

2021

OEM & ODM. Battery Pack



Distributor :

442/2 Chan Road, Thung Watdon Saton Bangkok Thailand 10120 www.7-mars.com

Email : info@7-mars.com / Tel : +66 (02) 114 7145-9 Auto. Ext. # 1 Contact / Sales



01

Power Storage

CONTENTS



Company Profile



R&D Capability



Product Platform



Strategic Target





Company Profile

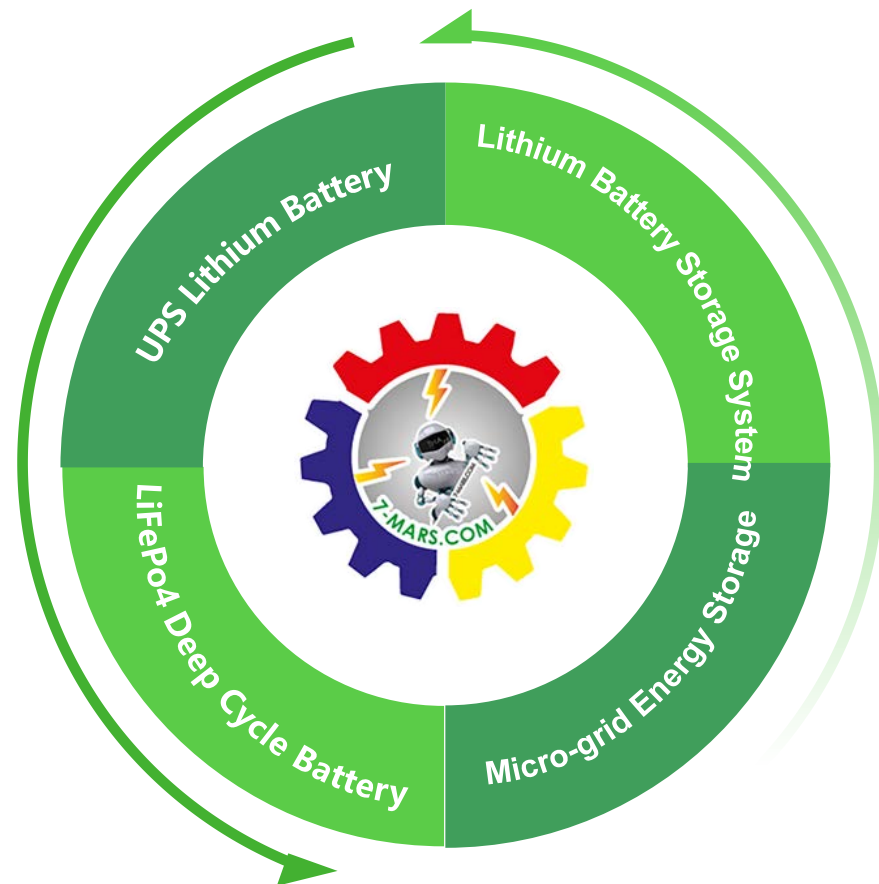


Zhongrui Green Energy Technology(Shenzhen) Co., Ltd.

We are a high-tech enterprise mainly engaged in the R&D, design, production and sales of lithium battery management system, lithium battery energy storage system, lithium battery module and battery monitoring system.

- The company has become one of the lithium battery energy storage system, Micro grid energy storage, UPS lithium battery and LiFePo₄ deep cycle battery leading manufacturers in the field of Lithium-ion energy in China.

- Committed to providing customers with safety , light and durable green energy products





Company Profile



Continuous independent innovation ability



Excellent overall development and design ability of lithium-ion battery module



Excellent cost control ability



Reasonable business positioning



High-quality customer resources

The company has become one of the lithium battery system application manufacturers with the strongest design ability, the most complete supporting ability and the most product series in the field of lithium-ion energy in China.



