EleQtra Energy

Commercial & Industrial
Energy Storage Solutions

EleQtra Energy Brings Light to the World!

ELEQTRA ENERGY (PTY) LTD

ELEQTRA ENERGY (PTY) LTD is a comprehensive energy solutions provider. Provide comprehensive energy storage system solutions for all applications. Provide professional power energy solutions for education systems, telecommunications, power systems, transportation, government agencies, banking security, scientific research, medical institutions, military, and large industrial and mining enterprises. Eleqtra Energy originated in China and is now rooted on the African continent. We collaborate with ambitious young people in Africa to promote world leading solar energy storage technology to the continent. Green energy will illuminate Africa, create partnerships, and create value!

Numbers Speak For Themselves!

120+	Long-Term Partner
100+	Countries and regions
200+	Product Category
15Y	Time in the industry

Qualification Certification

CONTENTS

APPLICATIONS

Client End

Generation End

Transmission & Distribution End

PRODUCTS

CONTENTS

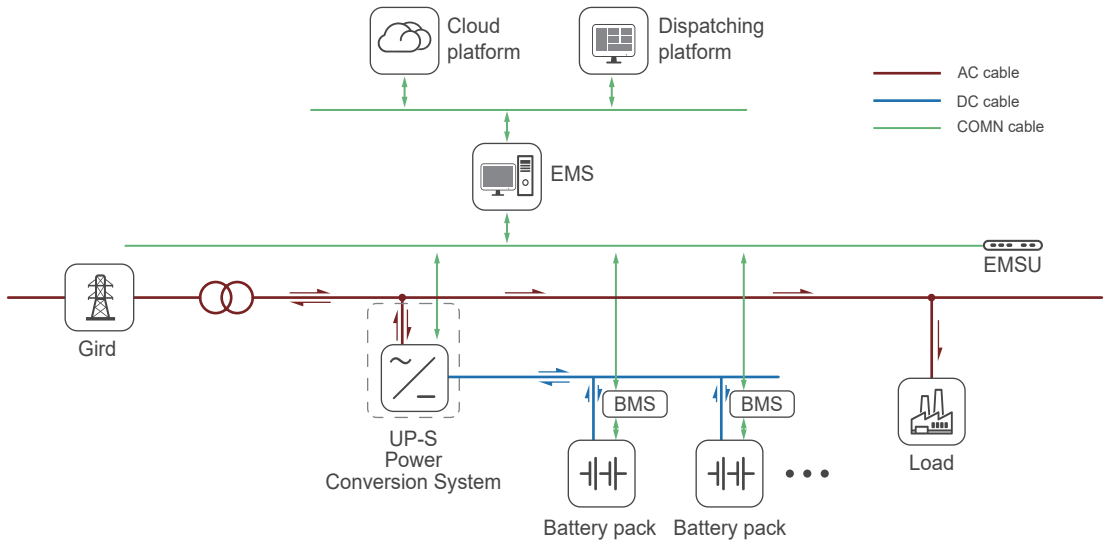
Grid-Side Energy Storage System

* Grid-connection * Islanding protection only * No PV

• Overview

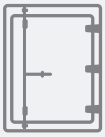
Grid-Side Energy Storage System features bidirectional charging and discharging capabilities, enabling efficient energy release during peak demand periods (such as midday and evening peaks) and energy storage during off-peak times (like late night or early morning). This peak shaving and load leveling mechanism not only enhances grid stability but also reduces users' electricity costs. The system supports intelligent dispatch, allowing real-time response to grid commands and participation in energy market transactions, ensuring timely power delivery during peak demand and enhancing grid flexibility and reliability. With a discharge rate of up to 1C, the system can release its full rated capacity within one hour, maximizing revenue from energy trading. Additionally, the system supports AC coupling with renewable energy sources (such as solar and wind), effectively integrating distributed energy resources and improving overall system efficiency. Intelligent algorithms optimize charging and discharging strategies to adapt to different electricity prices and market demands, making the system suitable for various scenarios, including residential, commercial, and industrial applications, while supporting more efficient energy management and sustainable development goals.

• System Topology

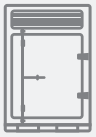


Applicable Equipment:

UP-S Series
Power Conversion System

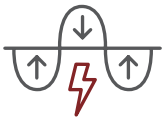


Energon Series Outdoor
Energy Storage Battery Cabinet

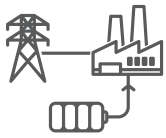


BESS 60-80 Hybrid
Commercial and Industrial ESS

• Applications



Peak shaving



Power scheduling

Renewable
energy integration

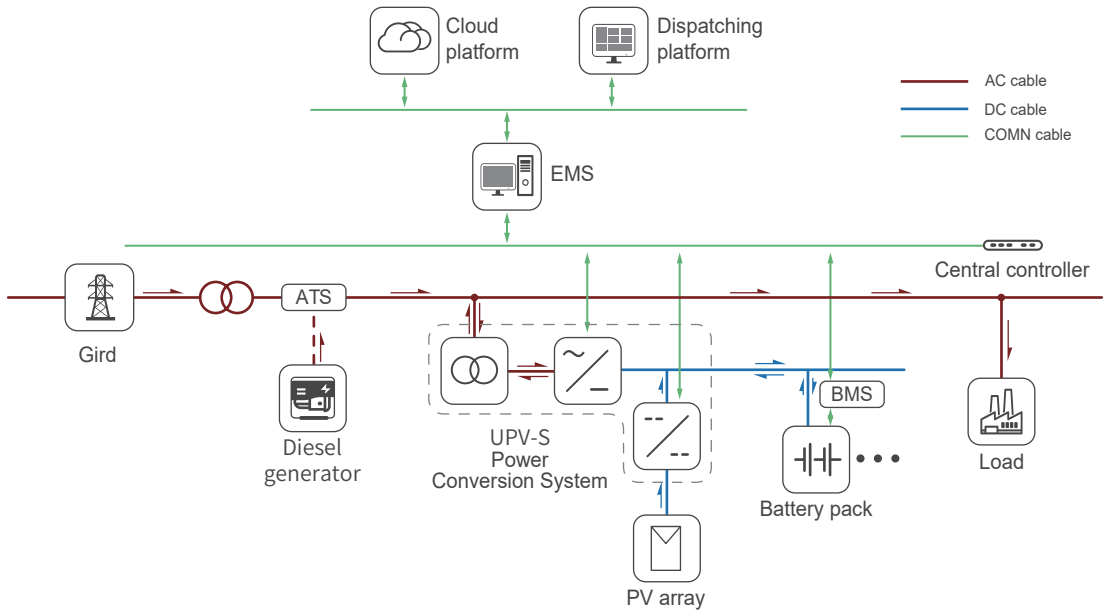
On/Off-Grid PV Energy Storage System

* Grid-connected PV+energy storage * Islanding protection only * Backflow prevention

• Overview

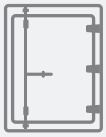
On/Off-Grid Integrated Solar and Storage System integrates photovoltaic generation with energy storage, building on the functions of the grid-side energy storage system while adding an off-grid mode to ensure reliable backup power during grid outages. The system can seamlessly integrate with multiple energy sources (such as wind and diesel generators), achieving multi-energy complementarity and enhancing system flexibility and reliability. Through an intelligent Energy Management System (EMS), the system can monitor and optimize energy utilization in real-time, intelligently dispatching the charging and discharging strategies of the energy storage units based on power demand and renewable energy generation. The system also features high reliability and weather resistance, capable of operating efficiently in various environmental conditions (such as extreme temperatures, humidity, and wind speeds). This flexibility makes it highly suitable for diverse applications, including remote areas, emergency backup, and renewable energy integration.

