

Focus on energy storage



Instruction Manual



GY-ESBL





Our Culture

vision

To be a world-leading innovative energy technology company



mission

Provide safe, clean and affordable energy to more people

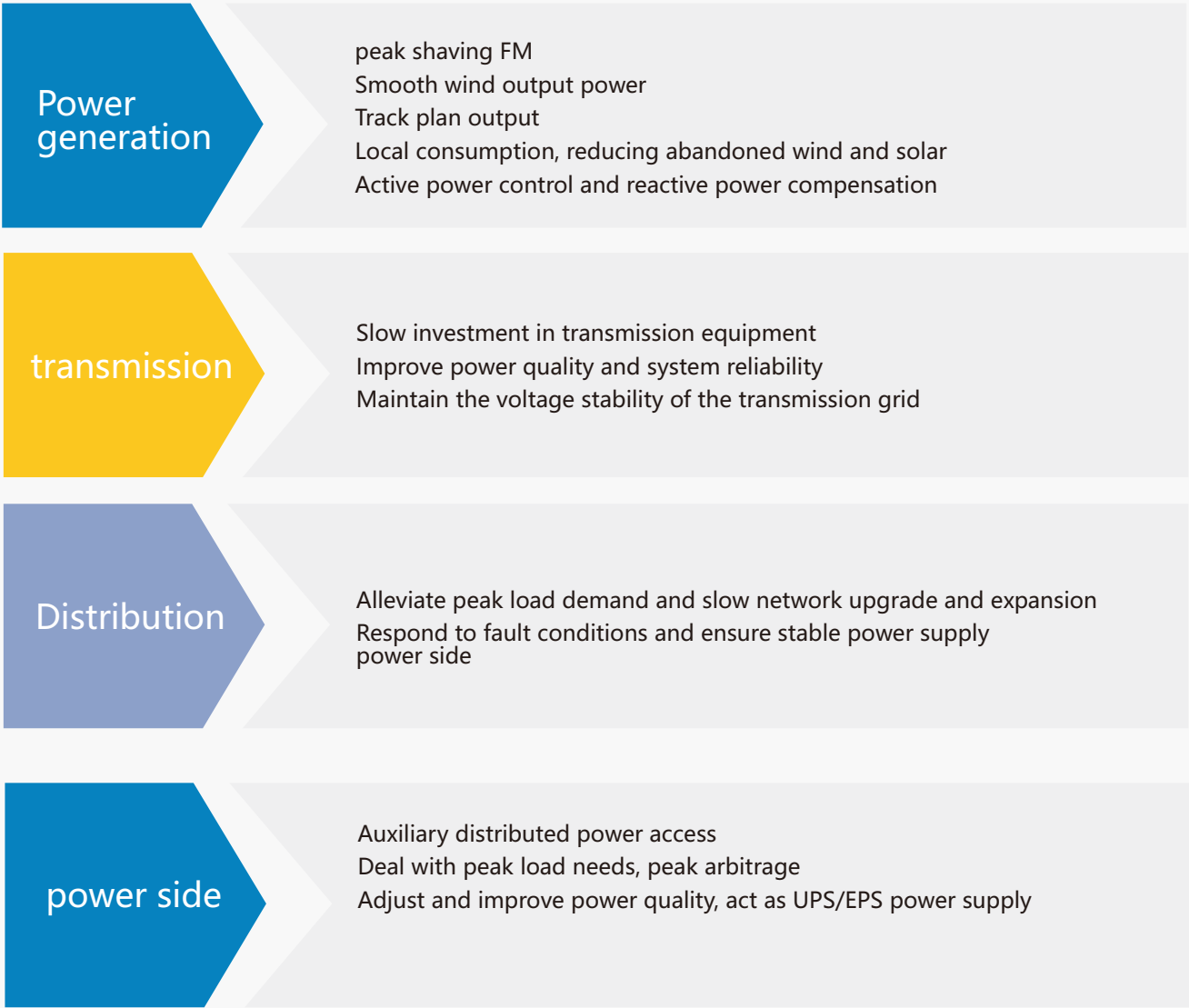


values

Respect knowledge and talent, creative and positive



Energy Storage Applications Scenario



Application Scenario 1: Wind Farm

Peak shaving and frequency modulation: use all the fast and accurate response capabilities of energy storage technology to support changes in grid frequency and stabilize the frequency of the grid.
Smooth output: The energy storage system is based on the principle of low-pass filtering. When the wind power output fluctuates greatly, it will limit the fluctuation of wind power output power within a given power fluctuation through fast charge/discharge coordinated control.



Application Scenario 2: Photovoltaic Power Generation



When the photovoltaic power generation is limited, the output power of the photovoltaic power generation system is detected to ensure that the system output power is lower than the power generation limit. The excess photovoltaic power is used to charge the battery to reduce light abandonment.
The energy storage system is based on the principle of low-pass filtering. When the photovoltaic output fluctuates greatly, the fluctuation of photovoltaic output power is limited within a given power fluctuation through fast charge/discharge coordinated control, and the output is smoothed. Utilize all the fast and accurate response capabilities of energy storage technology to support changes in grid frequency, stabilize grid frequency, and achieve peak-shaving and frequency modulation.