Four Product Platforms



Lithium Battery Energy Storage System



UPS Lithium Battery

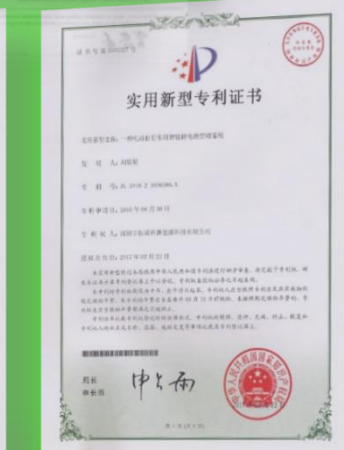
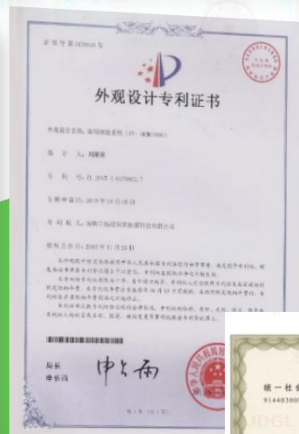
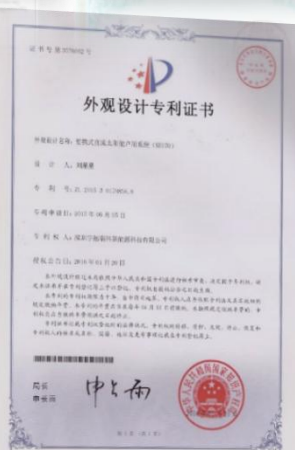
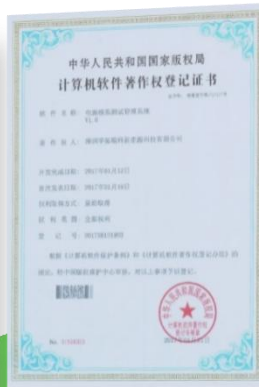


Micro Grid Energy Storage



LiFePo₄ Deep Cycle Battery

Company Honors





Vision, Mission, Value

Vision

Continuous innovation to create first-class energy products and create sustainable energy products and business opportunities for consumers and partners.

Value

Fairness, justice, tolerance, and integrity.

Mission

- Based on the business purpose of providing customers with safe, reliable and stable energy products and services, creating good returns for shareholders, avowing together with partners.
- providing space for employees to develop, and creating public value for society, we actively provide employees, stakeholders such as customers, partners, and society assume social responsibility, and strive to achieve harmonious development between the company and customers. Share holders, partners employees and society, so that more people can lead a better quality of life.

Purpose

We are committed to the business philosophy of “customer first, people-oriented, quality, technology leadership, and sustainable profit growth” to create a trusted brand image and a respectable public image.

Spirit

Diligence, hard work, innovation, win-win.

