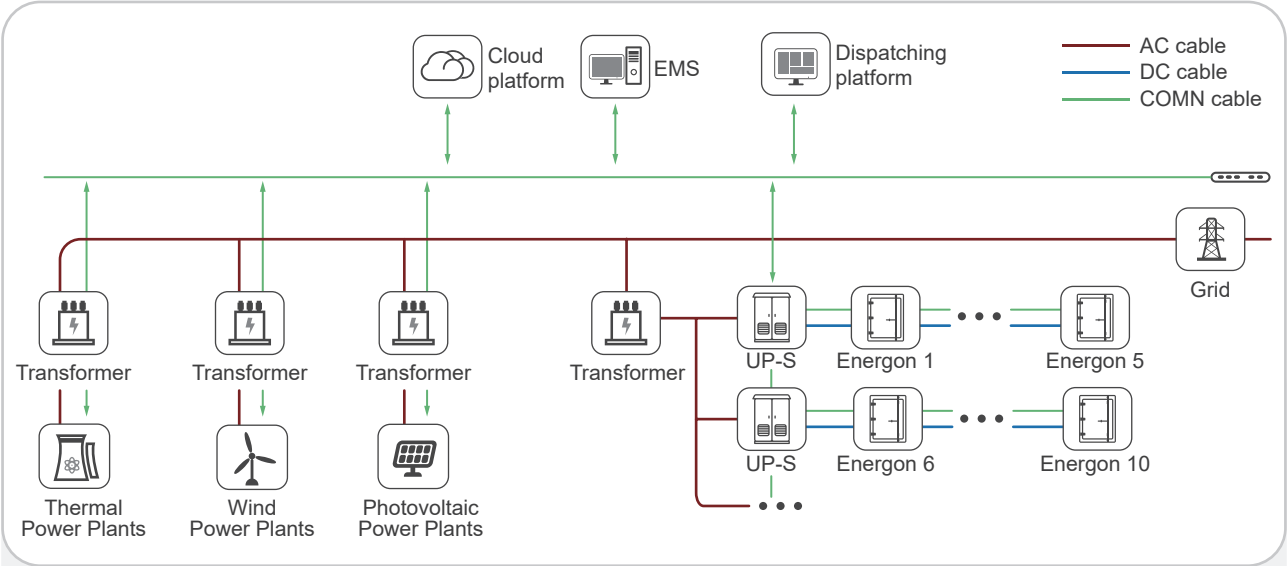


Capacity stability





**• Generation-Side Energy Storage**



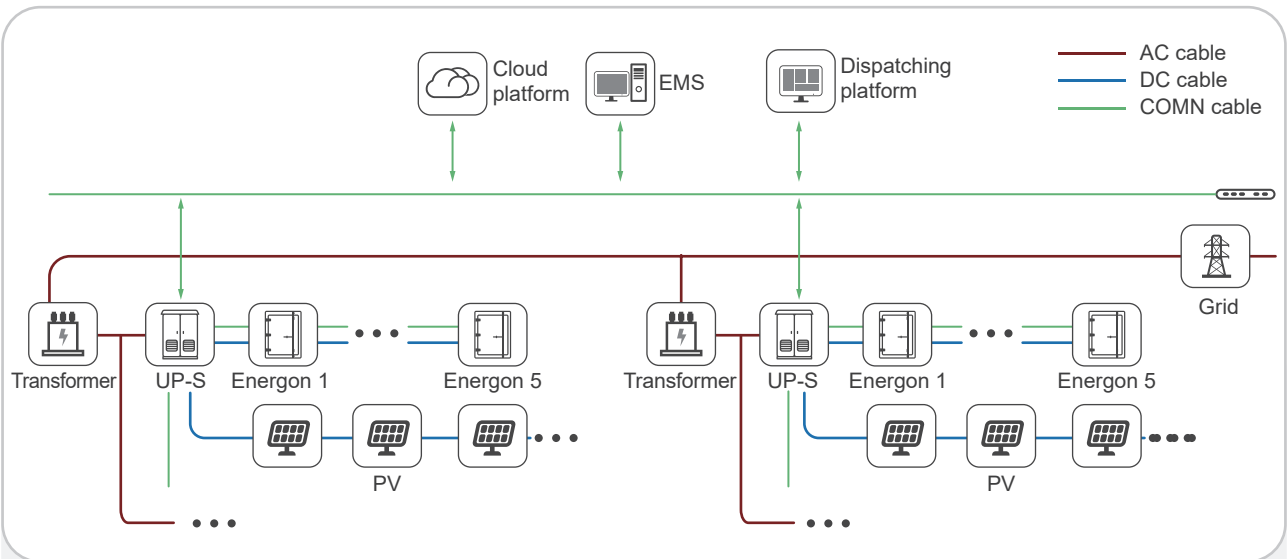
**Applications:**

- Load shifting
- Black start capability
- Renewable energy integration
- Capacity Stability
- Frequency regulation