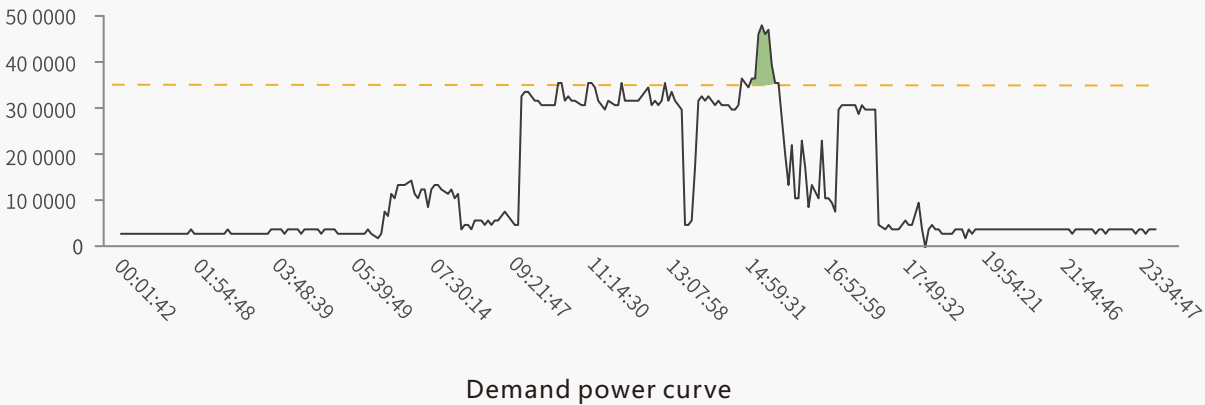
Application Scenario 3: Electric FM



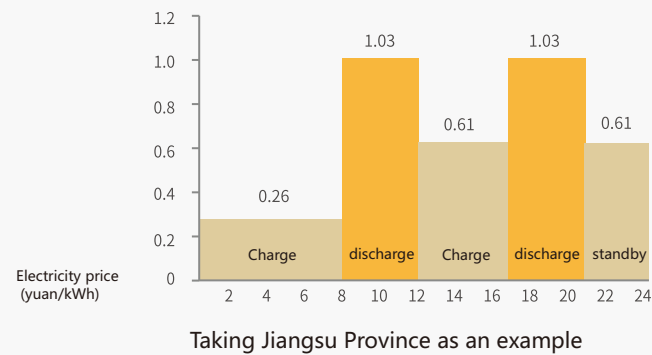
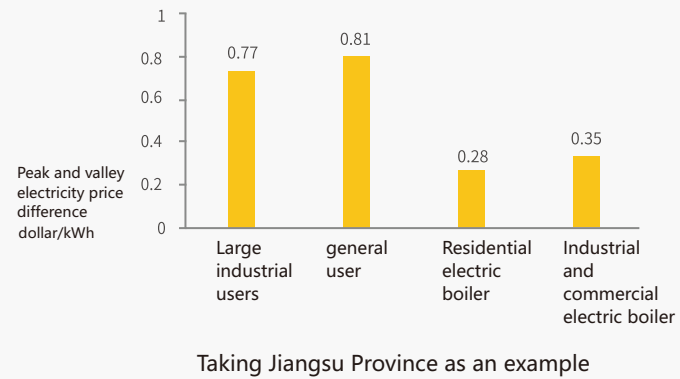
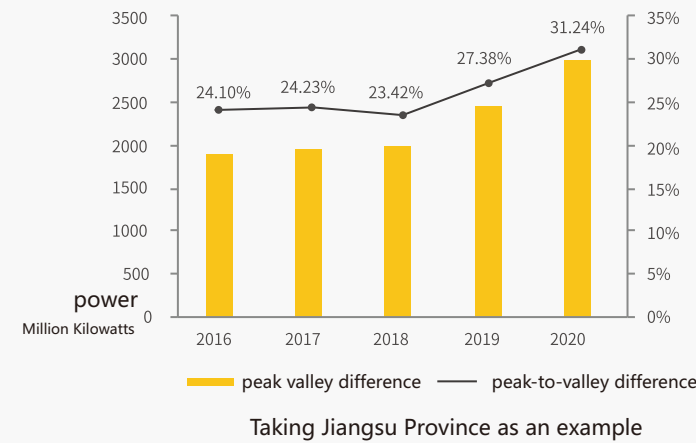
The power grid dispatching center sends the AGC command to the remote control device RTU of the power plant, and then the RTU forwards the AGC command to the EMS and the power plant DCS, and finally the EMS adjusts the output power according to the AGC command and the operating status of the unit.

Application Scenario 4: Demand Electricity Charge

Based on cloud-based load forecasting, the maximum demand electricity charge can be reduced by peak-escape escaping, and the basic electricity charge can be saved.



Application Scenario 5: Peak Arbitrage



Compared with commercial and residential electricity loads, large industrial users are with more conditions for construction, the specific conditions include:

1. Industrial users have large daily power consumption;
2. During the peak period of electricity price (daytime) the electricity load is heavy, and the period of low electricity price (late night) less electricity load
3. During periods of low electricity prices, user transformers have a certain amount of spare capacity.