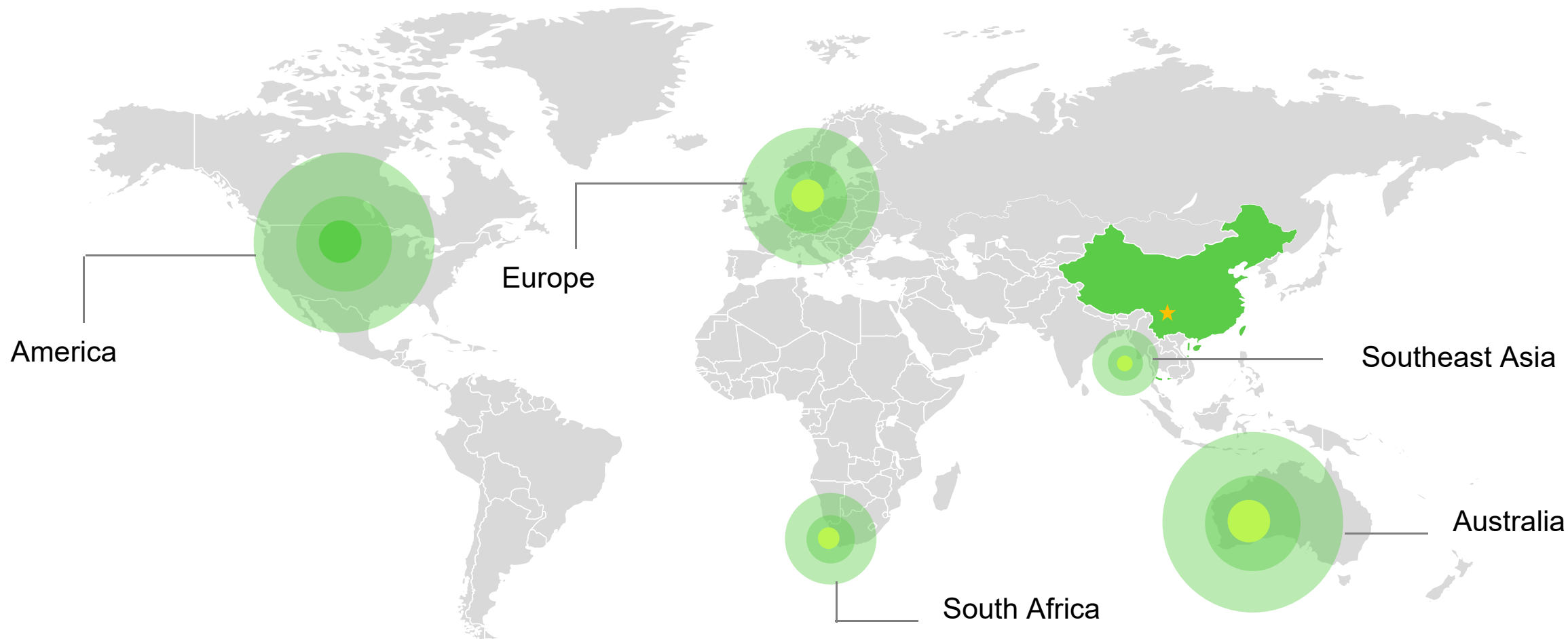




Market Distribution

Global Market Distribution

The company has sales offices and product centers in Shenzhen Nanshan district, Europe, the United States, South Africa, Southeast Asia, etc., which can provide solutions and services for local customers quickly and effectively. The main partners are Indonesia Telkomsel, Thailand Truemove, Vietnam Mobiphone, South Africa MTN America Graham, America Lithiumhub, Germany ETSOLAR, Netherlands Newelectric, South Africa SolarEPC, Australia Master Instrument so on.