**Recommended products:**

- UP-S series + Energon

**• Integrated PV Energy Storage Station**



**Applications:**

- Renewable energy integration
- Capacity Stability
- Frequency regulation

**Recommended products:**

- UP-S series + Energon + MPPT

# TRANSMISSION & DISTRIBUTION END



## • Overview

A grid-scale energy storage plant plays a crucial role in improving the reliability and stability of the electricity grid. These power plants store excess energy during periods of low demand and release it during periods of high demand, helping to balance supply and demand on the grid. This can help reduce the need for expensive and less efficient peaking power plants, which are typically used only during periods of high demand.



Peak shaving



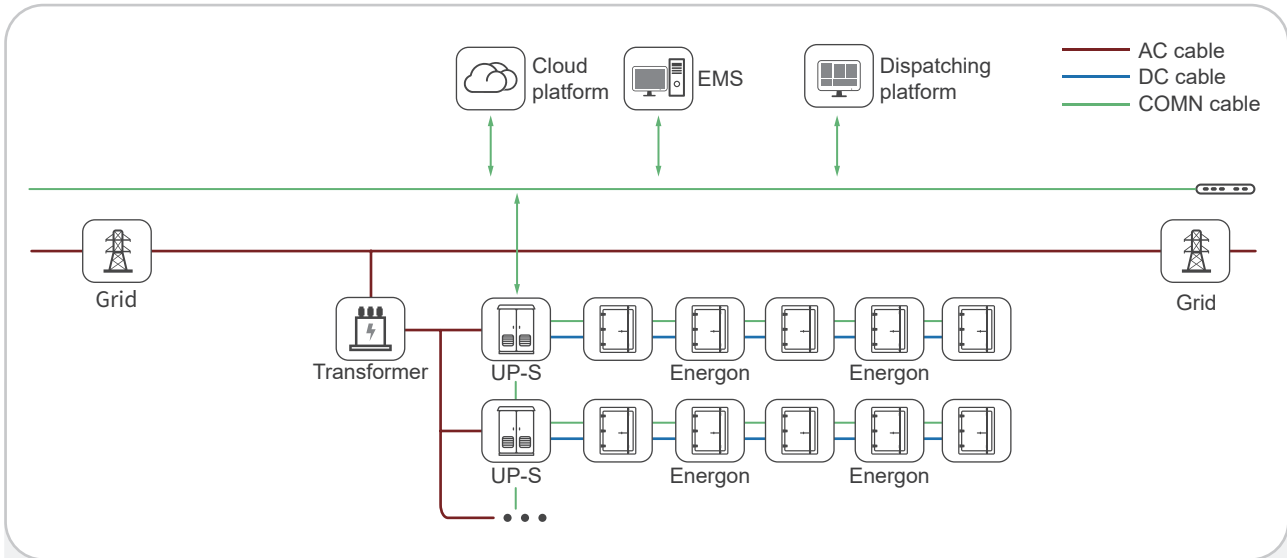
Black start capability



Ancillary services



### • Power Station ESS Solutions



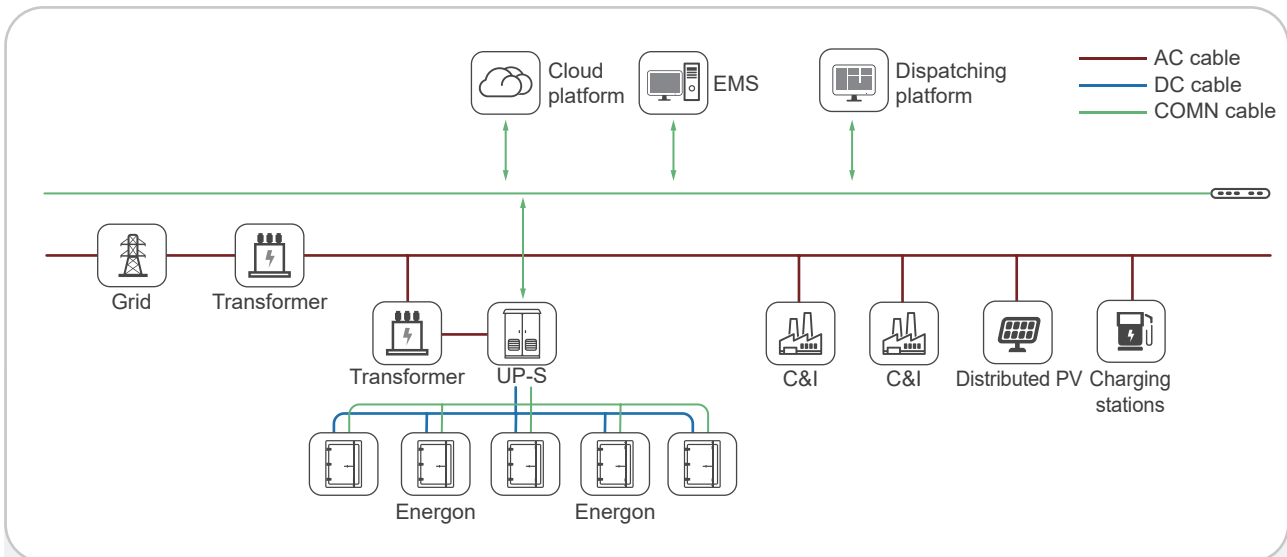
#### Applications:

- Peak shaving
- Frequency regulation
- Black start capability
- Ancillary services

#### Recommended products:

- UP-S series + Energon

### • Grid Station Area ESS Solutions



#### Applications:

- Peak shaving
- Renewable energy integration
- Frequency regulation
- Black start capability
- Ancillary services

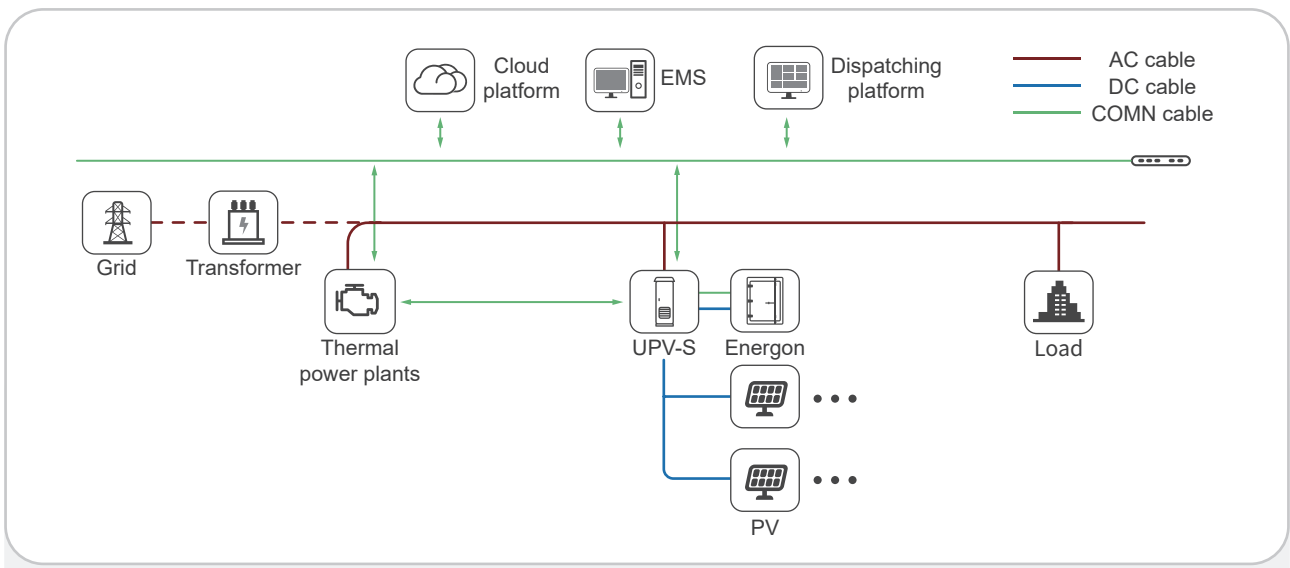
#### Recommended products:

- UP-S series + Energon

# MICROGRID ESS



## • Microgrid ESS



### Applications:

- Remote communities
- Hospitals and emergency services
- Data centers
- Industrial parks