Application Scenario 6: Dynamic Expansion

On special occasions, it is a rigid need for owners or construction companies.

It is very suitable for short-term overload (1-4 hours is the best) and the scene where the charging does not exceed the capacity.

Based on cloud-based load forecasting, peak electricity arbitrage is used to reduce the maximum demand electricity charge and save basic electricity charges.

demand power curve

For example, if the charging pile has been renovated in a residential area, it is suddenly found that the capacity of the transformer is exceeded when it is running at full capacity after the completion, and it is facing the problem of overcapacity

Comparison item	Dynamic expansion	Static expansion
Application procedure	simple	cumbersome
Processing time	very short	very long
Installation fee	low	high
Expansion time	Can be expanded arbitrarily according to the situation	Expansion is more difficult

Application Scenario 7: On-off Hybrid and Off-Grid

For the Philippines, Cambodia, Indonesia, South Africa and other Asia, Africa and Latin America regions, we launched industrial and commercial energy storage and off-grid switching and off-grid solutions, Provide power to villages and islands with unstable power grids or no electricity, more than 300 projects have been implemented so far



Application Scenario 8: Echelon Utilization

Power battery cascade utilization means that the vehicle power battery has decayed below 80% of its initial state, and the remaining capacity can still be used in certain specific scenarios. At present, the difficulty lies in the need to complete multiple steps such as dismantling, testing, screening, and reorganization, and the cost is high. With unique modular design and BMS battery management technology, cascaded batteries can be used in the field of energy storage without dismantling or reassembling.



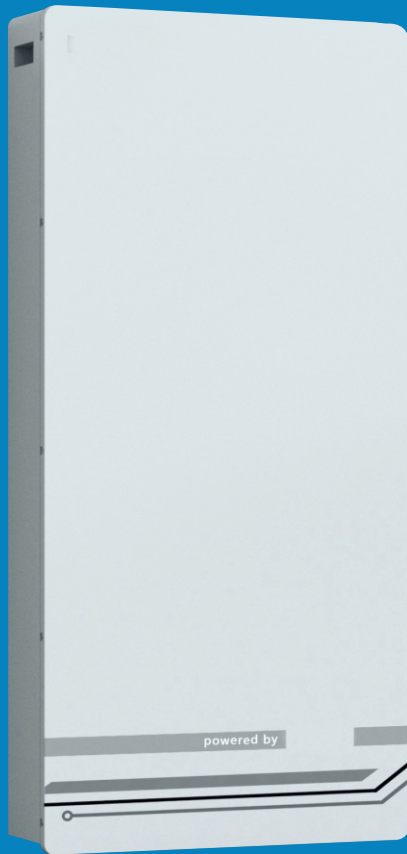
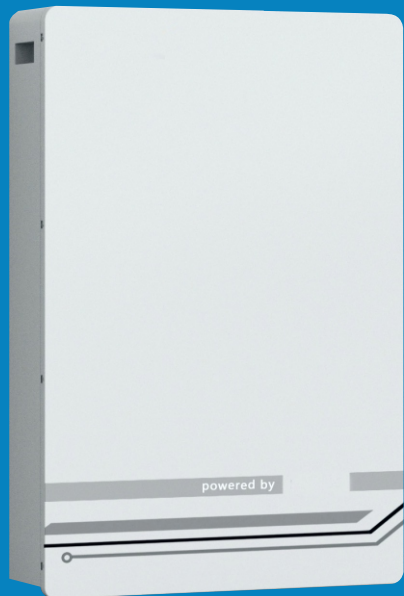
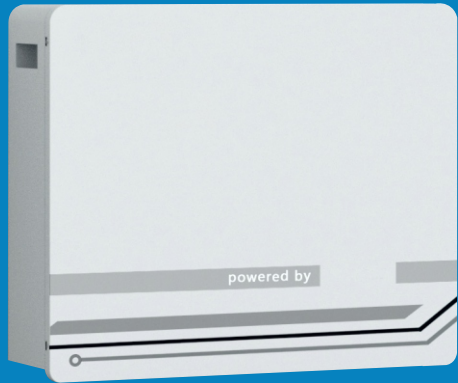
Standard feasibility

- ① QB-H-005-2012
- ② GB/T22473
- ③ DL/T5044-2014
- ④ DB11/T542
- ⑤ GB/T22473-2008

Economic feasibility

- Safety costs
- Cost recovery
- Disassembly cost
- Screening costs
- Restructuring costs

Low voltage
split machine



modular design



Safe and reliable
(use only LFP - Lithium Iron Phosphate)



