LITHIUM BATTERY OVERALL SOLUTION MANUFACTURER

LIAONING ZLION ENERGY., LTD

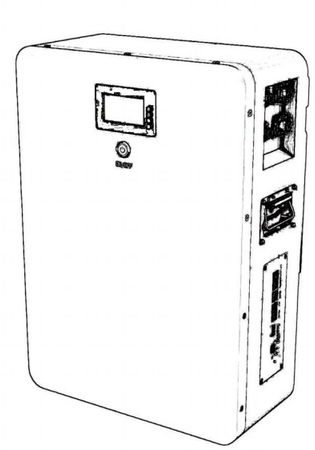
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01

Residential Energy Storage Solutions



Wall Mounted Series P05-06

ZL-WM-5.0

ZL-WM-10.0

Ground Mounted Series P07-08

ZL-WM-15.0

Ground Movable Series P09-10

ZL-GM-15.0

Ground Stackable All In One Series(Inverter+Battery) P11-12

ZL-GS-AIO-5.0

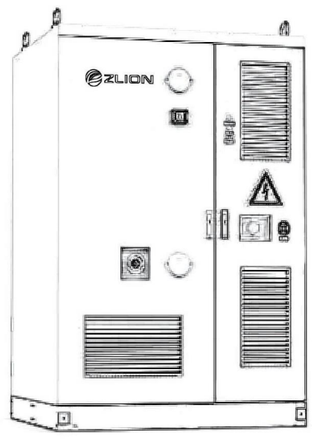
ZL-GS-AIO-10.0

ZL-GS-AIO-16.0

ZL-GS-AIO-32.0

02

C&I Energy Storage Systems



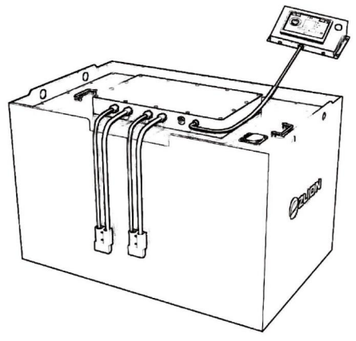
HV Flexible BESS P15-16

All In One BESS P17-18

Containerized Liquid Cooling Battery System P19-20

03

Lithium Iron Phosphate Power Battery



Forklift Battery Series P23-24

ZL-FB-48300

ZL-FB-48460

ZL-FB-48690

Golf car Battery Series P25-26

ZL-GB-48100

ZL-GB-48200

Recreational Vehicle Battery Series P27-28

ZL-RV-12100

ZL-RV-12150

ZL-RV-12200

ZL-RV-12314

AGV Battery Series P29-30

ZL-AB-4824

ZL-AB-4840

ZL-AB-4850

ZL-AB-48100

Company Profile

Liaoning Zlion Energy Co., Ltd. is a professional LiFePO4(lithium- ion Phosphate battery) battery manufacture for worldwide customers.

We have more than 12 years production experience. We ensure good quality and price for our products. And we focus on Manufacturing home energy storage LiFePO4 batteries and power battery packs for EV, AGV, Forklift, RV, abd etc., provide full solution for your batter including BMS, from battery design to battery delivery.

In recent years, the development of new energy in Liaoning zlion has come from this industry. In the future, the company will firmly adhere to "responsibility, integrity, innovation and" forge ahead ", actively promote the company to enter the global platform, focus on the long-term development of new products, solar energy, energy storage and other energy industries, and contribute to social development to provide sustainable energy.






10 years of R & D and production experience

Products sold to 50 + countries

The factory has full lithium battery production range

5000m'manufacturing Center in Liaoning，China



Company Certification

In the field of new energy, it has obtained a number of national patents and software copyrights. The company has CE certification, CQC certification, ROHS certification, UN38.3 testing, MSDS testing and identification of cargo transportation conditions. It is one of the few companies in the industry that has mastered various technologies.