### Recommended products:

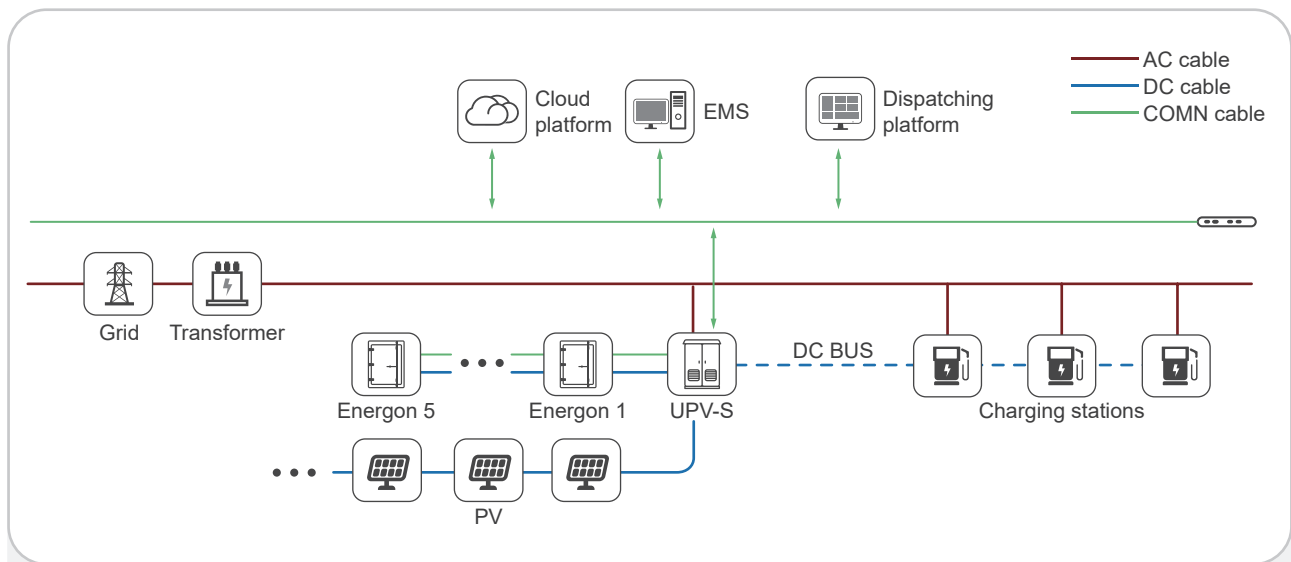
- Option 1:** UPV-S series + Energon
- Option 2:** UP-S series + Energon + MPPT
- Option 3:** BESS series (All-in-one solutions)



# SOLAR ENERGY BESS CHARGING STATION



## • Solar Energy BESS Charging Station



### Applications:

- Providing backup power
- Integrating renewable energy
- Reducing peak demand
- Improving energy sustainability
- Creating microgrids

### Recommended products:

- Option 1: UPV-S series + Energon
- Option 2: UPV-S series + Energon + MPPT
- Option 3: BESS series (All-in-one solutions)