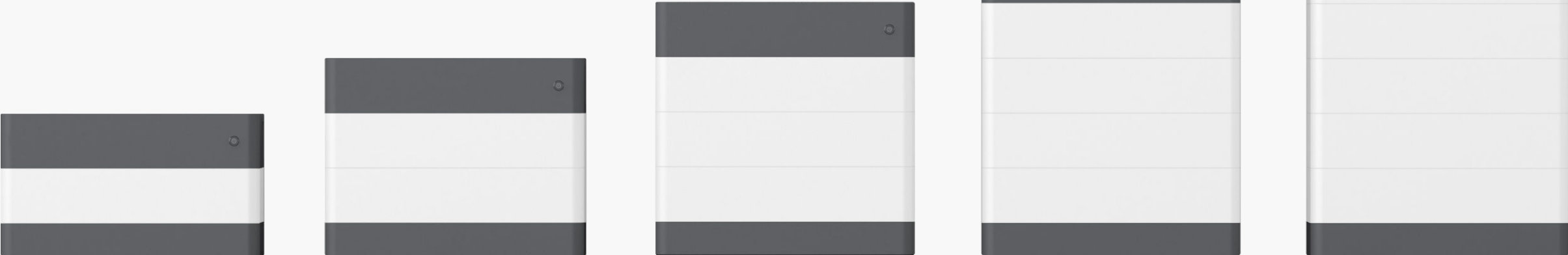
Highly Compatible

Item Number	GY5.12-LB	GY10.24-LB	GY15.36-LB
Compatible with inverter	Deye, Goodwe, Growatt, Aiswei, Ginlong, Megarevo		
Cell type	LFP(LiFePo4)		
Connection way	1P16S	2P16S	3P16S
Battery module capacity	5.12kWh	10.24kWh	15.36kWh
Rated Capacity		100Ah	
Rated voltage		51.2V	
Charging temperature		0~55℃	
Discharge temperature		-10~55℃	
Storage temperature		-20~45℃ (≤1 month);0~35℃ (> 1 month)	
Working humidity		5~95%(no condensation)	
Maximum altitude		< 3000m(> 2000m derating)	
Protection degree		IP54	

Cell charging cut-off voltage	3.6V		
Single discharge cut-off voltage	2.8V		
Working voltage range	44.8V~57.6V		
Communication method	CAN , RS485		
Parallel communication	<2W (under working condition) , Sleep<50mW (in hibernate mode)		
Rated operating current	50A	100A	100A
Maximum operating current	100A	110A	110A
Cycle performance	≥6000次, 25℃		
Certification standards	UL9540A、IEC62619/IEC642277、EMC 、UN38.3 、UL1973		
Service life	10 Year		
Size (L*W*H)	600*600*190mm	600*1050*190mm	600*1500*190mm
Installation	Indoor/Outdoor		
Weight	51kg	82kg	133kg
Protection function	Overvoltage/overvoltage/overcurrent/short circuit/reverse connection		

Product description

Low voltage stack series



Safe and reliable
(use only LFP - Lithium Iron Phosphate)



Modular design



Highly Compatible

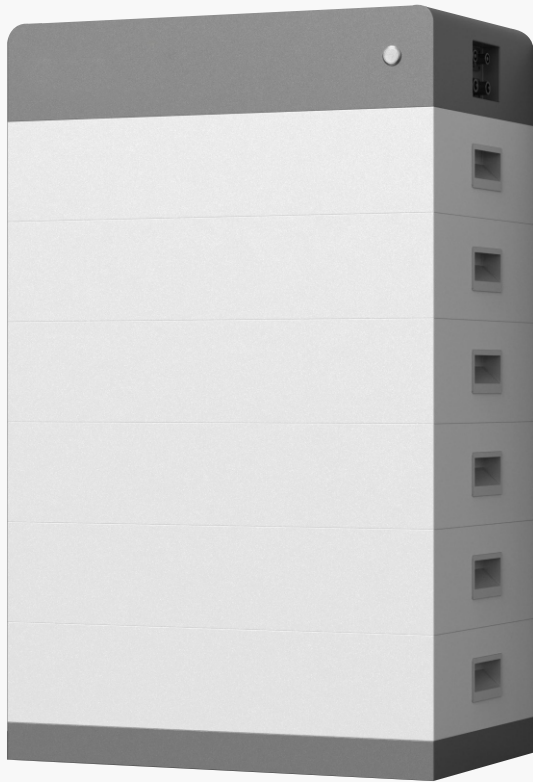


Easy to install and convenient to expand

Item number	GY5.12-LS	GY10.24-LS	GY15.36-LS	GY20.48-LS	GY25.6-LS
Compatible with inverter	Deye, Goodwe, Growatt, Aiswei, Ginlong, Megarevo				
Cell type	LFP(LiFePo4)				
Connection way	1P16S	2P16S	3P16S	4P16S	5P16S
Battery module capacity	5.12kWh	10.24kWh	15.36kWh	20.48kWh	25.6kWh
Rated Capacity	100Ah				
Rated voltage	51.2V				
Charging temperature	0~55℃				
Discharge temperature	-10~55℃				
Storage temperature	-20~45℃ (≤1 month);0~35℃ (>1 month)				
Working humidity	5~95%(no condensation)				
Maximum altitude	<3000m (>2000m derating)				
Protection degree	IP54				