IAF | CE | ISO 9001 | CNAS | UN38.3 | MSDS

01

RESIDENTIAL ENERGY STORAGE SOLUTIONS

Residential Energy Storage Solutions

Wall Mounted Series





Safety | Compatiblity & Reliable | Intelligent | Battery management system | self-discharge | hyperthermia

Product Introduction

- 6000 Cycles (25℃,80% DOD) for effectively lower total of ownership cost.
- Low maintenance batteries with stable chemistry.
- Battery Management System (BMS) is incorporated against abuse.
- Lithium batteries provide more Wh/Kg while also being up to 1/3 the weight of its SLA equivalent.
- up to 6 months thanks to its extremely low self discharge (LSD) rate and no risk of sulphation.
- Suitable for use in a wider range of applications where ambient temperature is unusually high: up to +60°C.
- Save time and increase productivity with less down time thanks to superior charge/-discharge efficiency.

Product Specifications



	Model	ZL-WM-5.0	ZL-WM-10.0
System Data	Cell type	LiFePO4	
	Capacity	5.12kw	10.24kw
	Nominal capacity	100Ah	200Ah
	Nominal battery voltage	51.2 V	
	Battery voltage range	44.8 V -57.6 V	
	Max. charging / discharging current	100A	150A
General Data	Dimensions(W/D/H)	410 / 190 / 595mm	524 / 200 / 750mm
	Life cycles(80% DOD, 25°C)	6000 Cycles	
	Weight	~55kg	~95 kg
	Installation location	indoor / outdoor	
	Mounting method	Wall Mount	
	Operating temperature range	Charge: 0°C~ 55°C Discharge:-20°C ~ 55°C	
	Storage temperature range	-2°C ~ 55°C	
	Cooling concept	Natural convection	
	Degree of protection	IP21	
	Relative humidity	5~95%, non-condensing	
	Max. operating altitude	3000m	
	Scalability	Max. 15 pcs inParallel	
	Communication	CAN/RS485/WIFI	
	Certifcation	CE/UN38.3/MSDS/UL1642(Cell)/IEC62619(Cell)	
	Life time@25°C	10 Years	

Residential Energy Storage Solutions

Ground Mounted Series



Low Voltage | Simple Installation | High Efficiency | Expandable System | 90% DoD

Product Introduction

Embedded BMS offers four remote functions which can communicate with far-end central control center by computer management.

Under normal operating conditions, the entire system emits very little noise due to their passive cooling design.

Embedded BMS offers voltage, current, temperature protection and alarm functions. BMS can communicate with other device by modbus protocol.

The power system has secondary cut-off protection and when the voltage is too low the system will cut off the support from the battery to protect the battery service life.

Product Specifications



Model	ZL-WM-15.0
ELECTRICAL CHARACTERISTICS	
Battery Type	LiFePO4 Prismatic Cell
Number of Modules	1
Norminal Voltage	51.2 V
Norminal Capacity	300Ah
Energy Capacity	15.36 Kwh
Operating Voltage [v]	47.2-57.6V
Recommend Discharge Current [A]	100
Max.Discharge Current [A]	200
Communication	CAN&RS485
Display	LCD*1
Depth of discharge [%]	90
OPERATING CONDITIONS	
Installation Location	Outdoor/Indoor(Stand)
Discharge Temperature	-20ºC-60ºC
Charge Temperature	0ºC-45ºC
Storage Temperature [℃]	25
Cooling method	Natural Convection
Humidity [%]	5～95(No Condensing)
MECHANICAL CHARACTERISTICS	
Cycle Life	≥6000
Dimensions (W*D*H) [mm]	940x270x000mn
Approx.Weight	120kgs
Lithium Battery Standard	IEC62619,CE-EMC
Transportation	UN38.3/MSDS/DG

Residential Energy Storage Solutions

Ground Movable Series



Flexible capacity

Battery safety

Module design

7 inch touchable screen

Product Introduction

The GM Series offers flexible energy options for diferent scenarios, which adopts liFeP04 chemistry,together with multiple level protection from BMs and inverters to ensure its extreme safety and reliability excelent performance, and a long lifespan.