# Demonstrations

- **Generation-Side Energy Storage**

Load shifting    Capacity Stability  
Frequency regulatio

**960KW 2.56MWH**



- **Energy Storage Power Station**

Peak shaving    Load balancing  
Backup power

**120KW 320KWH**



- **Solar Energy BESS Charging Station**

Reducing peak demand

**300KW 645KWH PV60KW**

- **Energy Storage Power Station**

Providing backup power

**60KW 160KWH**

- **Energy Storage Power Station**

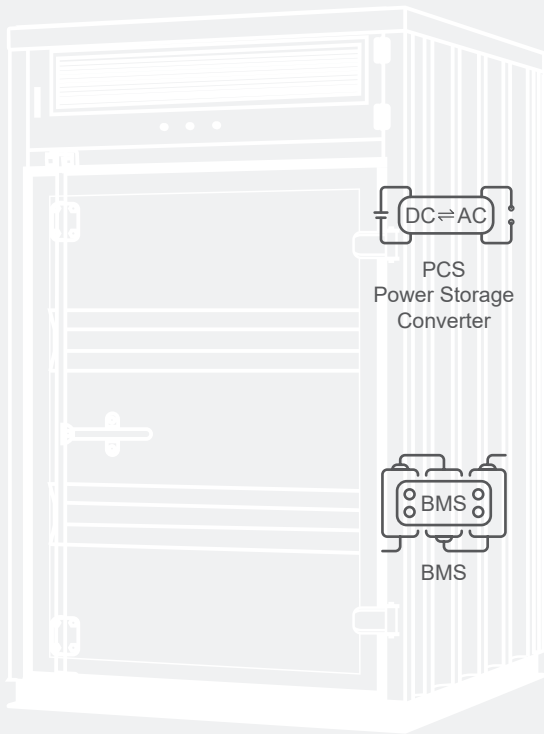
Providing backup power

**880KW 1.5MWH**



# OUR PRODUCTS

<b>BESS</b> Hybrid Commercial and Industrial ESS	11
<b>Energon</b> Outdoor Energy Storage Battery Cabinet	13
<b>UP-S</b> Three Phase Power Conversion System	15
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Battery



Energy Storage System



YIY Cloud Management Platform



EMS

# BESS

## Hybrid Commercial and Industrial ESS



### • Features

- All-in-one design with a high degree of integration.
- Modular design with optional modules of different sizes.
- Support for grid-connected and off-grid operation
- MPPT Solar controller available as an option
- IP54 class fire and explosion-proof housing
- Patented air duct design, intelligent air cooling, 3-5°C temperature difference of the battery core

### • Applications



Self-Consumption



Off grid



Demand Charge



Back Up



DG+BESS



Micro-grid



Smooth output



Peak Shifting



**• Technical Parameter**

<b>BESS Series Hybrid Commercial and Industrial ESS</b>			
Model	100-160(-60)	60-160(-60)	30-80 (-60)
<b>PCS DC specification</b>			
DC voltage range	650~850Vdc		
Max. DC current	158A	100A	48A
<b>AC specification</b>			
AC output power	100KW	62.5KW	30KW
AC rated voltage	400V		
Rated frequency	50Hz/60Hz		
AC rated current	144A	90A	44A
Output THDi	≤3%		
AC PF	-1~+1		
<b>MPPT(Optional)</b>			
PV DC.Max Voltage	1000V		
MPPT Voltage Range	300-800V		
Number of MPPT paths	4		
Number of branch inputs	8		
Max. branch current	13A		
Voltage range	800V		
Rrated current	80A		
Max. output current	104A		
Max. efficiency	>99%		
<b>Battery system</b>			
DC Voltage Range	672~828Vdc		
Cell	3.2V/105AH		
Battery module	51.2Vdc 10.8KWH	51.2Vdc 5.4KWH	
Battery module dimension(W*D*H)	560*850*150mm		560*540*150mm
Battery Module Qty.	15	15	15
<b>General Data</b>			
System highest efficiency	98.50%	97.50%	97.50%
AC connection	3P3W/3P4W		
Cooling	Air conditioning cooling + intelligent air cooling		
Noise Level	70dB		
Temperature Range	-20°C~ 45°C		
Protection Level	IP54		
Max elevation	3000m		
Humidity Range	0 ~ 95% (No condensing)		
Display	7"Color Touch Screen		
Upper Communication Mode	ModBusTCP/IP		
Communication Port	RS485, CAN, Ethernet		
Dimension(W*D*H)	1500*1500*2400mm		1300*1100*2260mm

# Energon

## Outdoor Energy Storage Battery Cabinet



### • Features

- Multi level BMS built-in.
- IP54 fire and explosion proof cabinet.
- Scalable in power and capacity.
- Easy for on site installation.
- Fire proof devices in each modular and in the cabinet.

### • Applications



Self-Consumption



Off grid



Demand Charge



Back Up



DG+BESS



Micro-grid



Smooth output



Peak Shifting

**• Technical Parameter**

<b>Energion Series Outdoor Energy Storage Battery Cabinet</b>	
<b>Battery parameters</b>	
Cell	3.2V 280AH
Battery type	LFP(LiFePO4)
Battery module	51.2V 280AH
Battery module Qty.	15
Battery cluster	768V 280AH
Battery cluster configuration	1P16S*15
<b>Electrical parameter</b>	
Nominal energy	215Kwh
Nominal voltage	768Vdc
System voltage range	672-852VDC
System charge/discharge rate	0.6C
Depth of charge and discharge	100%—10%
No. of cycles	6000
Balanced compensation power	1500W (25A)
Compensation methods	Dynamic real-time compensation
Recommended AC side power	125KW
<b>Protection</b>	
DC input/output	Disconnect switches+fuses
Electrical isolation	Inter - module controlled protection breakout
Fire protection systems	Two-stage aerosol fire module + Smoke sensors + Enclosure explosion - proof pressure relief device
<b>General Data</b>	
Communication	RS485/CAN/LAN/4G
Communication protocols	ModBusTCP/CAN
Working temperature range	-20 ~ 50°C charge/0 ~ 50°C Discharge
Relative humidity	0 ~ 95%(No condensing)
Cooling	Air cooling (air conditioner+fan)
Noise	≤65db
Max elevation	≤2000m
Degree of protection	IP54
Dimension(W*D*H)	1500*1500*2400mm
Weight	3.2T
Installation method	Cabinet floor mounting