• System Topology



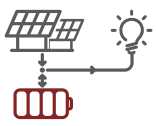
Applicable Equipment:

UPV-S Series
Solar+Storage Hybrid Inverters



Energon Series Outdoor
Energy Storage Battery Cabinet

• Applications



Self-consumption

Micro-grid

Back Up

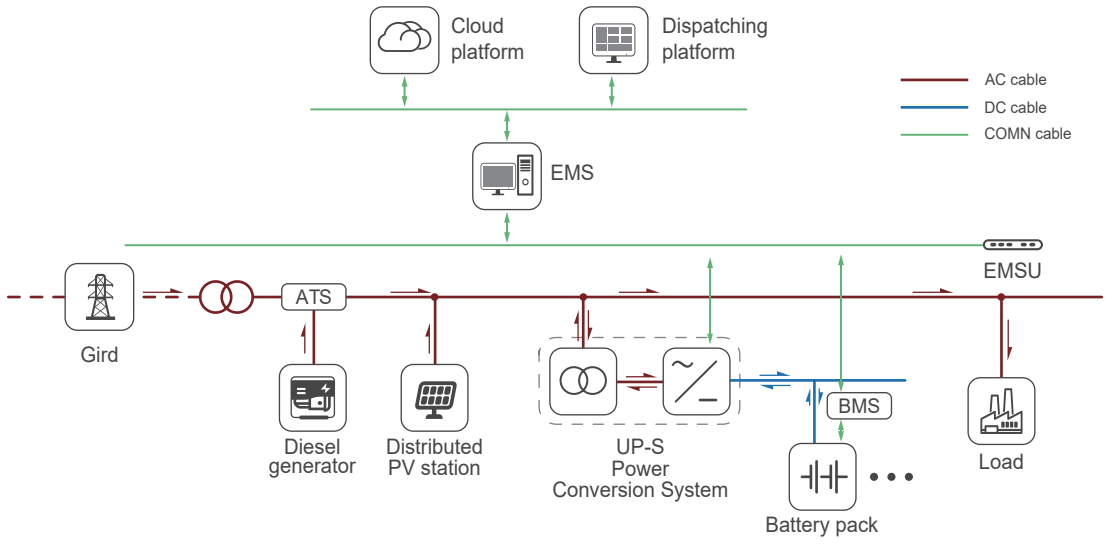
Microgrid Energy Storage System

* On&off-grid * Off-grid independent Operation (ATS)

• Overview

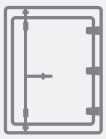
A microgrid typically comprises a photovoltaic (PV) system (or wind power and other renewable energy generation devices), an energy storage system (such as lithium or lead-acid batteries), an Energy Management System (EMS), load management equipment, and necessary distribution infrastructure. A diesel generator can also be included as an auxiliary power source to ensure electricity supply during extreme weather or emergencies. The microgrid operates by having the EMS monitor real-time generation and load demand, intelligently dispatching power distribution. If generation exceeds demand, the excess electricity is stored in the energy storage system for later use; conversely, when generation is insufficient, the energy storage system releases power to meet demand. This flexible dispatch capability enables the microgrid to efficiently utilize renewable energy, reducing reliance on traditional fossil fuels. Microgrids are commonly used in remote areas, islands, campuses, hospitals, and industrial parks, where traditional grid infrastructure is costly or unreliable. Microgrids provide a flexible and reliable solution, enhancing energy security, reducing operational costs, and promoting sustainable development through self-sufficient power supply.

• System Topology



Applicable Equipment:

UP-S Series
Power Conversion System



Energon Series Outdoor
Energy Storage Battery Cabinet

• Applications

Back Up

Micro-grid

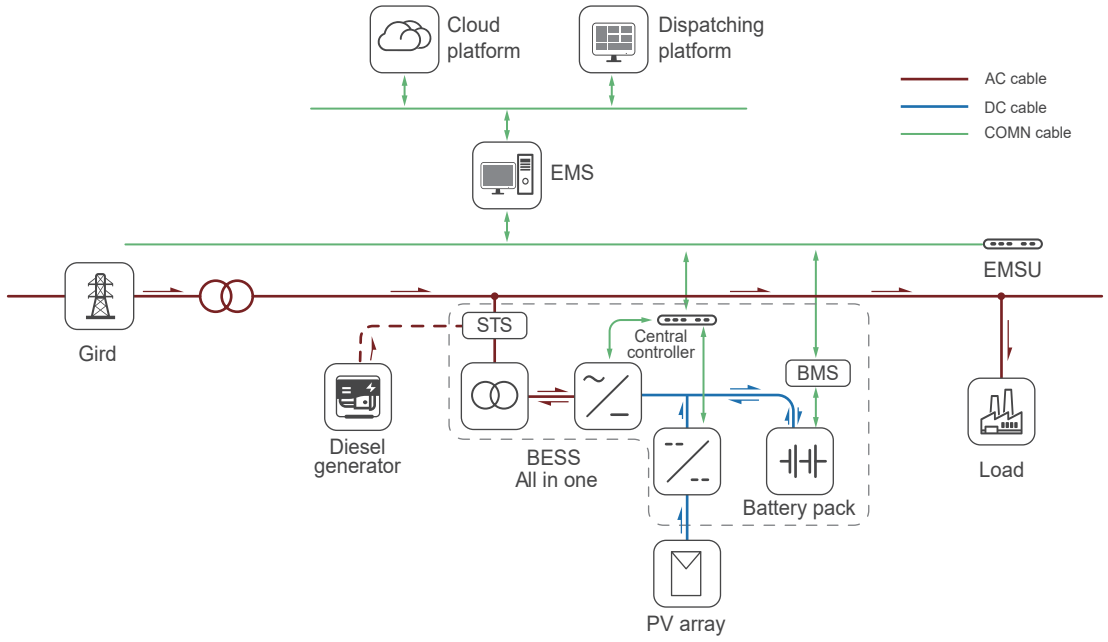
PV-ESS All-in-One Unit

* Integrated energy storage equipment * Flexible * Off-grid independent Operation (STS)

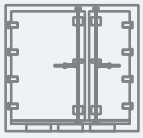
• Overview

The PV-ESS All-in-One Unit combines a Power Conversion System (PCS), Maximum Power Point Tracker (MPPT), energy storage batteries, isolation transformers, and a Static Transfer Switch (STS). The MPPT technology within the system optimizes the solar energy harvested by the PV panels, ensuring maximum energy extraction under varying sunlight conditions and thus enhancing overall generation efficiency. The converted direct current (DC) is transformed into alternating current (AC) through the PCS. During periods of high electricity demand, the system can perform peak shaving and load leveling, balancing power supply and demand, and even responding to grid commands to participate in grid regulation. This flexibility allows the integrated solar storage unit to efficiently utilize renewable energy while playing a crucial role in the energy market. In the event of a grid failure, the system can quickly detect and switch to backup power mode, using the energy storage batteries to provide stable power output, ensuring the normal operation of critical equipment. This millisecond-level response capability offers users reliable power security, particularly in critical applications where power outages could lead to significant losses. Through its integrated design, the unit not only enhances energy utilization efficiency but also improves system safety and reliability.

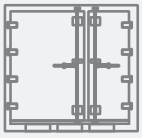
• System Topology



Applicable Equipment:

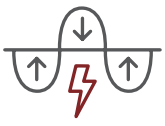


BESS 60-120
Hybrid Commercial and Industrial ESS



BESS 60-160
Hybrid Commercial and Industrial ESS

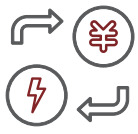
• Applications



Peak shaving

Backup UPS power supply

Emergency power supply

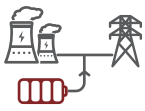


Electricity trading

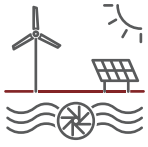
GENERATION-SIDE END

• 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.