It features of movable design to save time and cost.

Product Specifications

	Battery module	ZL-GM-5.0C	ZL-GM-10.0C	ZL-GM-15.0C
System Data	Cell type		LiFePO4	
	Max Power	5.12kw	10.24kw	16.0kw
	Nominal Voltage		51.2V	
	Nominal Capacity	100Ah	200Ah	314Ah
	Battery voltage range		44.8V-57.6V	
	Max.charging/discharging current	100 A	150 A	200 A
	Max.charging/discharging Energy	5.12kw	10.24 kwh	16.0 kwh
General Data	Dimensions(W/D/H)	600/220/500mm	800/230/550mm	940/270/500mm
	Life cycles(80%DOD,25℃)		6000 Cycles	
	Weight	~53kg	~84kg	~125kg
	Installation location		indoor/outdoor	
	Mounting method		Gound Moveable	
	Operating temperature range		Charge:0℃~55℃ Discharge:-20℃~55℃	
	Storage temperature range		-20℃~55℃	
	Cooling concept		Natural convection	
	Degree of protection		IP21	
	Relative humidity		5~95%,non-condensing	
	Max.operating altitude		3000m	
	Scalability		Max.15 sets in parallel	
	Communication		CAN/RS485	
	Certification		CE/UN38.3/MSDS/UL1642(Cell)IEC62619(cell)	
	Life time@25℃		10 Years	

Residential Energy Storage Solutions

- Ground Stackable All In One Series(Inverter+Battery)



Flexible capacity

Energy storage unit

underwiring

On-demand expansion

Module design

Product Introduction

modular stacking design,flexible matching energy storage unit,on-demand expansion.

can be flexibly matched with any manufacturer inverter.

Modular battery pack and modular inverter, easy to assemble toexpand, power, expand capacity,less wiring, reduce costs, beautiful appearance.

Product Specifications

	Battery module	ZL-GS-AIO-5.0	ZL-GS-AIO-10.0	ZL-GS-AIO-16.0	ZL-GS-AIO-32.0
Battery Data	Cell type	LiFePO4			
	Module quantity(Inverter+Battery)	1+1	1+2	1+1	1+2
	Nominal energy	5.12 kWh	10.24 kWh	16.0kWh	32.1kwh
	Nominal voltage	51.2 V			
	Operating voltage	44.8 V~57.6V			
	Nominal charging / discharging current	100 A(Each module)			
Genera l Data	Battery module Dimensions W/D/H)	700/540/206mm	700/270/mm	700/540/300mm	700/540/530mm
	Battery module Weight	~54kgs	~90kgs	~115kgs	~210kgs
	Operating temperature range	Charge: 0 ~ 55°C Discharge: -20°C ~ 55°C			
	Storage temperature range	-20°C ~ 45°C			
	Relative humidity	5~95%, non-condensing			
	Communication	RS485 / CAN			
	Certification	CE/ROHS/ UN38.3/MSDS//IEC62619(Cell)			
	Life time@25°C	6000 times			
Inverter data	Rated Power	5kw		10kw	
	Voltage	48V			
	Nominal Voltage	110VAC/ 220VAC			
	Voltage Range	90-145VAC/ 154-265VAC ;185-264VAC (selectable)			
	Frequency	50-60HZ Auto sensing			
	Power Factor	1			
	Voltage	220VAC			
	Frequency	50/60HZ			
	Waveform	Pure Sine Wave			
	Transfer Time (AC to DC)	<8ms			
	Transfer Time (DC to AC)	<8ms			
	Output Voltage Regulation	±10%			
	Bypass Mode	Yes			
	Saver Mode	Yes			
	Efficiency	>98%			
	Input Protection	Circuit Breaker			
	Output Protection	Circuit Breaker			
	Charging Current	30A		55A	
	Low Level disconnect (Selectable)	20V -22V/40V-44V		40V -42V	
	PWM controller Voltage range	30VDC-66VDC		60VDC-150VDC	
	PWM Maximum PV display open circuit voltage	75V			
	Maximum PV array power	6400W(120A)			
	MPPT control voltage range	34V-150V/68V-150V		60V-150V	
	MPPT Maximum PV display open circuit voltage	150VDC			
	Maximum solar charge current	60A		120A	
	LCD indicator status	AC input voltage/input frequency, PV voltage, PV current , Output Voltage/Frequency, Battery voltage, Load current etc.			
	LED indicator status	AC Line In:Green/Inverter:Red/Charging :Yellow/Alarm :Red			
	LOW battery alarm	Audible alarm-5 seconds beeping			
	Overload alarm	Audible alarm- continuous beeping			
	Fault	Audible alarm- continuous beeping			
	Temperature	-10°C ~ 60°C			
	Humidity	10℃~90℃ Non condensing			