# UP-S

## Three Phase Power Conversion System



### • Features

- Maximum efficiency can reach 97.3%.
- Modular design ,easy for installation and depolyemen.
- Bidirectional power conversion system with full fourquadrant operation.
- 62.5kW to 630kW by 1 to 10 power modules.
- Multi-string technology for better battery safety and performance.
- Multiple battery strings working in parallel or independently to allow easy power and energy expansion.
- Grid-support function built-in.
- Optional STS to achieve seamless switching between on-grid and off-grid.

### • Applications



Self-Consumption



Off grid



Demand Charge



Back Up



DG+BESS



Micro-grid



Smooth output



Peak Shifting



**• Technical Parameter**

<b>UP-S Series Power Conversion System</b>						
Model	62.5KW	125KW	250KW	375KW	500KW	630KW
<b>Utility-interactive Mode</b>						
Battery voltage	600~900V					
DC max current	110A	220A	440A	660A	880A	1100A
AC voltage	400V±15%					
Max. AC current	100A	200A	400A	600A	800A	1000A
Nominal power	62.5KW	125KW	250KW	375KW	500KW	630KW
AC frequency	50Hz/60Hz±2.5Hz					
THDi	≤3%					
AC PF	-1~+1					
<b>Stand-alone Mode</b>						
Battery voltage	600~900V					
DC Max Current	110A	220A	440A	660A	880A	1100A
AC output voltage	400V±10%(±10% configurable)					
Max. AC output current	100A	200A	400A	600A	800A	1000A
Nominal AC output power	62.5KW	125KW	250KW	375KW	500KW	630KW
AC max power	68.75KW	137.5KW	275KW	412.5KW	550KW	693KW
Output THDu	< 3 % (Linear load)					
AC frequency	50Hz/60Hz±0.2%					
AC PF	-1~+1					
<b>Other</b>						
Peak efficiency	97.30%					
Protection	Overtemperature protection, AC over/under voltage protection, Over/under frequency protection, Emergency power off, AC phase reverse, Fan/relay failure, Over/under load protection, Ground faultcircuit Interrupter, Anti-islanding					
AC connection	3P4W					
Display	7"color touch screen					
Communication	RS485/CAN/ModBusTCP/IP/CAN/LAN					
Isolation(optional)	Built-in Transformer		Transformer			
Overload Capability	110%: 10min ; 120%: 1min					
<b>Physical</b>						
Cooling	Forced air cooling					
Noise	≤70dB					
Enclosure	IP20/IP54					
Max elevation	3000m/10000ft (>2000m/6500 feet derating)					
Operating ambient temperature	- 20°C~ 50°C ( > 45°C derating)					
Humidity	0 ~ 95%(No condensing)					
Dimension(W*D*H)	850*2400*1600mm			1400*2400*1600mm		

# UP-M

## Power Conversion Module



### • Features

- DSP+CPLD fully digital control core, modular design, easy to maintain and expand.
- Pure sine wave output, low current harmonic content, no pollution and no impact on the grid.
- Dual AC and DC power supply to meet the requirements of black start mode.
- Can be equipped with RS232/RS485, Ethernet and other communication interfaces to achieve remote data acquisition and monitoring.
- Supports EMS local controller for intelligent energy control.
- Bi-directional Power Conversion System.
- Compatible with 19-inch rack for easy integration and installation.
- Optional smart transfer switch for auto-backup.
- Optional STS to achieve seamless switching between on-grid and off-grid.
- Maximum efficiency can reach 97.3%.