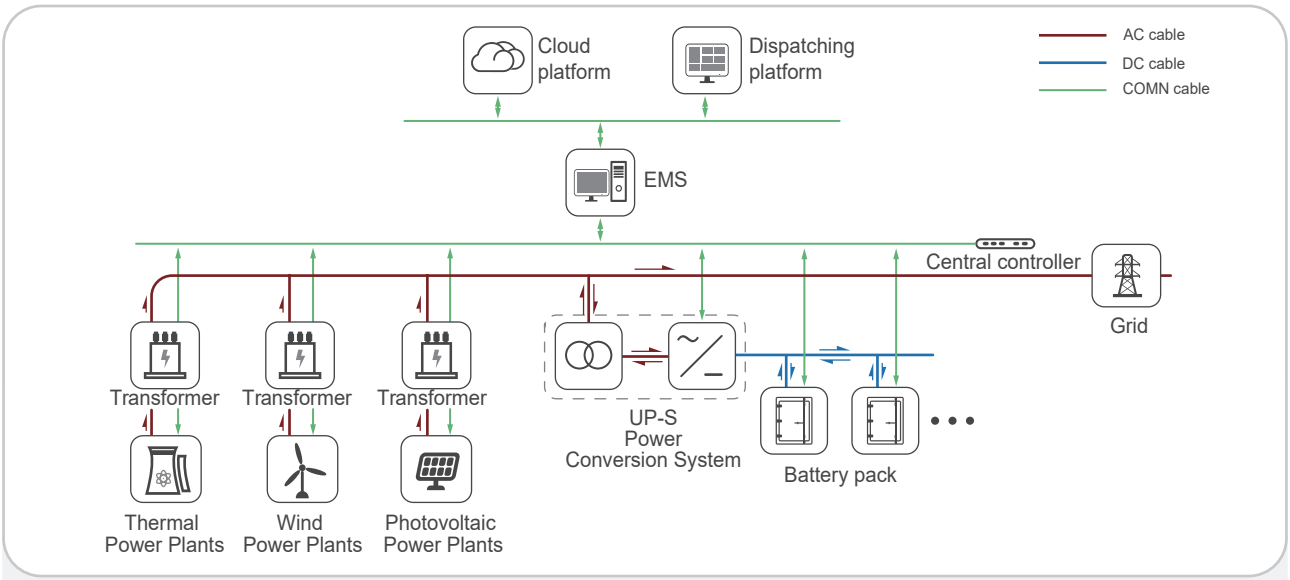
Load shifting



Renewable
energy integration

Capacity stability

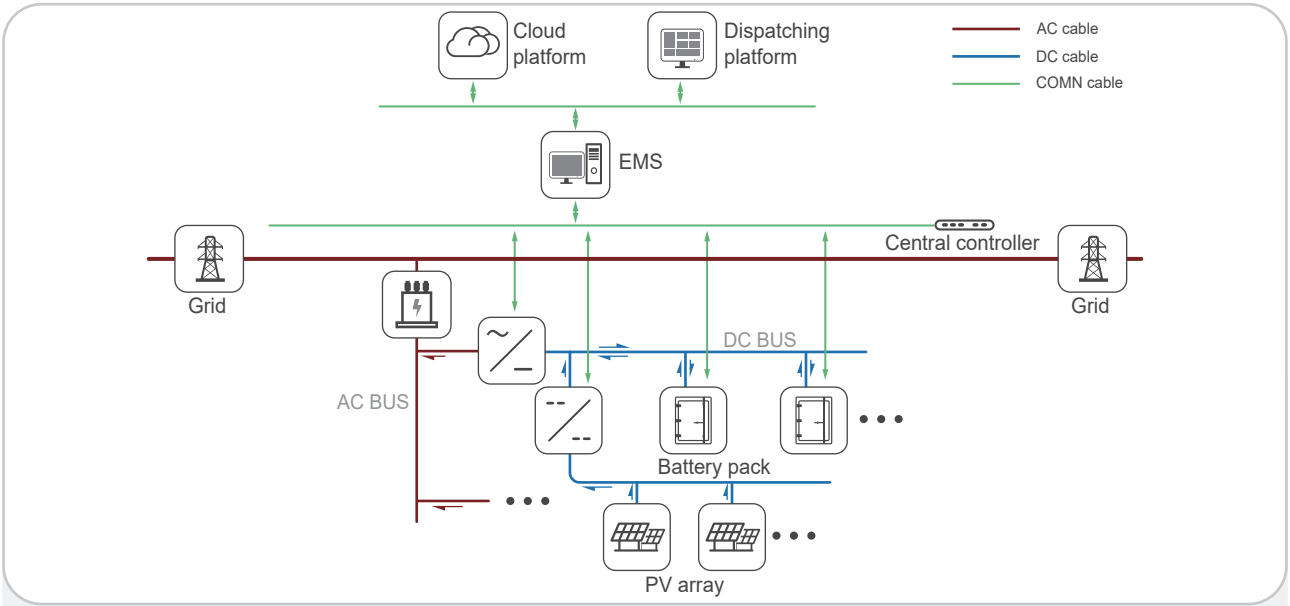
• Generation-Side Energy Storage



Applications:

- Frequency regulation
- Smoothing renewable energy fluctuations
- Improving power quality
- Enhancing grid frequency response speed
- Boosting power system scalability

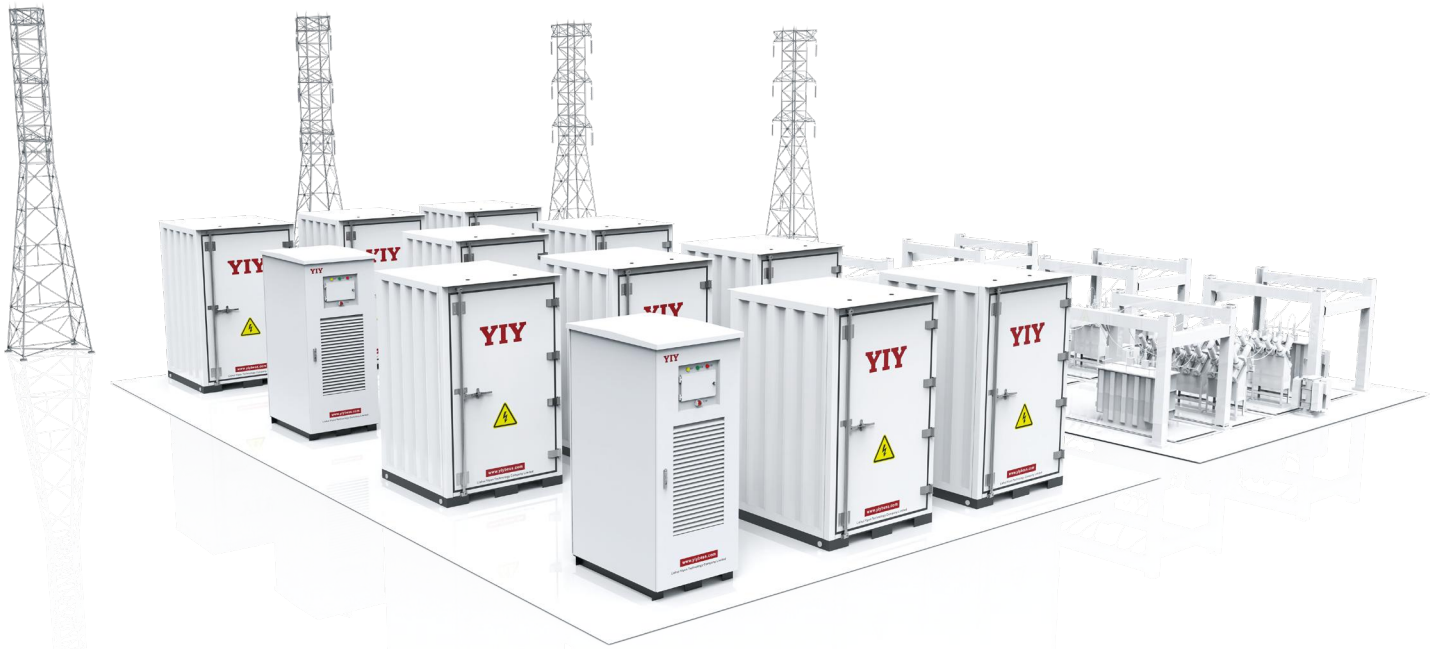
• Integrated PV Energy Storage Station



Applications:

- Smoothing fluctuations in renewable energy
- Increasing energy utilization efficiency
- Enhancing response capability to grid frequency regulation
- Improving the stability of the power system

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.