Remarks:above data for reference only,without notice if any change.Special volt can be customized.

02

C&I ENERGY STORAGE SYSTEMS SOLUTIONS

C&I Energy Storage Systems

HV Flexible Stack BESS



Industrial and commercial energy, microgrids

Flexible Expansion 60-225kwh

Fast Charge &Discharge

Safe and Long Lifespan

Product Feature

- Protection functions against over-discharge, over-charge,over-current, over-high or low temperature.
- Automatically manage charge/discharge and balance current/voltage
- Modular design, simple and fast operation and maintenance, improve the system utilization.
- No memory effect, excellent performance of shallow charge and discharge

Product Specifications

	Model	ZL-Stack-314
System Data	Battery type	LiFePO4
	Module Voltage/Capacity	51.2V/314Ah
	System Modules Series Number	5-16
	Rate voltage	256V-819.2V
	Recommendcharging/discharging current	150A
	Max.charging/discharging current	200A
	Peak Discharge Current(2mins, 25°C)	300A
	Single Cluster Dimensions(W/D/H)	690/500/(160+240*n) n stands for the number of mudules
	Life cycles(80%DOD,25℃)	8000 Cycles
	Single Module Weight	~110kg
	Depth of Discharge	90%
	Mounting method	Stack Type
	Operating temperature range	Charge:0℃~55℃ Discharge:-20℃~55℃
	Storage temperature range	-20℃~55℃
	Cooling concept	Natural convection
	Degree of protection	IP21
	Relative humidity	5~95%,non-condensing
	Max.operating altitude	3000m
	Compatible Inverter	plyon、growatt、goodwe、sofarsolar、victron、voltronic、lxp、deye、ginlong、sma.
	Communication	RS485&CAN
	Certification	CE/UN38.3/MSDS/UL1642(Cell)IEC62619(cell)
	Life time@25℃	10 Years

1. DC Usable Energy, test conditions : 90% DOD, 0.3C charge & discharge at 25°C.
2. The current is aected by temperature and SOC.
3. The warranty is due whichever reached first of warranty period or life cycle power.

C&I Energy Storage Systems

- All In One BESS





Small Industrial And Commercial Energy Storage

Small microgrid

Optical Storage Charging Station

Emergency Standby Power

Product Feature

Highly Integrated

ALL-in-one integrated design, simple installation and maintenance, saving space and cost.

Modular Design

More flexible configuration, multiple parallel connections, fast response, and ensuring continuous uninterrupted power supply for critical loads.

Rich Configuration

Supports simultaneous access to load, battery, power grid or diesel generator, and photovoltaic.

Safe And Reliable

Multiple fire protection design, cell level temperature detection + PACK level

Intelligent Operation and Maintenance

The entire network's energy storage is visible and manageable, improving system reliability, stability, operation and maintenance efficiency, and optimizing system performance.