### • Applications



Self-Consumption



Off grid



Demand Charge



Back Up



DG+BESS



Micro-grid



Smooth output



Peak Shifting

**• Technical Parameter**

UP-M Series Power Conversion Module			
Model	30KW	62.5KW	100KW
Utility-interactive Mode			
Battery voltage	600~900V		
DC max current	50A	100A	170A
AC voltage	380V±15%		
Max.AC current	100A	200A	400A
Nominal power	30KW	62.5KW	100KW
AC frequency	50Hz/60Hz±2.5Hz		
THDi	≤3%		
AC PF	-1~+1		
Stand-alone Mode			
Battery voltage	650~950V		
DC Max Current	50A	220A	440A
AC output voltage	380V±15%		
Max.AC output current	50A	100A	170A
Nominal AC output power	30KW	62.5KW	100KW
AC max power	33KW	68.75KW	110KW
Output THDu	< 3 %(Linear load)		
AC frequency	50Hz/60Hz±2.5Hz		
AC PF	-1~+1		
Overload Capability	110%: 10min ; 120%: 1min		
Physical			
Cooling	Forced air cooling		
Noise	≤70dB		
Enclosure	IP20		
Max elevation	3000m/10000feet (>2000m/6500feet derating)		
Operating ambient temperature	-20°C~ 50°C ( > 45°C derating)		
Humidity	0 ~ 95%(No condensing)		
Size (W*H*D)	560*230*650mm		
Weight	/	/	/
Other			
Peak efficiency	97.30%		
Protection	Overtemperature protection, AC over/under voltage protection, Over/under frequency protection, Emergency power off, AC phase reverse, Fan/relay failure, Over/under load protection, Ground faultcircuit Interrupter, Anti-islanding		
AC connection	3P4W		
Display	7"color touch screen(optional)(External connection)		
Communication	RS485/CAN/ModBusTCP/IP/CAN/LAN		

# UPV-S

## Three Phase Solar+Storage Hybrid Inverters



### • Features

- High stability, modular design support N+1.
- Bi-directional Power Conversion System.
- Built-in transformer.
- Support self-generation, micro-grid application.
- Supports on/off grid.
- Photovoltaic can be connected to a maximum of twice the capacity of the device.
- Dual-stage topology, wide battery voltage input range.
- With MPPT function to enhance system power generation.
- Self-contained solar storage operation strategy.
- Support communication with BMS, EMS system.

### • Applications



Self-Consumption



Off grid



Demand Charge



Back Up



DG+BESS



Micro-grid



Smooth output



Peak Shifting



**• Technical Parameter**

UPV-S Series Solar+Storage Hybrid Inverters										
Model	0.4-50KW	0.4-100KW	0.4-150KW	0.4-200KW	0.4-250KW	0.5-50KW	0.5-100KW	0.5-150KW	0.5-200KW	0.5-250KW
Stand-alone Mode										
AC output voltage	400V±10%(Controllable)					480V±10%(Controllable)				
AC output current	72A (Max 79A)	144A (Max 159A)	216A (Max 238A)	288A (Max 317A)	360A (Max 396A)	60A(Max 66A)	120A(Max 132A)	180A (Max 196A)	240A (Max 264A)	300A (Max 330A)
Nominal AC output power	50kW	100kW	150kW	200kW	250kW	50kW	100kW	150kW	200kW	250kW
AC Max Power	55kW	110kW	165kW	220kW	275kW	55kW	110kW	165kW	220kW	275kW
Output THDu	≤3%(Linear load)									
AC frequency	50/60Hz					60Hz				
AP PF	0.99/-1~1									
Overload Capability	120% 1min									
Battery voltage range	400~600V (Rated 512V)		600 ~ 900V			400~600V (Rated 512V)		600 ~ 900V		
Battery DC Max Current	120A	240A	275A	367A	458A	120A	240A	275A	367A	458A
PV Voltage Range	520~900V (MPPT 520V~800V)		300~800V			520~900V (MPPT 520V~800V)		300~800V		
PV DC Max Current	192A	384A	360A	480A	600A	192A	384A	360A	480A	600A
Utility grid-interactive Mode										
AC voltage range	400V±15%					480V±15%				
AC rated current	72A	144A	216A	288A	360A	60A	120A	180A	240A	300A
Nominal AC output power	50kW	100kW	150kW	200kW	250kW	50kW	100kW	150kW	200kW	250kW
AC frequency	50Hz / 60Hz±2.5Hz					60Hz±0.2%±2.5Hz				
Output THDI	≤3%									
AP PF	0.99/-1~1									
Battery voltage range	400~600V (Rated 512V)		600 ~ 900V			400~600V (Rated 512V)		600 ~ 900V		
Batter DC Max Current	120A	240A	275A	367A	458A	120A	240A	275A	367A	458A
PV Voltage Range	520~900V (MPPT 520V~800V)		300~800V			520~900V (MPPT 520V~800V)		300~800V		
PV DC. Max Current	192A	384A	360A	480A	600A	192A	384A	360A	480A	600A
Other										
Peak efficiency	≥96%		≥95.5%			≥96%		≥95.5%		
Protection	Overtemperature protection, AC over/under voltage protection, Over/under frequency protection, Emergency power off, AC phase reverse, Fan/relay failure, Over/under load protection, Ground fault/circuit Interrupter, Anti-islanding									
Configurable protection limits	Upper/Lower AC Voltage/Frequency limit, Battery end of discharge voltage.									
AC connection	3P4W									
Display	7"color touch screen									
Communication	RS485,CAN,Ethernet									
Isolation	Built-in Transformer									
Physical										
Cooling	Forced air cooling									
Noise	≤70dB									
Enclosure	IP20/IP54									
Max elevation	3000m/10000 feet (>2000m/6500 feet derating)									
Operating temp	-20°C~ 50°C (>45°C derating)									
Humidity	0~95% (No condensing)									
Size (W*H*D)	800*2200*1050mm		1350*2200*1050mm			800*2200*1050mm		1350*2200*1050mm		
Weight	/	/	1300kg	1650kg	2000kg	/	/	1300kg	1650kg	2000kg