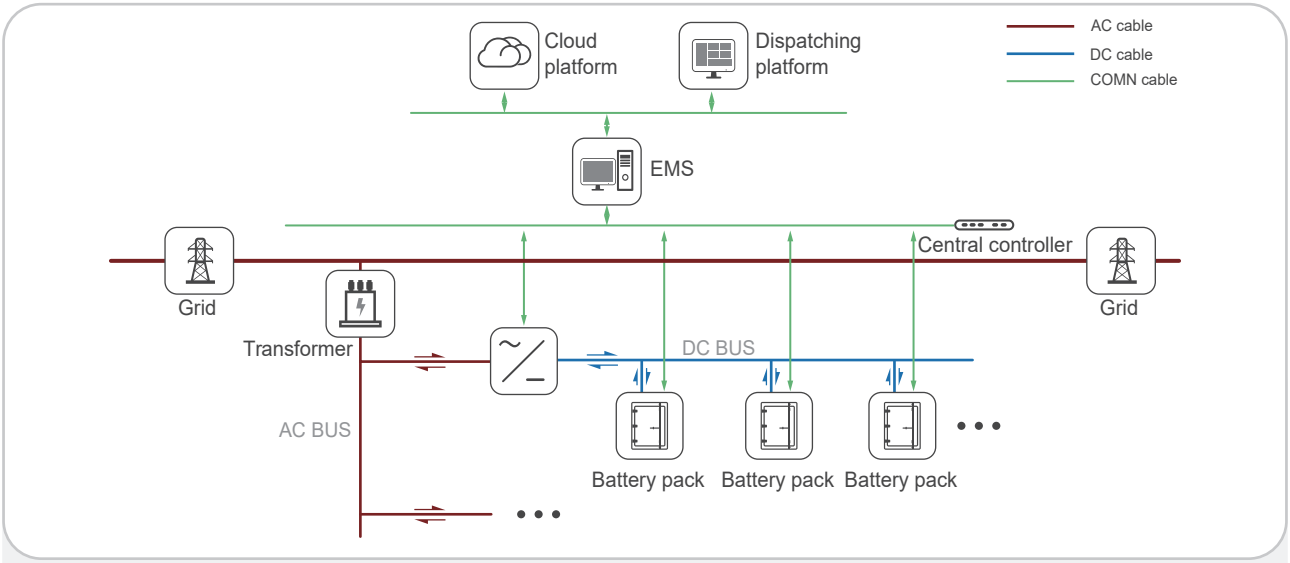
AGC

Peak shaving

Black start capability

Ancillary services

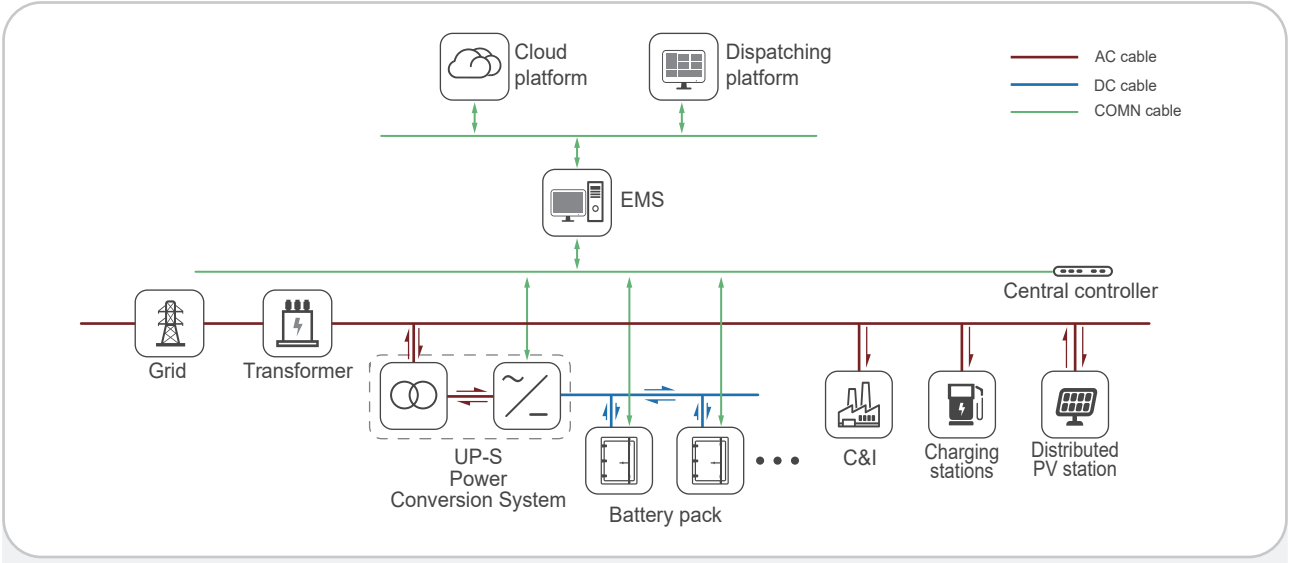
• Power Station ESS Solutions



Applications:

- Improving grid stability
- Addressing peak demand periods
- Reducing transmission losses
- Participating in power scheduling
- Enhancing system resilience
- Extending the lifespan of grid equipment

• Distributed Energy Storage System



Applications:

- Increasing the utilization of distributed energy resources
- Grid black start capability
- Enhancing the power system's resilience to disturbances
- Participating in power scheduling
- Reducing transmission losses

BESS

CE UN38.3

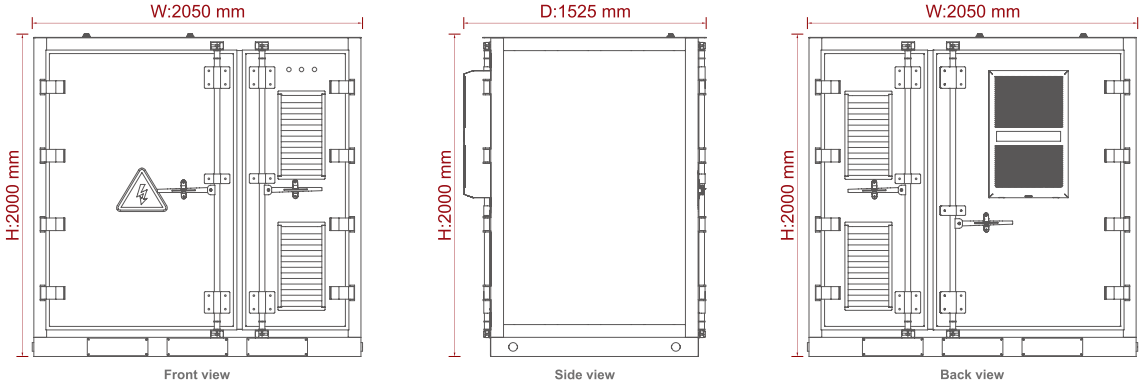
Hybrid Commercial and Industrial ESS

BESS 60-120(-60) / 60-160(-60)

• 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 cell.

• Product Dimensions



• Technical Parameter

BESS Series Hybrid Commercial and Industrial ESS		
Model	60-120(-60)	60-160(-60)
AC specificaiton		
AC rated power	60kW	
PCS rated current	140A	120A
PCS Port voltage	250VAC	290VAC
AC rated voltage	400V ± 15%	
Rated frequency	50Hz ± 2.5Hz	
AC rated current	87A	
AC overload capacity	x1.1 (10min) ; x1.2 (60S)	
Grid structure	3-phase 4-wire+PE	
Output THDi	≤3%	
AC PF	-1~1	
Battery system		
DC rated voltage	460V	563V
DC voltage range	403V~518V	493V~633V
Rated capacity	280Ah	
Rated energy	129KWh	157.7KWh
Max discharge current	140A	120A
Cell	3.2Vdc 280Ah LiFePO4	
Battery module	51.2Vdc 280Ah 14.33KWh Air cooling	
MPPT(Optional)		
PV DC.Max Voltage	520V	630V
MPPT Voltage Range	350~520V	350~630V
Number of MPPT paths	1	
Number of branch inputs	20	
Max. branch current	15A	
Voltage range	403V~525V	493V~642V
Rated current	140A	
Max. output current	80A	
Max. efficiency	>98%	
Transformer specification		
Specification	60KVA three-phase isolation/vertical	
Overload capacity	x1.1	
Insulation class	CLASS H 180℃	
Transformation ratio	250V : 400V	290V : 400V
Design temperature	Temperature rise≤90K	
Protection Level	IP54	
General Data		
Cooling	Air conditioning cooling + intelligent air cooling	
Noise Level	≤75dB	
Temperature Range	-20℃ ~ 50℃ (> 45℃ capacity reduction)	
Protection Level	IP54	
Highest altitude	3000m (> 2000m capacity reduction)	
Humidity Range	0~95%(No condensing)	
Size (W*D*H)	2050*1525*2000 mm	
Weight	2490kg (Includes MPPT module)	2860kg (Includes MPPT module)
Installation mode	Vertical mounting	
Maximum efficiency	95.5%	
Isolation mode	Built-in isolation transformer	
Protection function	Ac over/under voltage, over temperature, abnormal frequency, AC phase error, over current, communication failure, fan failure, insulation impedance detection, anti-island	
Display	Touch screen	
Communication interface	RS485 / CAN / LAN	
Certification	CE-EMC(EN 61000-6-2/-4) ; CE-LVD(IEC 62109-1/-2) ; UN38.3	