Cell charging cut-off voltage	3.6V				
Single discharge cut-off voltage	2.8V				
Working voltage range	44.8V~57.6V				
Communication method	CAN , RS485				
Parallel communication	<2W(under working condition), Sleep< 50mW(inhibernatemode)				
Rated operating current	50A	100A	100A	100A	100A
Maximum operating current	100A	110A	110A	110A	110A
Cycle performance	≥6000times, 25℃				
Certification standards	UL9540A、IEC62619/IEC642277、EMC 、UN38.3 、UL1973				
Service life	10year				
Size (L*W*H)	665*370*392mm	665*370*544mm	665*370*696mm	665*370*848mm	665*370*1000mm
Installation	Indoor/Outdoor				
Weight	55kg	97kg	139kg	181kg	223kg
Protection function	Overvoltage/overvoltage/overcurrent/short circuit/reverse connection				

High voltage stack series



Item Number	GY9.6-HS	GY12.8-HS	GY16-HS	GY19.2-HS	GY22.4-HS	GY25.6-HS
System data						
Cell type	LFP(LiFePO4)					
Battery capacity	50Ah					
Battery module assembly	1P20S					
Module rated voltage	64					
Module working voltage	56~72					
Module energy (kWh)	3.2kWh					
Module number	3	4	5	6	7	8
System rated energy (kWh)	9.6	12.8	16	19.2	22.4	25.6
System rated voltage (V)	192	256	320	384	448	512
System voltage (V)	168~216	224~288	280~360	336~432	392~504	448~576
Rated charge/discharge current (A)*2	25/25					
Maximum charge/discharge current (A)*2	30/30					
Inverter communication	CAN/RS485					

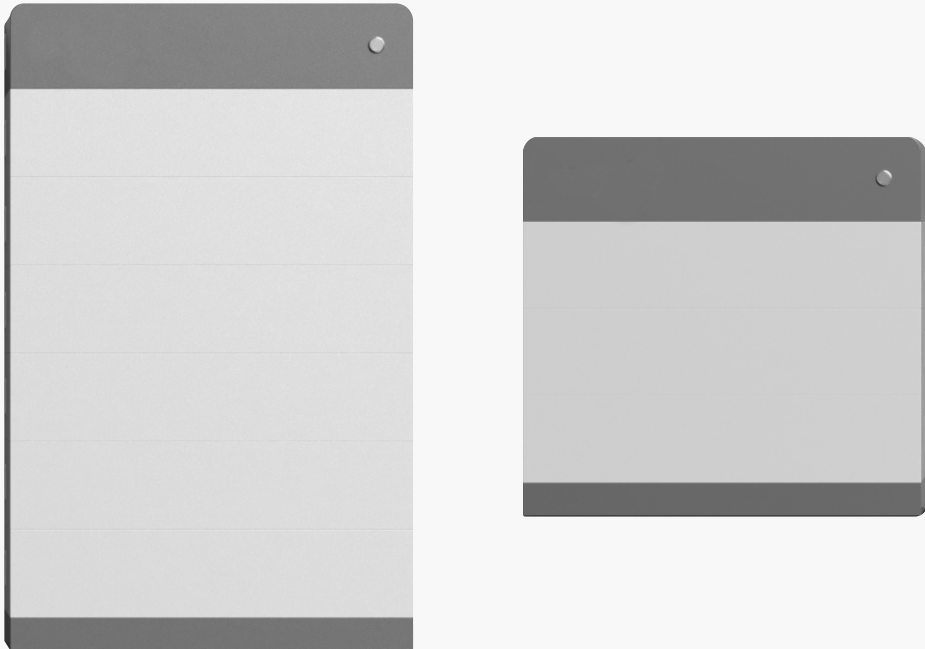
Protect

Over/under voltage protection	Yes
Current overload protection	Yes
Over temperature/low temperature protection	Yes
communication interruption	Yes

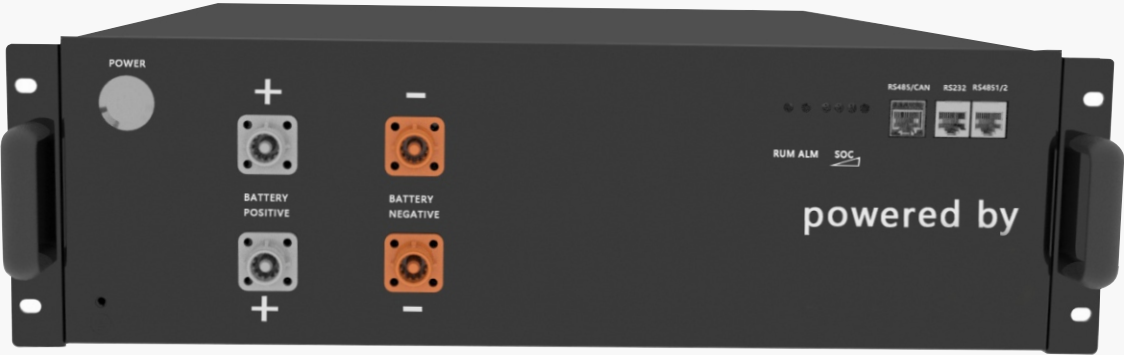
General data

weight	105kg	135kg	165kg	195kg	225kg	255kg
Dimensions (L*W*H)	635*370*624mm	635*370*757mm	635*370*890mm	635*370*1023mm	635*370*1156mm	635*370*1289mm
humidity	≤95%					
available height	2000					
Chassis model	IP55					
Charge/discharge temperature range	Charge :0 ~ 50 Discharge :-20~50					
installation location	fix to the ground					
Test Standards and Certifications	safety		IEC 62619/UL1973			
	electromagnetic compatibility		IEC61000-6-1/IEC61000-6-3			
	Trans		UN38.3			
Application	On-grid/On-grid+Backup/Off-grid					
Warranty	10 year					
Compatible with Inverter	Goodwe\Solis\Growatt\Deye					
Expandability	Up to four parallel units					