Extreme Temperature Control

Precise liquid cooling temperature control, cell temperature difference ≤ 1°C,system temperature difference ≤ 3 °C.The system has higher efficiency and longer service life.

Product Specifications

System model	ZL-AIO-100	ZL-AIO-200
DC side parameters		
Cell type	LFP314	
Module Configuration	1P16S	
Cluster configuration	1P16S /7 battery packs	1P16S /14 battery packs
Rated Capacity	314Ah	314Ah
Nominal voltage	358.4V	716.8V
Battery voltage range	324.8~403.2Vdc	1164.8~1476.8Vdc
Nominal battery capacity	112kWh	225kWh
Charge/discharge rate	0.5C	0.5C
AC Output/Input data		
AC normal Output	50kw	100kw
Nominal AC Output voltage/range	380, 3L/N/PE	380/400/415V,-15%~+10%
NominalAC grid frequency/range	50Hz	50/60Hz,45-55Hz/55-65Hz
Max. output current	83.3A	166.7A
Max. AC apparent power	55kVA	110kVA
AC normal Input	50kw	100kw
Nominal AC Input voltage/range	380, 3L/N/PE	380/400/415V,-15%~+10%
Nominal AC grid frequency/range	50Hz	50/60Hz,45-55Hz/55-65Hz
Max. lutput current	83.3A	166.7A
System data		
Dimension W/D/H	725/1200/2260mm	725/1200/2260mm
Weight	1200±100gs	2400±100kgs
Photovoltaic side parameters		
Maximum input module power	75kW	156kw
MPPT Voltage Range	165V-850V	180V-800V
Number of MPPT trackers	4	10
No. of PV strings per MPP tracker	2	2
Max. input current per MPP trackert	42/32/42/32A	32A

C&I Energy Storage Systems

Containerized Liquid Cooling Battery System



Product Feature

Intelligent temperature control system

Intelligent Liquid Cooling Circulation System.

Automatic fire extinguishing systems

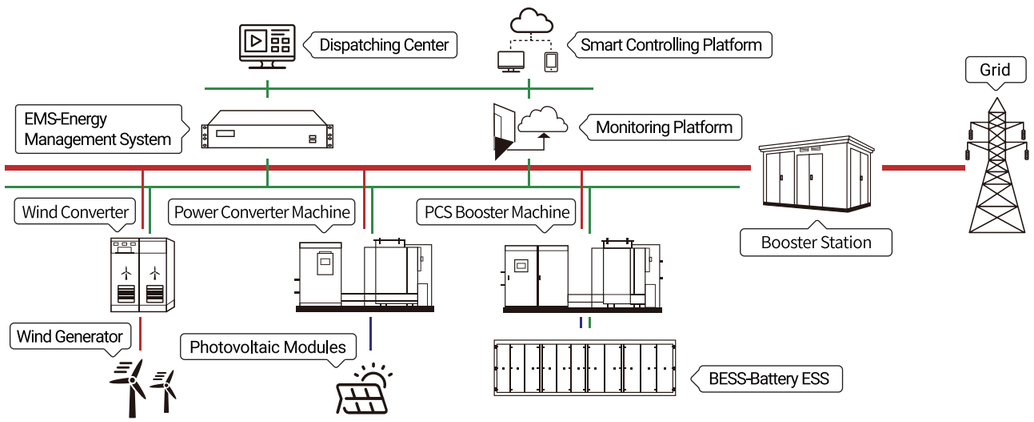
Aerosol fire extinguishing + combustible gas detection + sprinkler fire protection + ventilation and explosion relief system.

PCS, EMS access flexibility

RS485, CAN, Ethernet communication interface.