# BD-DC

## Bi-directional DC Controller Module



### • Features

- Modular design for easy maintenance and expansion.
- Supports bi-directional energy flow, fast forward and reverse energy switching.
- Supports local EMS controller for intelligent energy control.
- Output voltage & current accuracy  $\pm 0.5\%$ .
- Efficiency  $\geq 95\%$ .

### • Technical Parameter

Bi-directional DC Controller Module	
High voltage side(DC busbar)	
Rated DC voltage	750V
DC voltage fluctuation coefficient	$\leq 5\%$
Regulated voltage accuracy	$\pm 0.5\%FS$
Regulated current accuracy	$\pm 0.5\%FS$
Efficiency	$\geq 95\%$ (half to full load)
Rated DC current	80A
Rated DC power	60KW
Communication	RS485、CAN
Low voltage side(battery side)	
DC voltage range	200 ~ 680V
Rated DC voltage	600V
Regulated voltage accuracy	$\pm 0.5\%FS$
Regulated current accuracy	$\pm 0.5\%FS$
Ripple coefficient	$\leq 0.5\%$
Rated current	100A <sub>dc</sub>
Rated DC power	60kW
General Data	
Protection Level	IP20
Temperature Range	-20~50°C
Dimension(W*D*H)	500*598*245mm
Humidity Range	0~95% (No condensing)
Cooling	Intelligent air cooling
Noise Level	<65dB
Altitude	< 2000m (>2000m Derating)

# MPPT-M

## Solar Controller Module



### • Features

- Modular design for easy maintenance and expansion.
- Supports multiple inputs, easy and flexible configuration.
- Supports local EMS controller for intelligent energy control.
- Wide PV input range of 300V-800V.
- Efficiency  $\geq 99\%$ .

### • Technical Parameter

Solar Controller Module	
<b>Input</b>	
Max. PV array voltage	1000V
MPPT voltage range	300-800V
Number of MPPT paths	4
Max. number of input strings per MPPT	2
Number of branch inputs	8
Max. branch current	13A
<b>Output</b>	
voltage range	800V (adjustable by the rear inverter)
Rated output current	80A
Max. output current	104A
<b>Protection</b>	
Reverse DC input protection	Yes
DC switches	Yes
Group string detection	Yes
Surge-protection	Class II (lightning protector)
Over-temperature protection	Yes (automatic derating)
Over-current protection	Yes
Over-voltage protection	Yes
<b>General Data</b>	
Max. efficiency	>99%
Power supply method	Self-powered
Cooling	Intelligent air cooling
Protection Level	IP20
Humidity Range	0~95%(No condensing)
Operating ambient temperature	-20~50°C
Storage ambient temperature	-25°C ~+70°C
Communication	RS485、CAN
Dimension(W*D*H)	500*568*155mm
DC input electronics type	MC4 (quick plug)
Inlet and outlet line methods	Rear in/out (with communication interface)

# YIY

Energy Storage System  
&  
Power Quality System Provider

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