BESS

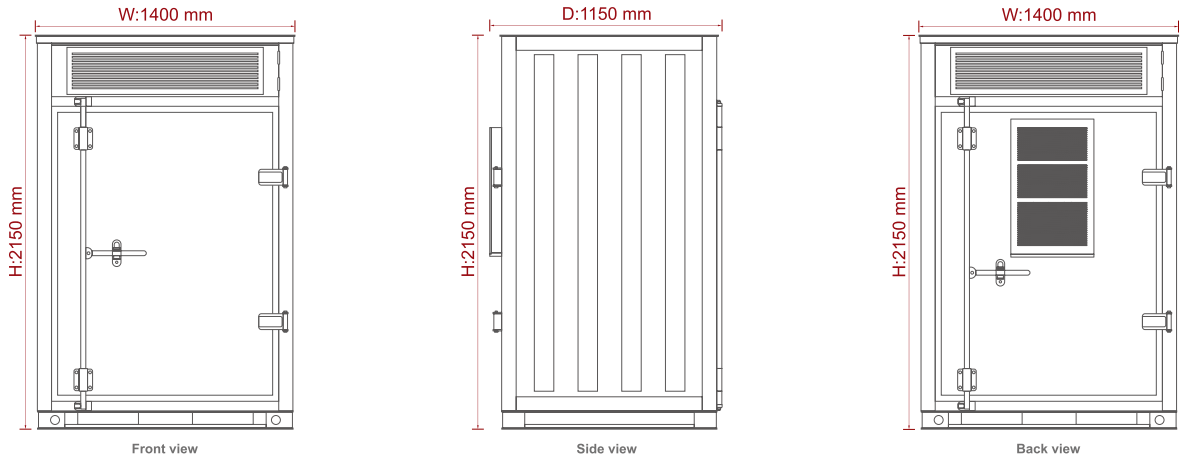
Hybrid Commercial and Industrial ESS

BESS 60-80

• 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.
- IP54 class fire and explosion-proof housing.
- Patented air duct design, intelligent air cooling, 3-5°C temperature difference of the battery core.

• Product Dimensions



• Technical Parameter

BESS Series Hybrid Commercial and Industrial ESS	
Model	BESS 60-80
AC specificaiton	
AC rated power	60kW
PCS rated current	140A
AC rated voltage	400V±15%
Rated frequency	50Hz/±2.5Hz
AC rated current	87A
AC overload capacity	x1.1 (10min) ; x1.2 (60S)
Grid structure	3-phase 4-wire+PE
Output THDi	≤3%
AC PF	-1~1
Battery system	
DC voltage range	672~864V
Rated capacity	105Ah
Rated energy	80KWh
Max discharge current	140A
Cell	3.2Vdc 105Ah LiFePO4
Battery module	51.2Vdc 105Ah 5.37KWh Air cooling
General Data	
Cooling	Air conditioning cooling+intelligent air cooling
Noise Level	≤75dB
Temperature Range	-20°C ~ 50°C (> 45°C capacity reduction)
Protection Level	IP54
Highest altitude	3000m (> 2000m capacity reduction)
Humidity Range	0~95%(No condensing)
Size (W*D*H)	1400*1150*2150 mm
Weight	/
Installation mode	Vertical mounting
Maximum efficiency	97.5%
Protection function	AC over/under voltage, over temperature, abnormal frequency, AC phase error, over current, communication failure, fan failure, insulation impedance detection
Display	Touch screen
Communication interface	RS485 / CAN / LAN
Certification	CE-EMC(EN 61000-6-2/-4) ; CE-LVD(IEC 62477-1;IEC 62040-1) ; IEC 62619 ; UN38.3

Energon

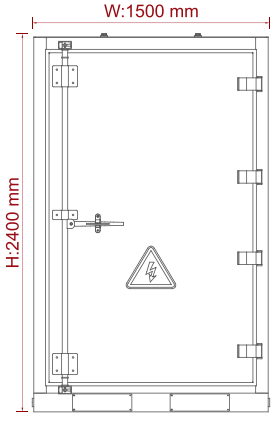
CE IEC UN38.3

Outdoor Energy Storage Battery Cabinet

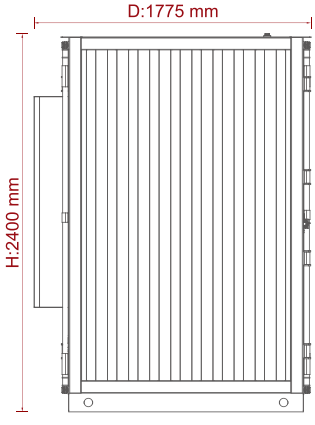
• Features

- 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.

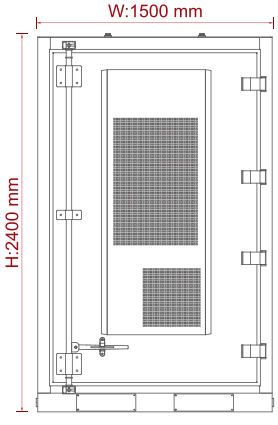
• Product Dimensions



Front view



Side view



Back view

• Technical Parameter

Energon Series Outdoor Energy Storage Battery Cabinet	
Battery parameter	
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
Electrical parameter	
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
Protection	
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
General Data	
Communication	RS485/CAN/LAN/4G
Communication protocols	ModBusTCP/CAN
Working temperature range	-20 ～ 50℃ charge/0 ～ 50℃ Discharge
Relative humidity	0 ～ 95%(No condensing)
Cooling	Air cooling(air conditioner+fan)
Noise	≤65db
Highest altitude	≤2000m
Degree of protection	IP54
Dimension(W*D*H)	1500*1775*2400mm
Weight	3.2T
Installation method	Cabinet floor mounting
Certification	CE-EMC(EN 61000-6-2/-4) ; CE-LVD(IEC 62477-1) ; IEC 62619 ; UN38.3

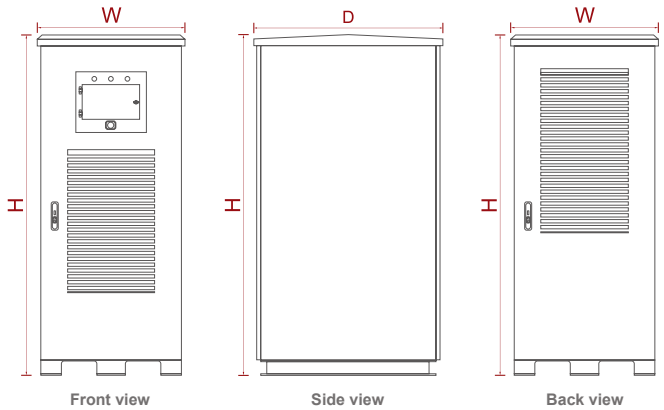
UP-S

Three Phase Power Conversion System

• Features

- Maximum efficiency can reach 97.5%.
- Modular design ,easy for installation and depolymen.
- Bidirectional power conversion system with full fourquadrant operation.
- 100kW to 500kW by 1 to 5 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/ATS to achieve switching between on-grid and off-grid.

• Product Dimensions



Model	Size(W*D*H)
UP-S-100KW	890*1240*2100mm
UP-S-125KW	
UP-S-200KW	
UP-S-250KW	
UP-S-300KW	
UP-S-400KW	
UP-S-500KW	890*1240*2300mm

• Technical Parameter

UP-S Series Power Conversion System							
Model	UP-S-100KW	UP-S-125KW	UP-S-200KW	UP-S-250KW	UP-S-300KW	UP-S-400KW	UP-S-500KW
DC parametric							
Battery voltage	630-850VDC						
Max. Battery voltage	900VDC						
Battery packs	1/215Kwh	1/215Kwh	2/215Kwh	2/215Kwh	3/215Kwh	4/215Kwh	5/215Kwh
DC max current	140A	180A	280A	360A	420A	560A	700A
Utility-interactive Mode							
AC max power	110KW	137.5KW	220KW	275KW	330KW	440KW	550KW
PCS module Qty.	100KW*1	62.5KW*2	100KW*2	62.5KW*4	100KW*3	100KW*4	100KW*5
AC frequency	50/60±2.5Hz						
Rated Voltage	380VAC						
AC Voltage Range	340VAC-440VAC						
THDi	≤3%（Rated output）						
Overload Capability	110%(Long-term)						
AC PF/ Adjustment Rage	>0.99 (Rated output)/1 (lead) ~ 1 (lag)						
Stand-alone Mode							
Rated output voltage	380VAC						
Output voltage accuracy	±1%						
Max Output Current	140A	180A	280A	360A	420A	560A	700A
Output THDu	<3% (Linear load)						
Rated output frequency	50/60Hz						
Overload Capability	110%(Long-term)						
Crest factor	＞3:1						
General Data							
Peak efficiency	97.5%						
Enclosure	IP54						
Operating temp	-25~55° C						
Humidity	0~95% (No condensing)						
Cooling	Intelligent air cooling						
Noise	<65dB						
Highest altitude	2000m(>2000m derating)						
Display	Touch screen(External)						
BMS Communication	RS485，CAN						
Communication	RS232/RS485(Standard),Ethernet						
Dimension(W*D*H)(mm)	890*1240*2100						890*1240*2300
Protection	OTP、AC OVP/UVP、OFP/UFP、AC Phase Reverse、OLP、Anti-islanding						
AC connection	3P4W+PE						
Certification	CE-EMC(EN 61000-6-2/-4) ; CE-LVD(IEC 62477-1 ; EN 50549-1 ; VDE-4105						