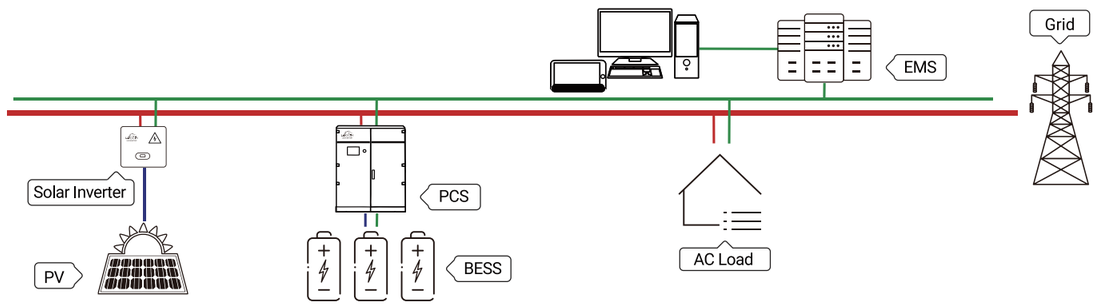
Protection class IP55

Container protection class IP55 with special design for anti-corrosion and heat insulation.



Product Specifications

System model	ZL-B4179-20L	ZL-B5015-20L
DC side parameters		
Cell type	LFP314	LFP314
PACK group configuration	1P52S	1P52S
Cluster configuration	1P416S /8 battery packs	1P416S /8 battery packs
System configuration	10P416S	12P416S
Nominal voltage	1331.2V	1331.2V
Battery voltage range	1164.8~1476.8Vdc	1164.8~1476.8Vdc
Nominal battery capacity	4.179MWh	5.015MWh
Charge/discharge rate	0.5C	0.5C
System Parameter		
Dimensions（W*D*H）	6058*2438*2896mm	6058*2438*2896mm
Weight	≈39t	≈45t
IP class	IP55	IP55
Anti-corrosion grade	C3~C5(Customize)	C3~C5(Customize)
Working altitude	No derating below 2000 m	No derating below 2000 m
Operating temperature	-20°C~55°C	-20°C~55°C
Operating noise	≤75dB(A)	≤75dB(A)
Cooling method	Intelligent liquid cooling	Intelligent liquid cooling
Fire fighting system	Aerosol fire extinguishing + combustible gas detection + sprinkler fire protection + ventilation and explosion relief system	
Certification	UL1973,UL9540,UL9540A,EC62619,EC 62620,UN38.3	





03

LITHIUM IRON PHOSPHATE POWER BATTERY

Lithium Iron Phosphate Power Battery

Forklift Battery Series



Low maintenance

Fost charging

Safest lithium technology

High capacity

Product Feature

Productivity boost with opportunity charging

ZLION Energy batteries can be charged up to 7% in 10 minutes. Operators can take the opportunity of charging during shift breaks. This maximizes uptime. Trucks are always available when needed.

BMS system to maximize the battery life time

ZLION'S BMS system constantly monitors the status of the battery such as the temperature of the battery cells and it calculates the batteries' state of charge. It keeps the battery in a safe and stable condition.

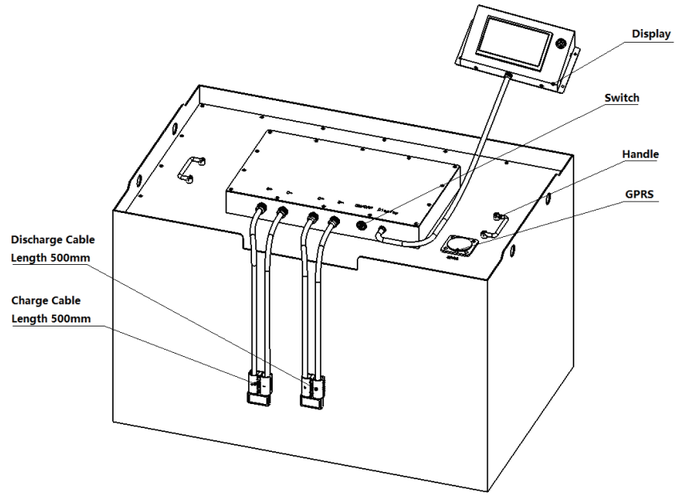
Long battery life with less maintenance costs

ZLION battery comes with a naturally long life cycle thanks to Li-ion technology. It is maintenance-free and assures workplace safety with no water filling, air ventilation, and acid spills required.