1. Test conditions, 100% DOD, charging and discharging at 0.2C, initial life cycle of battery system at +25+3°C temperature.
Different inverter systems have different available energy.
2. Temperature and SOC will affect the rated current and power.



Low
voltage
sub-box



Item Number	GY5.12-LB	GY10.24-LB	GY15.36-LB	GY20.48-LB	GY25.6-LB
Compatible with inverter	Deye, Goodwe, Growatt, Aiswei, Ginlong, Megarevo				
Cell type	LFP(LiFePo4)				
Connection way	1P16S	2P16S	3P16S	4P16S	5P16S
Battery module capacity	5.12KWh	10.24KWh	15.36KWh	20.48KWh	25.6KWh
Rated Capacity	100Ah				
Rated voltage	51.2V				
Charging temperature	0~55°C				
Discharge temperature	-10~55°C				
Storage temperature	-20~45°C (≤1 month);0~35°C (>1 month)				
Working humidity	5~95%(no condensation)				
Maximum altitude	<3000m(>2000m derating)				
Protection degree	IP54				

Cell charging cut-off voltage	3.6V				
Single discharge cut-off voltage	2.8V				
Working voltage range	44.8V~57.6V				
Communication method	CAN,RS485				
Parallel communication	6pcsinMax				
BMS power consumption	<2W(underworkingcondition) sleep< 50mW(inhibernatemode)				
Rated operating current	50A	100A	100A	100A	100A
Maximum operating current	100A	110A	110A	110A	110A
Cycle performance	≥6000 times , 25°C				
Certification standards	UL9540A、IEC62619/IEC642277、EMC 、UN38.3 、UL1973				
Service life	10year				
Size (L*W*H)	600*850*363mm	600*850*363mm	600*850*726mm	600*850*726mm	600*850*1100mm
Installation	Indoor/Outdoor				
Weight	51kg	82kg	133kg	164kg	195kg
Protection function	Overvoltage/overvoltage/overcurrent/short circuit/reverse connection				



Safe and reliable
(use only LFP - Lithium Iron Phosphate)



Modular design



Highly Compatible



Easy to install and
convenient to expand



Industrial and storage all-in-one machine



backup
power



off grid



micro grid



Energy Saving
Solutions



Self-consumption



demand cost
management

Item number	GY30/70-ICA	GY30/90-ICA	GY30/120-ICA
product parameter	30kW/70kWh	30kW/90kWh	30kW/120kWh
DC side parameters			
Cell specification	Rept 100Ah	Rept 100Ah	Rept 100Ah
Battery Type	LFP	LFP	LFP
Battery module assembly method	2P16S	2P16S	2P16S
Battery power	10.24kWh	10.24kWh	10.24kWh
Module numbers	7	9	12
Battery cluster power	71.68kWh	92.16kWh	122.88kWh
Battery system voltage range	313.6-403.2Vdc	403.2-518.4Vdc	537.6-691.2Vdc
Charge and discharge rate	0.5C	0.5C	0.5C
AC side parameters			
rated power	30kW	30kW	30kW
Rated voltage	AC380V	AC380V	AC380V
rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Maximum charge and discharge power	30kW	30kW	30kW
isolation transformer	optional	optional	optional
System parameters			
cooling method	Air Conditioning and Refrigeration		
noise	<68dB(1m)		
Protection degree	IP54		
Altitude requirements	3000m (>2000m derating)		
Ambient temperature and humidity	0 to 95% (non-condensing) -30°Cto55°C		
Output overload capability	110% overload, 10min; 120% overload, 1min		
Protocol	ModbusRTU/ModbusTCP		
fire fighting type	Heptafluoropropane		
System cycle life	≥6000 times		
Size (L*W*H)	1440*1100*2100mm	1440*1100*2100mm	1440*1100*2100mm
Total system weight	1800kg	1800kg	1800kg