Part 02

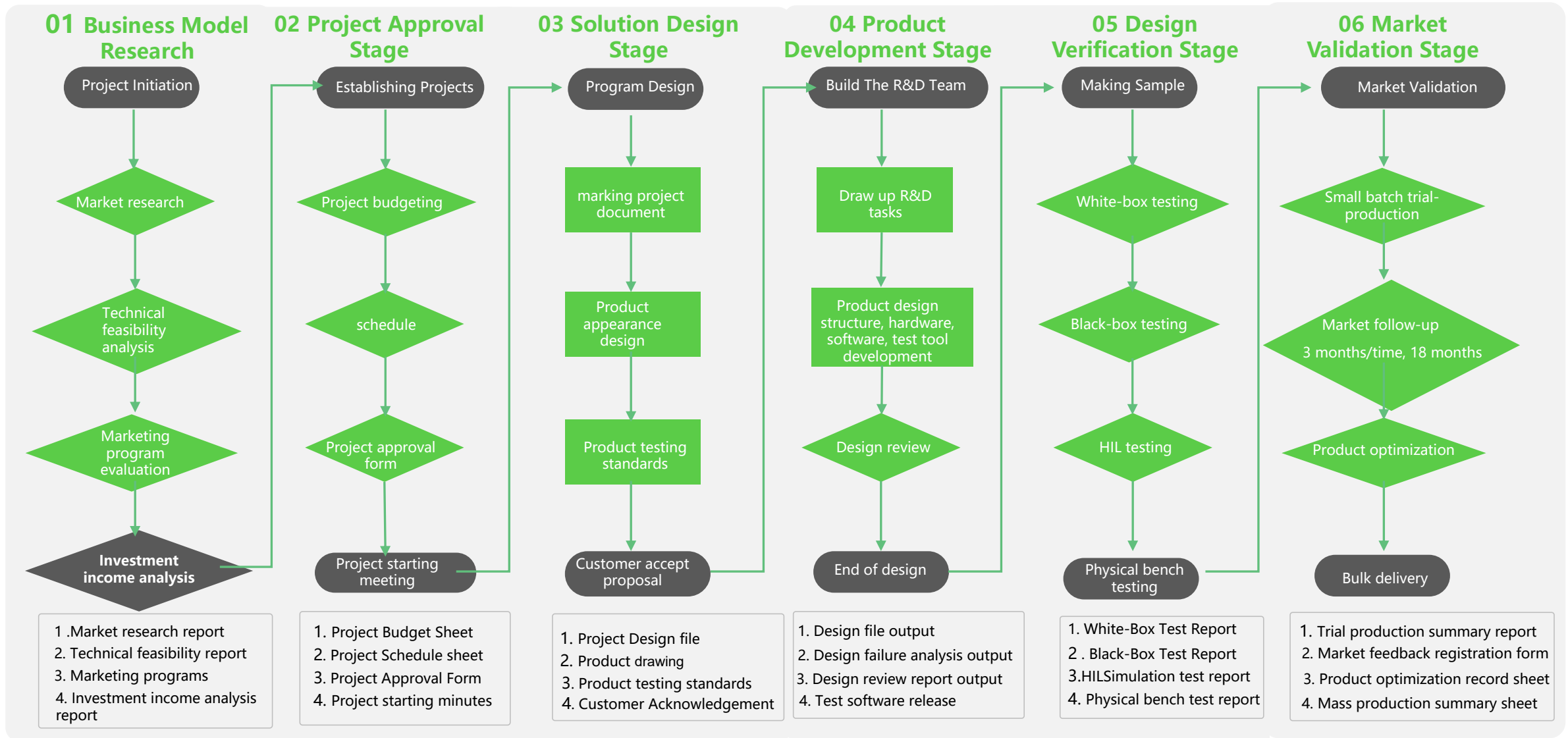


R&D Capability

- R&D System
- Design Validation
- Experiment Condition
- Design Capacity

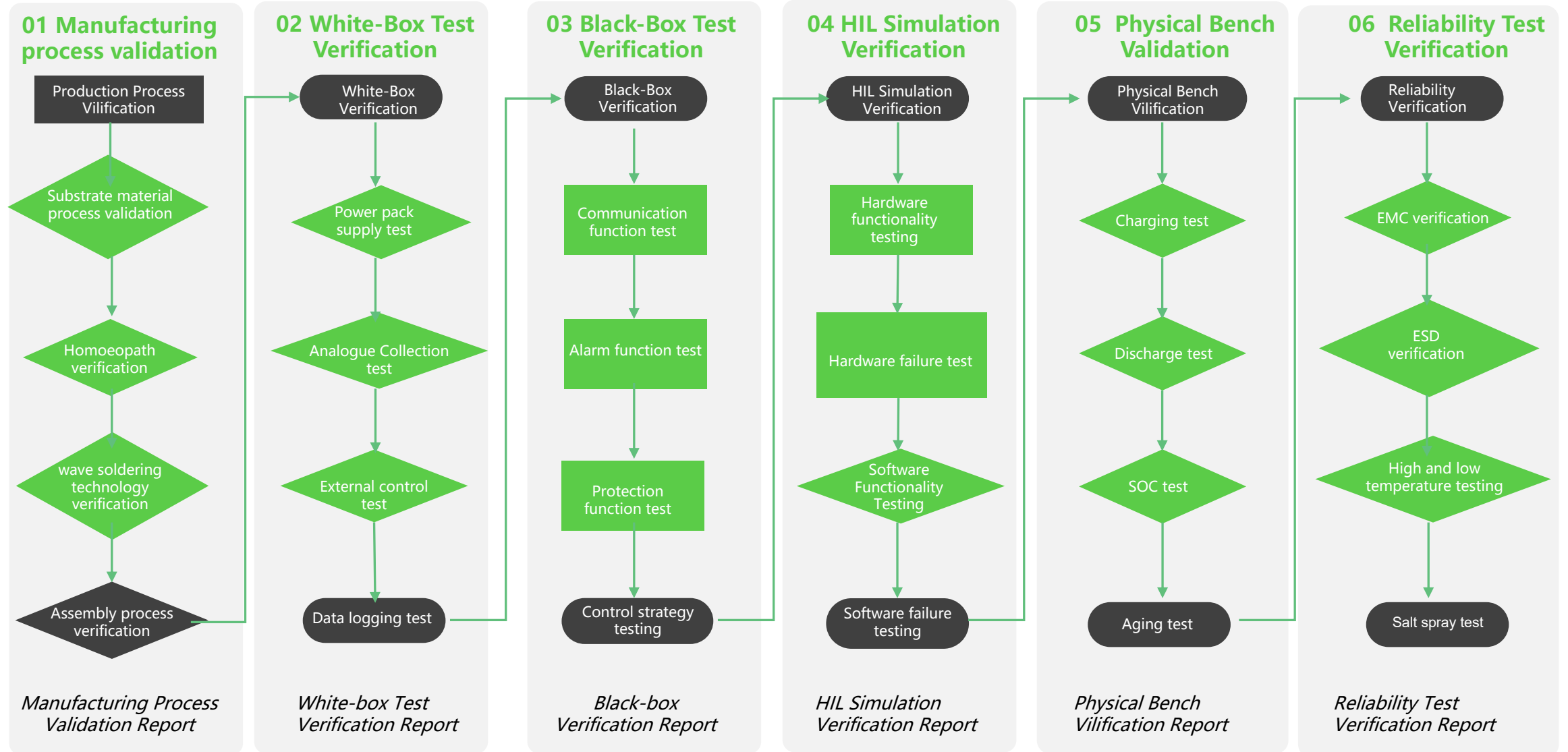


R&D System





Verification System



Experimental Conditions

We have built our cell lab, hardware lab, software lab, system simulation lab, environment lab, and reliability lab to ensure the design verification basis in the R&D process.