Real-time battery monitoring display and power switch

ZLION battery offers a battery indicator which can be equipped in the cabin. Operators can monitor the battery condition in real time and control power supply during an operation.

Product Specifications



Model	ZL-FB-48300	ZL-FB-48460	ZL-FB-48690
Battery Color	Black	Black	Black
Nominal Capacity(Ah)	300Ah	460Ah	690Ah
Nominal Voltage(V)	48V	48V	48V
Standard Charge Current(A)	150A	150A	150A
Standard Discharge Current(A)	200A	300A	400A
Protection Class	IP 54	IP 54	IP 54
Box Dimensions(mm)	Customize		
Operating Temperature -Discharge(°C)	-20°C-55°C	-20°C-55°C	-20°C-55°C
Operating Temperature -Charge(°C)	0°C-40°C	0°C-40°C	0°C-40°C
Charger	48V100A/150A/200A Optional		
Application	Electric Folklifts, electric vehicles, Solar Energy Storage Systems		
Brand Name	Zlion/OEM		
Certification	UN38.3		
OEM	Customize 36V/48V/72v forklift battery		

Remarks: above data for reference only, without notice if any change. Special volt can be customized.

Lithium Iron Phosphate Power Battery

Golf car Battery Series



Low Temperature and High Efficiency

High cycle count

Low self-discharge

High discharge currents

Product Feature

- Safety, Environment Friendly, Pollution- Free.
- Fast charging & Low self- discharge.
- Built in Battery Protection. Every Battery comes with a built in battery protection system designed to protect and maintain the battery cells.
- Long Life 3000 - 5000 Cycles. About 3000 charge/discharge cycles, VS 300 of Lead acid batteries.
- 70% Lighter than Lead Lithium Batteries average 70% ighter than the same size Lead acid battery.
- 100% Depth of Discharge (DOD) Can be discharged to 100% of the rated capacity VS 70% Lead acid batteries.

Product Specifications

Model	ZL-GB-48100	ZL-GB-48200
Connection	1P16S	2P16S
Rated Voltage	51.2V	
Voltage Range	40-58.4V	
Rated Capacity	100Ah	200Ah
Total Energy	5.12Kwh	10.24kwh
Net Weight	40KG	80KG
IP Grade	IP67	IP67
Dimension	390*560*180mm(W*L*H)	237*770*285mm(W*L*H)
Standard Charging current	0.5c	
Standard Discharge current	100A(1C)	210A(1C)
Continuous Discharge current	100A	200A
Peak current(10s)	⩽200A	⩽400A
Charging temperature	0°C - 45°C	
Discharge temperature	−20°C - 45°C	
Humidity	0%~98%	

Remarks: above data for reference only, without notice if any change. Special volt can be customized.







Lithium Iron Phosphate Power Battery

Lead-Acid Replacement **Battery Series**



Low maintenance

Fost charging

Safest lithium technology

High capacity

Product Feature

- Support 4P4S Connection
- Abnormal battery status indication.
- .History footprint track and playback.
- Maintenance by nearby staff to improve.