Safe and reliable
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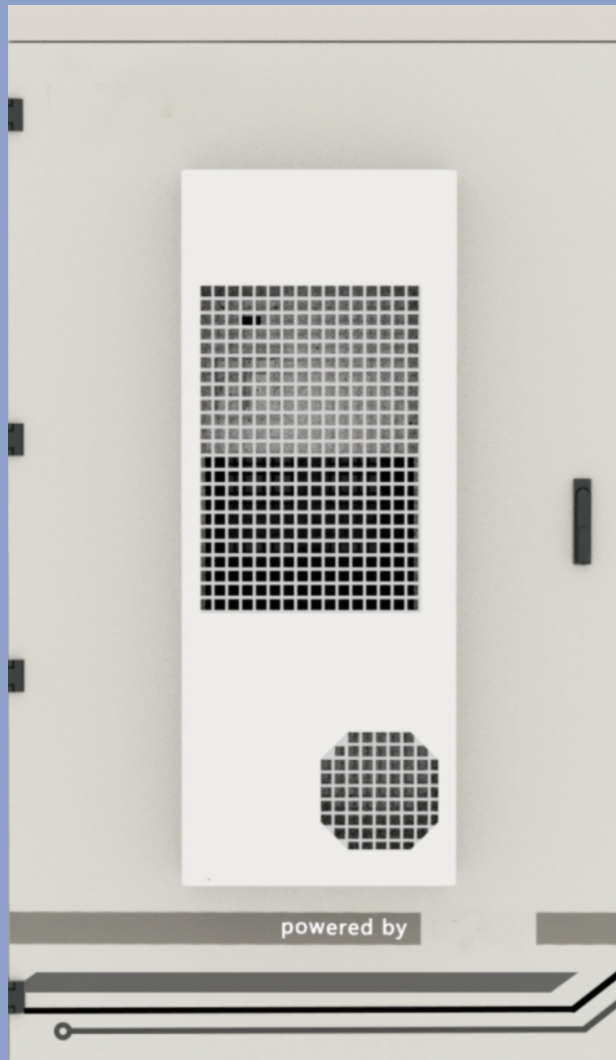
Modular design



Highly Compatible



Easy to install and
convenient to expand



Industrial and commercial energy storage split machine



backup
power



off grid



micro grid



Energy Saving
Solutions



Self-consumption



demand cost
management

Item Number	GY30/60-ICS	GY100/100-ICS	GY100/200-ICS	GY250/600-ICS
Product parameter	30kW/60kWh	100kW/100kWh	100kW/200kWh	250kW/600kWh
DC side parameters				
Cell specification	Rept 100Ah	Rept 100Ah	Rept 280Ah	Rept 280Ah
Battery Type	LFP	LFP	LFP	LFP
Battery module assembly method	2P16S	2P16S	1P16S	1P16S
Battery power	10.24kWh	10.24kWh	14.336kWh	14.336kWh
Module numbers	6	10	14	42
Battery cluster power	61.44kWh	102.4kWh	200.704kWh	602.112kWh
Battery system voltage range	268.8-345.6Vdc	448-576Vdc	627.2-806.4Vdc	627.2-806.4Vdc
Charge and discharge rate	0.5C	0.5C	0.5C	0.5C
AC side parameters				
rated power	30kW	100kW	100kW	200kW
Rated voltage	AC380V	AC380V	AC380V	AC380V
rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
Maximum charge and discharge power	30kW	100kW	100kW	200kW
System parameters				
cooling method	Air Conditioning and Refrigeration			
noise	<68dB(1m)			
Protection degree	IP54			
Altitude requirements	3000m (>2000m derating)			
Ambient temperature and humidity	0 to 95% (0 to 55°C non-condensing)			
Output overload capability	110% overload, 10min; 120% overload, 1min			
Protocol	ModbusRTU/ModbusTCP			
fire fighting type	Heptafluoropropane			
System cycle life	≥6000 times			
Size (L*W*H)	1160*1200*2100mm	1160*1200*2100mm	1200*1250*2470mm	1200*1250*2470mm
Total system weight	1800kg	2000kg	3000kg	3000kg