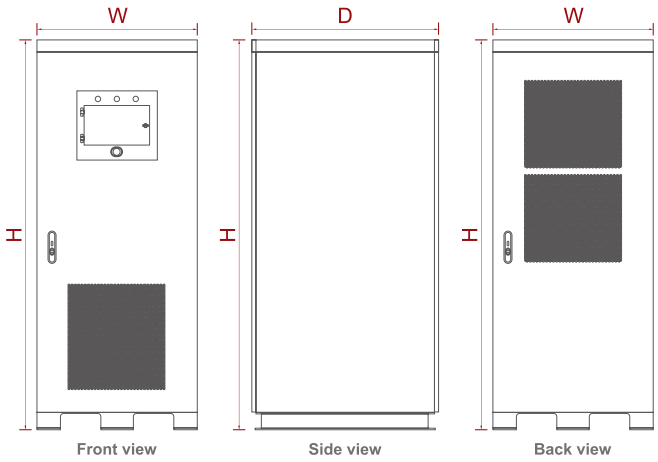
UPV-S

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 communciation with BMS, EMS system.

• Product Dimensions



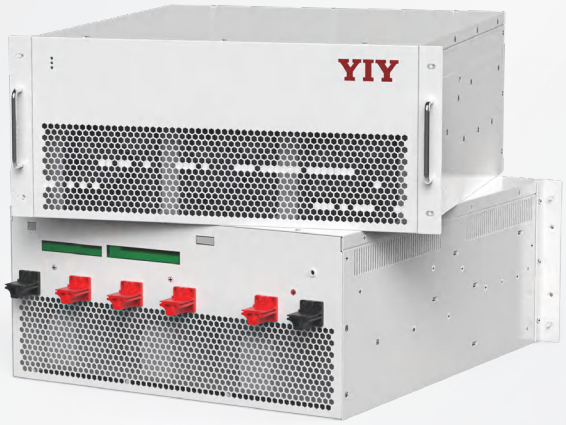
Model	Size(W*D*H)
0.4-50KW	800*1050*2200mm
0.4-100KW	
0.4-150KW	1350*1050*2200mm
0.4-200KW	
0.4-250KW	
0.5-50KW	800*1050*2200mm
0.5-100KW	
0.5-150KW	1350*1050*2200mm
0.5-200KW	
0.5-250KW	

• 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 faultcircuit 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									
Highest altitude	3000m/10000 feet (>2000m/6500 feet derating)									
Operating temp	-20°C~ 50°C (>45°C derating)									
Humidity	0~95% (No condensing)									
Size (W*D*H)	800*1050*2200mm		1350*1050*2200mm			800*1050*2200mm		1350*1050*2200mm		
Weight	/	/	1300kg	1650kg	2000kg	/	/	1300kg	1650kg	2000kg

UP-M

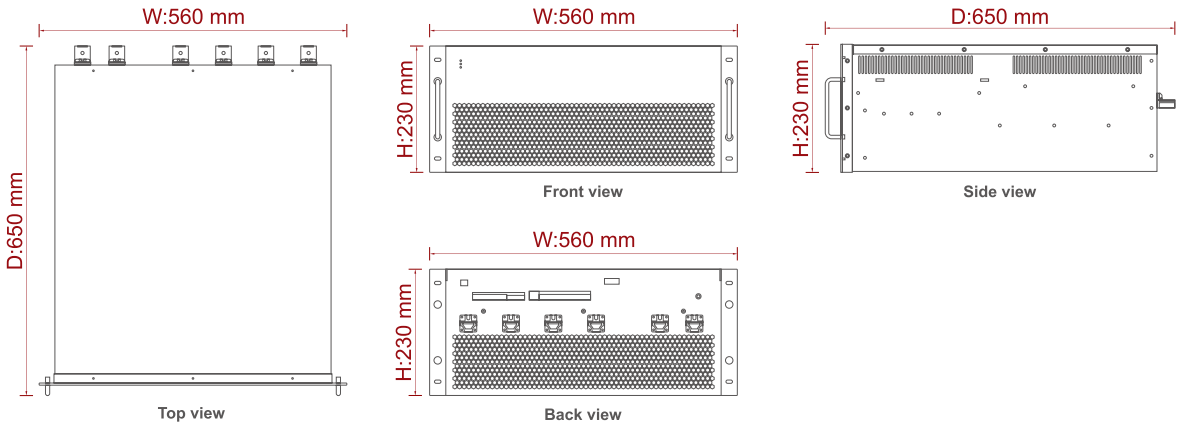
Power Conversion Module



• 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%.

• Product Dimensions



• 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 THDi	< 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		
Highest altitude	3000m/10000feet (>2000m/6500feet derating)		
Operating ambient temperature	-20°C～ 50°C (＞ 45°C derating)		
Humidity	0 ～ 95% (No condensing)		
Size (W*D*H)	560*650*230mm		
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		
Certification	CE-EMC(EN 61000-6-2/-4) ; CE-LVD(IEC 62477-1 ; EN 50549-1 ; VDE-4105		

LFP-R 14.33KWH

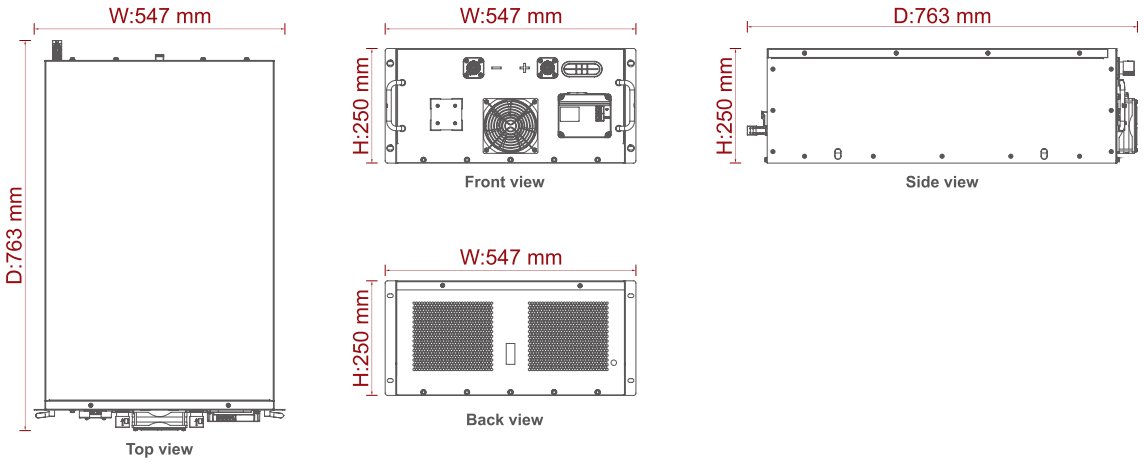
CE IEC UN38.3

LiFePO4 Battery Module

• Features

- 16PCS 280AH LiFePO4 cells.
- 51.2Vdc 14.33KWH rated capacity.
- Long cycle life 6000 times.
- Unique automatic calibration active banlancing technology BMS system.
- Modular, can be compatible with a variety of housing.
- Standard CAN &RS485 communication port, can meet the require ment of several packages to connect in parallel, Master & Slave relationship, Monitor and other functions.Compatible with other brand inverters' communication protocols.