Product Specifications

Specification	ZL-RV-12100	ZL-RV-12150	ZL-RV-12200	ZL-RV-12314
Nominal Voltage	12.8V	12.8V	12.8V	12.8V
Nominal Capacity	100Ah	150Ah	200Ah	314Ah
Energy Capacity	1.28kWh	1.92kWh	2.56kWh	3.58kWh
Cell Specifications	LiFePO4	LiFePO4	LiFePO4	LiFePO4
Cell Configuration	4S1P	4S1P	4S2P	4S1P
Charging Cut-off Voltage	14.6V	14.6V	14.6V	14.6V
Discharging Cut-off Voltage	10.8V	10.8V	10.8V	10.8V
Max Charge Current	100A	100A/150A (Optional)	150A/200A (Optional)	150A/200A (Optional)
Max Discharge Current	100A	150A/200A (Optional)	150A/200A (Optional)	150A/200A (Optional)
BMS Protection	Over-voltage,Low-voltage,Temperature control,Overloadand short circuit protection, Surge protection			
Cycle Life (95% DOD)	>3000 Cycles			
Warranty	3years			
Other Function (Optional)	Bluetooth/LCD/Supports up to 4 series and 4 parallel connections			
Shell Material	ABS Plastic			
Dimension (W/D/H)	330×172×220 mm	502×186×240mm	522×240×220mm	522×268×220 mm
Net Weight	10kg	16kg	22kg	26kg
Operating Temperature	Charging: 0°C~60°c,Discharging:-20°C~60°C			
Storage Humidity	5%-85%			
Altitude	<4000m			
Transportation	UN38.3			

Lithium Iron Phosphate Power Battery

AGV Battery Series



Low Temperature and High Efficiency

High cycle count

Low self-discharge

High discharge currents

Product Feature

The power battery system is composed of highest quality LifePO4 cells.

The design of the power battery system meets the relevant requirements of environmental adaptability, reliability, maintainability, test ability, and security, and is suitable for energy storage or power requirements.

Product Specifications

Model	ZL-AB-4824	ZL-AB-4840	ZL-AB-4850	ZL-AB-48100
Battery Type	LiFePO4			
Nominal capacity(Ah)	24	40	50	100
Nominal Voltage(V)	51.2			
IR (mΩ)	≤1			
Charging Temperature（℃）	0～ 55			
Discharging Temperature（℃）	-20～ 55			
Humidity （ RH ）	≤85%			
Working Voltage	43.2～ 58.4V			
Total Energy	1228.8wh	2084Wh	2560wh	5120wh
Dimension	610*192*62mm (or customize)	650*320*90mm (or customize)	753*192*118mm (or customize)	520*200*230mm (or customize)
Cons.charge current	0.5C	0.5C	0.5C	0.5C
Cons.Discharge current	1C	1C	1C	1C
Peak Discharge current(10S)	40A	80A	80A	150A
Charge cut off Voltage	58.4V			
Discharge cut off Voltage	43.2V			
Weight	21kgs	28kgs	33kgs	48kgs
Communication	Support Canopen&CAN&RS485			
Certification	CE/MSDS/UN38.3/DG			
Terminal	Anderson or As Required			

Remarks: above data for reference only, without notice if any change. Special volt can be customized.

Market Performance

Residential Energy Storage Solutions

C&I Energy Storage Systems

Lithium Iron Phosphate Power Battery



51.2V/460Ah Forklift battery Project in Thailand



household ESS Project in Malaysia
5kw/15kwh



Off-grid Project in Lagos , Nigeria
12kw/20kwh



Off-grid Project in Lagos , Nigeria
40kw/120kwh



300 kW microgrid project in Thailand



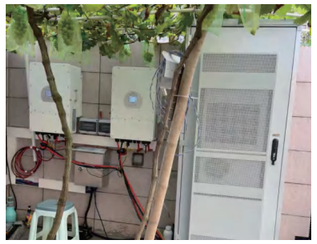
Off-grid Project in Tanzania
105kw/232kwh



Three Phase Hybrid Project in Greece
20kw/20kwh (High Voltage)



Pv+100 kW off-grid solar storage project in Yemen



Off-grid Project in Vietnam
24kw/60kwh