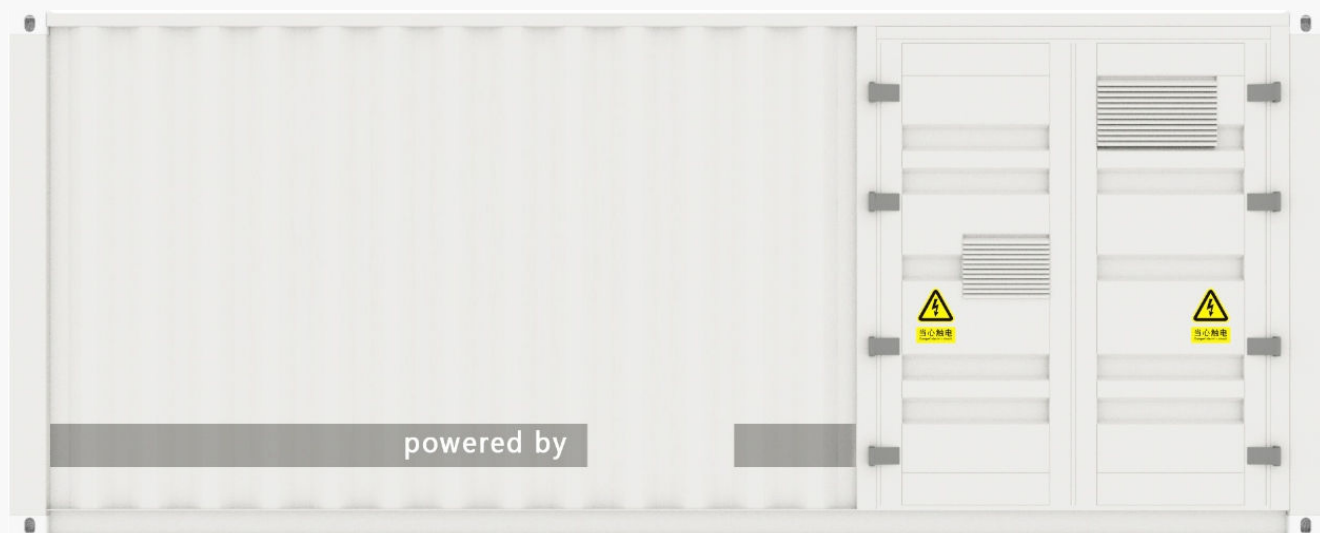


outdoor
power
supply

Item Number		GY510-P
Input/Output Performance Parameters		
Cell type	LiFePO4	
capacity	510Wh	
power	500W	
DC input	adapter 15V/5A	
AC output	500W/200V50Hz sine wave	
Type-C output	PD60W	
USB output	2 ways (5V3A/9V2A/12V1.5A), 2 ways (5V2A)	
DC5.5 output	12V5A	
Cigarette lighter output	12V10A	
Wireless charging output	Max10W, support 7.5W, 5W	
High beam	200lm2W6000k	
Low beam lights	600lm6W6000k	
cycle life	≥2000 times(SOH80%)	
working temperature	-10°C-40°C	
Size (L*W*H)	340*195*210mm	
weight	7.2kg	

Item Number		GY1000-P
Input/Output Performance Parameters		
Cell type	LiFePO4	
capacity	1058Wh	
power	1000W	
DC input*2	adapter 12V/10A,120W	
Photovoltaic charging	120W	
Type-C input	support PD3.05-20V,100W	
AC output*2	110V/60Hz,220V/50Hz,1000W	
Type-C output	Support PD3.05-20V,100W	
USB-A output* 3	Support QC3.0 output: 18W5V3A9V2A12V1.5A;	
DC5.5 output*2	60W*2	
Cigarette lighter output	120W	
Wireless charging output	Max15W	
LED	Three-speed dimming/SOS function	
cycle life	≥2000 times (SOH80%)	
working temperature	-10°C-40°C	
Size (L*W*H)	330*260*230mm	
weight	14kg	

Item Number		GY2000-P
Input/Output Performance Parameters		
Cell type	LiFePO4	
capacity	2016Wh	
power	2000W	
DC input	12V/24V,Max8A	
AC input	220-240V,50Hz/60Hz,1500W	
Photovoltaic charging	60-100V,800W	
Type-C input*3	support PD3.0,5-20V,2000W	
AC output*3	110V/60Hz,220V/50Hz,2000W	
Type-C output*3	Support PD3.05-20V,100W	
USB-A output* 3	Support QC3.0 output: 18W5V3A9V2A12V1.5A;	
DC5.5 output*2	120W	
Cigarette lighter output	120W	
Wireless charging output	Max15W	
LED	Three-speed dimming/SOS function	
cycle life	≥2000 times(SOH80%)	
working temperature	-10°C-40°C	
Size (L*W*H)	420*331*270mm	
weight	29.5kg	



- Safe and reliable
(use only LFP - Lithium Iron Phosphate)
- Modular design
- Highly Compatible
- Easy to install and
convenient to expand

Item Number	GY500/1000-C	GY630/2400-C	GY1000/2000-C
Product parameter	500kW/1000kWh	630kW/2400kWh	1000kW/2000kWh
DC side parameters			
Cell specification	Rept 280Ah	Rept 280Ah	Rept 280Ah
Battery Type	LFP	LFP	LFP
Battery module assembly method	1P16S	1P16S	1P16S
Battery power	14.336kWh	14.336kWh	14.336kWh
Battery Cluster Formation	1P224S	1P224S	1P224S
Battery cluster power	200.704kWh	200.704kWh	200.704kWh
Number of battery system modules	70	168	140
Battery system voltage range	627.2-806.4Vdc	627.2-806.4Vdc	627.2-806.4Vdc
battery system capacity	1003kWh	2408kWh	2006kWh
Charge and discharge rate	0.5C	0.5C	0.5C

AC side parameters			
rated power	500kW	630kW	1000kW
Rated voltage	AC380V	AC380V	AC380V
rated frequency	50Hz/60Hz	50Hz/60Hz	50Hz/60Hz
System parameters			
cooling method	Air Conditioning and Refrigeration		
noise	<68dB(1m)		
Protection degree	IP54		
Altitude requirements	3000m(>2000m derating))		
Ambient temperature and humidity	0to95%(non-condensing)/-30°C to 55°C		
Output overload capability	110% overload, 10min; 120% overload, 1min		
Protocol	ModbusRTU/ModbusTCP		
fire fighting type	Heptafluoropropane		
System cycle life	≥6000 times		
Size (L*W*H)	6058*2650*2890mm	12192*2650*2890mm	12192*2650*2890mm
Total system weight	17t	35t	30t

Industrial and commercial energy storage