• Product Dimensions



• Technical Parameter

LFP-R 14.33kWh LiFePO4 Battery Module	
Specification	
Model	LFP-R 51280H
Rated Voltage	51.2V
Rated Capacity	280Ah
Rated Energy	14.33KWH
Cell Configuration	16S1P
Battery Cell	3.2V280AH 16PCS (EVE LF280K)
Life cycles (80%SOH,25°C)	6000 Cycles
Certification	CE-EMC(EN 61000-6-2/-4) ;IEC 62619 ; UN38.3
Standard Charge	
Operation temperature range ©charging	0~60°C
Rated charge voltage	56.8V
Max. charge voltage	57.6V
Overcharge protection	58.4V
Allowed MAX charge current	140A
Peak charge current	150A
Rated charge current	140A
Recommend charge current	≤140A
Standard Discharge	
Operation temperature range ©discharging	-30~60°C
Output Voltage Range	44.8~57.6Vdc
Recommend Working Range	46.4~56.8Vdc
Discharge Cut-off voltage	44.8V
Allowed MAX discharge current	280A
Peak discharge current	280A
Rated discharge current	140A
Recommend discharge current	≤140A

Mechanical Characteristics		
Dimension W*D*H	547*763*250 mm	
Weight (N.W.)	103±3Kg	
Weight(G.W.)	103±3Kg	
Storage and Transportation Requirements		
Storage Temperature	Less than 1month	-20~45°C
	Less than 6month	-10-30°C
Storage Humidity	45~75%RH	
SOC	Storage	60~75% SOC
	Transport	45~55% SOC

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 ±0.5%.
- Efficiency ≥95%.

• Technical Parameter

Bi-directional DC Controller Module	
High voltage side(DC busbar)	
Rated DC voltage	750V
DC voltage fluctuation coefficient	≤5%
Regulated voltage accuracy	±0.5%FS
Regulated current accuracy	±0.5%FS
Efficiency	≥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	±0.5%FS
Regulated current accuracy	±0.5%FS
Ripple coefficient	≤0.5%
Rated current	100Adc
Rated DC power	60kW
General Data	
Protection Level	IP20
Temperature Range	-20~50℃
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 ≥99%.

• Technical Parameter

Solar Controller Module	
Input	
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
Output	
voltage range	800V (adjustable by the rear inverter)
Rated output current	80A
Max. output current	104A
Protection	
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
General Data	
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℃
Storage ambient temperature	-25℃ -+70℃
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)

685W-730W Solar Panel

Bifacial Monocrystalline Module

• Features

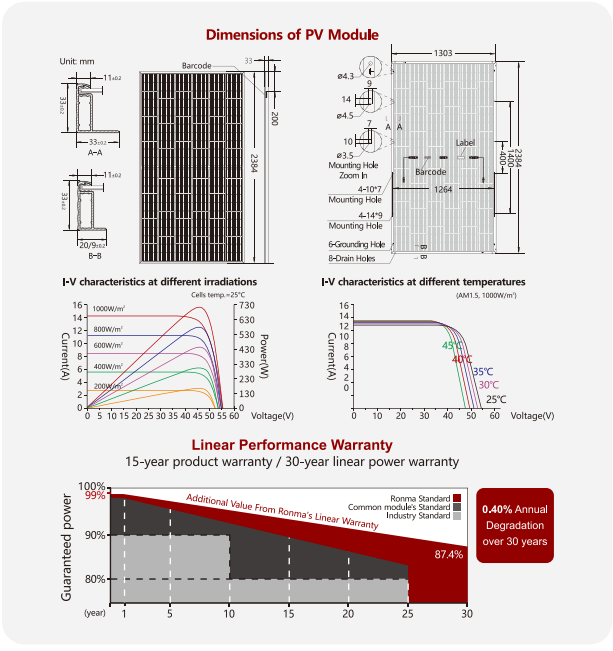
- Higher Power Output
- Multi Busbar Technology
- PID Resistance
- Low-light Performance
- Durability Against Extreme Environmental Conditions
- EL Full Inspection

• Technical Parameter

Specifications(BNPI)

Rated Power in Watts-Pmax(Wp)	758.9	764.7	769.3	774.8	780.6	785.7	791.6	797.1	802.6	808.6
Open Circuit Voltage-Voc(V)	47.90	48.10	48.50	48.80	49.00	49.20	49.40	49.60	49.80	50.00
Short Circuit Current-Isc(A)	20.06	20.11	20.15	20.19	20.24	20.28	20.33	20.37	20.41	20.46
Max. Power Voltage-Vmpp(V)	40.10	40.30	40.50	40.70	40.90	41.10	41.30	41.50	41.70	41.90
Max. Power Current-Impp(A)	18.93	18.98	19.00	19.04	19.09	19.12	19.17	19.21	19.25	19.30
Power Tolerance	0~+3%									
Operating Temperature	-40°C~85°C									

*BNPI: Irradiance: front 1000W/m², rear 135W/m², Cell Temperature 25°C, AM=1.5



Electrical Characteristics (STC*)

Rated Power in Watts-Pmax(Wp)	685	690	695	700	705	710	715	720	725	730
Open Circuit Voltage-Voc(V)	47.70	47.90	48.30	48.60	48.80	49.00	49.20	49.40	49.60	49.80
Short Circuit Current-Isc(A)	18.21	18.25	18.28	18.32	18.36	18.40	18.44	18.48	18.52	18.56
Max. Power Voltage-Vmpp(V)	39.90	40.10	40.30	40.50	40.70	40.90	41.10	41.30	41.50	41.70
Max. Power Current-Impp(A)	17.19	17.23	17.25	17.29	17.33	17.36	17.40	17.44	17.48	17.52
Module Efficiency(%)	22.05	22.21	22.37	22.53	22.70	22.86	23.02	23.18	23.34	23.50
Maximum System Voltage	1500V DC									
Fuse Rating(A)	30									
Temperature Coefficient Pmax	-0.30%/°C									
Temperature Coefficient Isc	0.046%/°C									
Temperature Coefficient Voc	-0.25%/°C									
Refer. Bifacial Factor	ΦIsc=80%±10%,ΦVoc=100%±3%,ΦPmax=80%±10%									

*STC: Irradiance 1000W/m², module temperature 25°C , AM=1.5

Mechanical Characteristics

Number of Cells	132pcs
Type of Cell	N-TOPCon Mono
Thickness of Glass(mm)	2.0
Type of Frame	Anodized Aluminum Alloy
Size of Module(mm)	2384×1303×33
Weight(kg)	37.5
Junction Box	IP68, 1500V DC, 3 Diodes
Cables/Connectors	4.0mm², MC4 compatible
Length of Cable	+350mm/-250mm Length can be customized(connector included)

Packaging Configuration

Height of Modules (mm)	33
Number of Modules Per Pallet	33
Packaging Box Dimensions (l×w×h) (mm)	1326×1140×2515
Box Gross Weight (kg)	1280
Number of Modules Per 40ft (HQ) Container	594
Number of Pallets Per 40ft (HQ) Container	18

600W-630W Solar Panel

Bifacial Monocrystalline Module

• Features

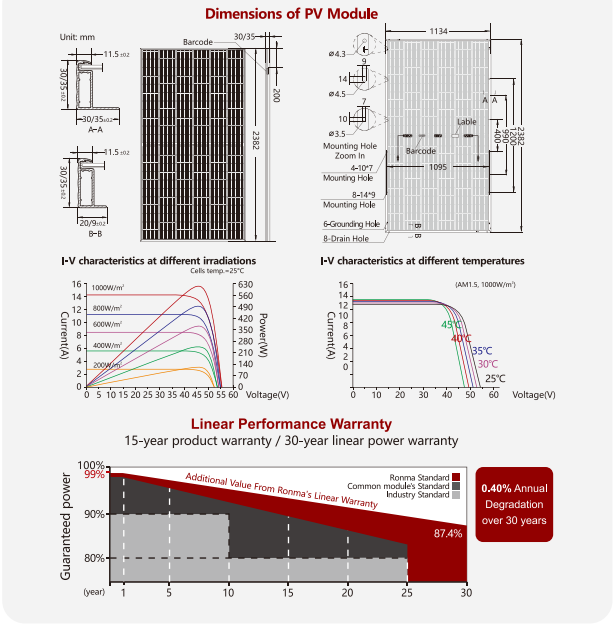
- Higher Power Output
- Multi Busbar Technology
- PID Resistance
- Low-light Performance
- Durability Against Extreme Environmental Conditions
- EL Full Inspection

• Technical Parameter

Electrical Characteristics (STC*)

Rated Power In Watts-Pmax(Wp)	600	605	610	615	620	625	630
Open Circuit Voltage-Voc(V)	48.40	48.70	49.00	49.30	49.60	49.80	50.30
Short Circuit Current-Isc(A)	15.80	15.83	15.86	15.89	15.91	15.93	15.94
Max. Power Voltage-Vmpp(V)	40.30	40.50	40.80	41.10	41.40	41.60	42.00
Max. Power Current-Impp(A)	14.91	14.94	14.96	14.98	14.99	15.00	15.01
Module Efficiency(%)	22.20	22.40	22.60	22.80	23.00	23.10	23.32
Maximum System Voltage	1500V DC						
Fuse Rating(A)	30						
Temperature Coefficient Pmax	-0.30%/°C						
Temperature Coefficient Isc	0.046%/°C						
Temperature Coefficient Voc	-0.25%/°C						
Refer. Bifacial Factor	80±5%						

*STC: Irradiance 1000W/m², module temperature 25°C , AM=1.5



Working Characteristics (NOCT*)

Rated Power In Watts-Pmax(Wp)	457	461	465	469	473
Open Circuit Voltage-Voc(V)	37.75	37.92	38.09	38.26	38.44
Short Circuit Current-Isc(A)	12.11	12.16	12.21	12.26	12.31
Max. Power Voltage-Vmpp(V)	46.03	46.22	46.41	46.60	46.70
Max. Power Current-Impp(A)	12.86	12.92	12.98	13.04	13.10
Power Tolerance	0~+3%				
NOCT	45°C ±2°C				
Operating Temperature	-40°C ~85°C				

*NOCT: Irradiance 800W/m², ambient temperature 20°C , wind speed 1m/s

Electrical characteristics with different rear side power gain

	Pmax/W	Voc/V	Isc/A	Vmpp/V	Impp/A
5%	661	50.30	16.74	42.00	15.76
10%	693	50.30	17.53	42.00	16.51

The additional gain from the rear side compared to the power of the front side at the standard test condition.
It depends on mounting (structure, height, tilt angle etc.) and albedo of the ground.

Mechanical Characteristics

Number of Cells	132pcs
Type of Cell	N-TOPCon Mono
Thickness of Glass(mm)	2.0
Type of Frame	Anodized Aluminum Alloy
Size of Module(mm)	2382×1134×35/30
Weight(kg)	33
Junction Box	IP68, 1500V DC 3 Diodes;Cables/connectors; 4.0mm², MC4 compatible
Length of Cable	+300mm/-200mm Length can be customized(connector included)

Packaging Configuration

Height of Modules (mm)	35	30
Number of Modules Per Pallet	31	36
Packaging Box Dimensions (l×w×h) (mm)	2485×1120×1260	1260×1120×2595
Box Gross Weight (kg)	955	1225
Number of Modules Per 40ft (HQ) Container	496	720
Number of Pallets Per 40ft (HQ) Container	20	20

560W-600W Solar Panel

Bifacial Monocrystalline Module

• Features

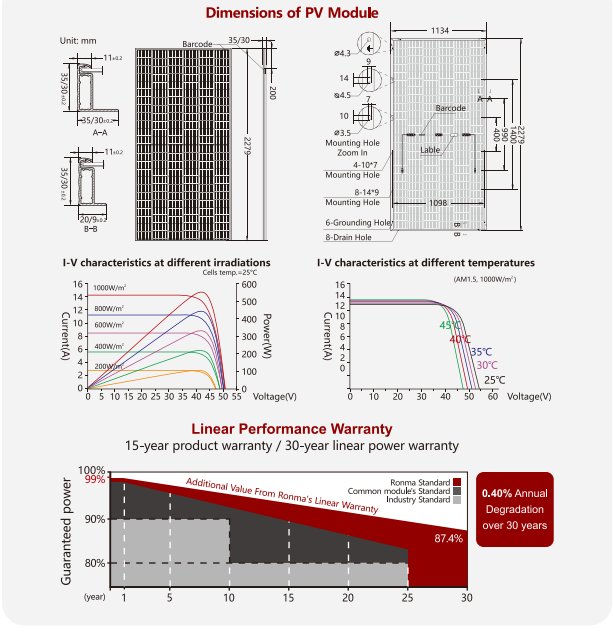
- Higher Power Output
- Multi Busbar Technology
- PID Resistance
- Low-light Performance
- Durability Against Extreme Environmental Conditions
- EL Full Inspection

• Technical Parameter

Specifications(BNPI)

Rated Power in Watts-Pmax(Wp)	619.1	624.9	629.9	635.3	641.1	647.0	652.5	658.8	665.2
Open Circuit Voltage-Voc(V)	52.65	52.81	52.97	53.13	53.29	53.45	53.61	53.77	53.93
Short Circuit Current-Isc(A)	14.81	14.91	14.98	15.05	15.13	15.21	15.28	15.34	15.41
Max. Power Voltage-Vmpp(V)	44.32	44.46	44.59	44.81	45.04	45.26	45.48	45.70	45.92
Max. Power Current-Impp(A)	13.97	14.06	14.13	14.18	14.24	14.30	14.35	14.42	14.49
Power Tolerance	0~+3%								
Operating Temperature	-40°C~85°C								

*BNPI: Irradiance: front 1000W/m², rear 135W/m², Cell Temperature 25°C, AM=1.5



Electrical Characteristics (STC*)

Rated Power in Watts-Pmax(Wp)	560	560	570	575	580	585	590	595	600
Open Circuit Voltage-Voc(V)	52.45	52.45	52.77	52.93	53.09	53.26	53.41	53.57	53.73
Short Circuit Current-Isc(A)	13.47	13.47	13.62	13.69	13.76	13.83	13.89	13.95	14.01
Max. Power Voltage-Vmpp(V)	44.12	44.12	44.39	44.61	44.84	45.06	45.28	45.50	45.72
Max. Power Current-Impp(A)	12.71	12.71	12.85	12.90	12.95	13.00	13.06	13.12	13.18
Module Efficiency(%)	21.67	21.67	22.06	22.25	22.44	22.6	22.8	23.02	23.22
Maximum System Voltage	1500V DC								
Fuse Rating(A)	30								
Temperature Coefficient Pmax	-0.29%/°C								
Temperature Coefficient Isc	0.045%/°C								
Temperature Coefficient Voc	-0.25%/°C								
Refer. Bifacial Factor	ΦIsc=80%±10%,ΦVoc=100%±3%,ΦPmax=80%±10%								

*STC: Irradiance 1000W/m², module temperature 25°C , AM=1.5

Mechanical Characteristics

Number of Cells	144pcs
Type of Cell	N-TOPCon Mono
Thickness of Glass(mm)	2.0
Type of Frame	Anodized Aluminum Alloy
Size of Module(mm)	2279×1134×30
Weight(kg)	32
Junction Box	IP68, 1500V DC, 3 Diodes
Cables/Connectors	4.0mm², MC4 compatible
Length of Cable	+300mm/-200mm Length can be customized(connector included)

Packaging Configuration

Height of Modules (mm)	35	30
Number of Modules Per Pallet	31	36
Packaging Box Dimensions (l×w×h) (mm)	2300×1120×1260	2300×1120×1260
Box Gross Weight (kg)	1020	1180
Number of Modules Per 40ft (HQ) Container	620	720
Number of Pallets Per 40ft (HQ) Container	20	20

Demonstrations

- **Photovoltaic Storage Integrated System**

Load shifting Capacity Stability Self-Consumption

400KW 430KWH PV250KWp

- **Energy Storage Power Station**

Peak shaving Backup power

400KW 430KWH

- **Photovoltaic Storage Integrated System**

Load shifting Capacity Stability Self-Consumption

150KW 215KWH PV150KWp

Demonstrations

- **Generation-Side Energy Storage**

  Load shifting Capacity Stability

  Frequency regulation

500KW 1075KWH

- **Energy Storage Power Station**

  Peak shaving Load balancing

  Backup power

120KW 320KWH

- **Solar Energy BESS Charging Station**

  Reducing peak demand

300KW 645KWH PV60KWp

- **Energy Storage Power Station**

  Peak shaving Backup power

2800KW 6.02MWH

- **Energy Storage Power Station**

  Backup power Load shifting

880KW 1.5MWH

Demonstrations

- **Photovoltaic Storage Integrated System**

Load shifting Capacity Stability Self-Consumption

250KW 430KWH PV250KWp

- **Energy Storage Power Station**

Peak shaving Backup power

60KW 80KWH

- **Photovoltaic Storage Integrated System**

Load shifting Capacity Stability Self-Consumption

60KW 80KWH + PV1000KWp

- **Energy Storage Power Station**

Load shifting Backup power

300KW 645KWH

- **Energy Storage Power Station**

Peak shaving Load balancing

Backup power

250KW 430KWH

Energy Storage System
&
Power Quality System Provider

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