Cell performance test

Cell safety test

Hardware functionality test

System environment test

System aging test

Software module testing and control strategy simulation testing

System performance testing and system control logic testing



Hardware Lab



Software Lab



Cell Lab



System Simulation Lab



Environment Lab



Reliability Lab



Design Capacity



Intelligent Communication
Module



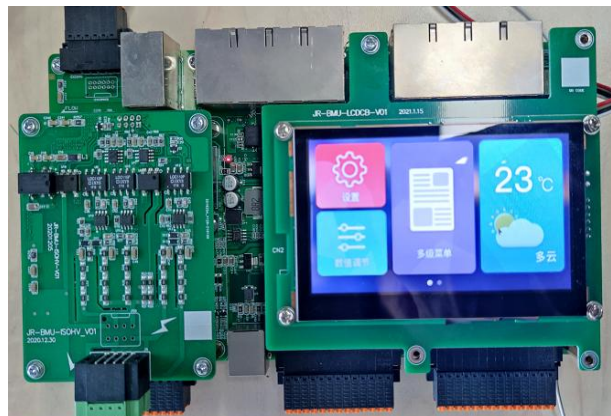
FC Series Module BMS



Li-ion Replacement
Module BMS

EMS

Energy Storage BMS
All-in-one Machine

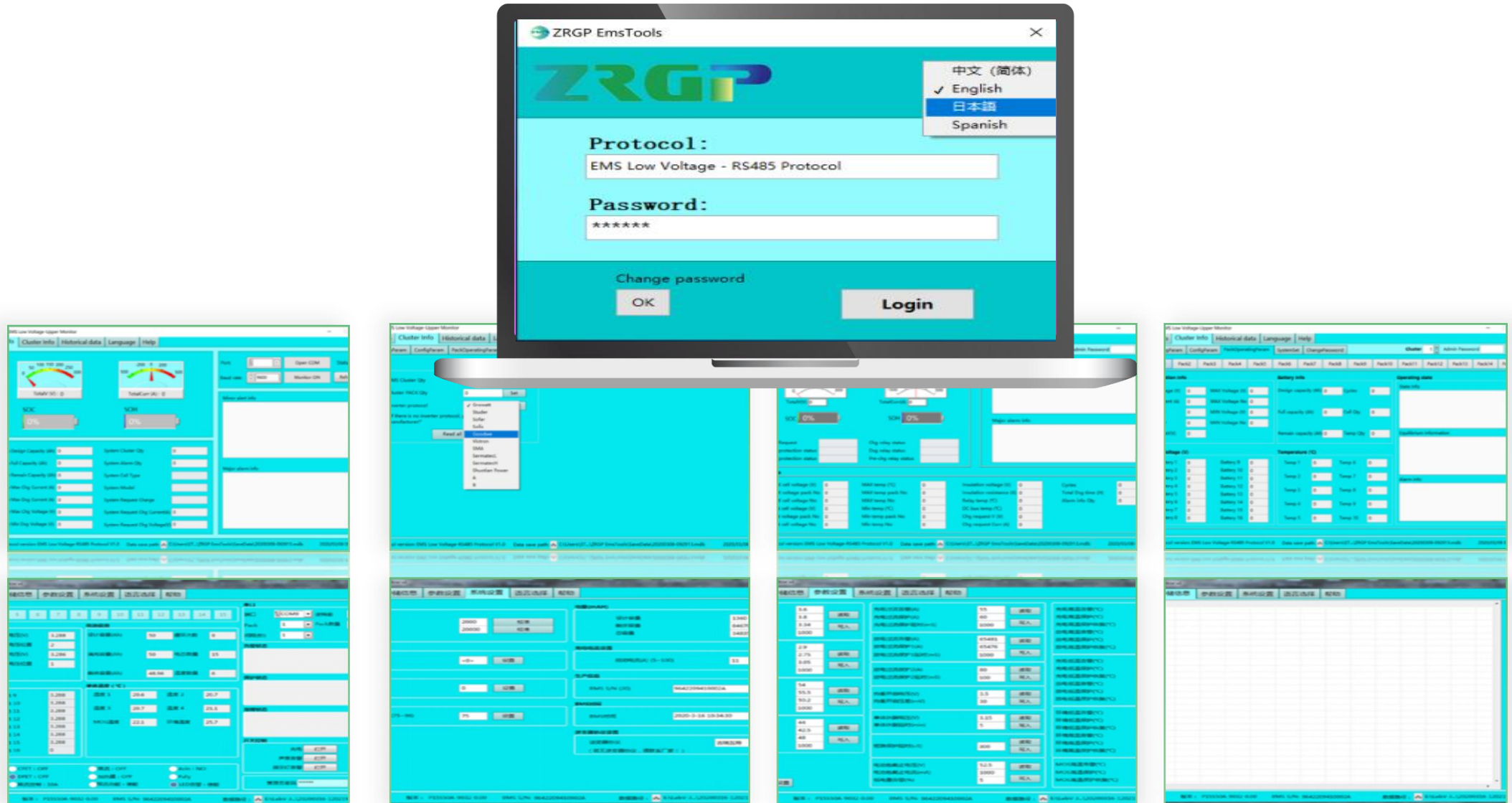


Off-grid And
Household System
Main Control Module





Design Capacity



Part 03



Applications

- Lithium Battery Energy Storage System
- Micro Grid Energy Storage
- LiFePo4 Deep Cycle Battery
- UPS Lithium Battery

Lithium Battery Energy Storage System

Battery module

Intelligent BMS

Master control

Structure assembly

- A system can accommodate up to 10 module, and it is supported that paralleling up to 15 system.
- The battery capacity can be freely adapted in the interval 5kWh to 768kWh according to the needs of users, and the output power supports 12kW-144kW.



Master control matches with mainstream brands of the global photovoltaic inverter:

SMA\Victron\Studer\GoodWe\Growatt
\Solis\Sofarsolar (Free communication)

Compatible Inverter Brand

Schneider
Electric

SOFAR
SOLAR

SMA

Sermatec

victron energy

SUN SYNK

Growatt

STUDER

GOODWE

solis
inverters



X1 Series



FC Series



Mate Series



PRO Series



Power Base X1

LiFePo₄ Battery

Intelligent BMS

Structure Assembly

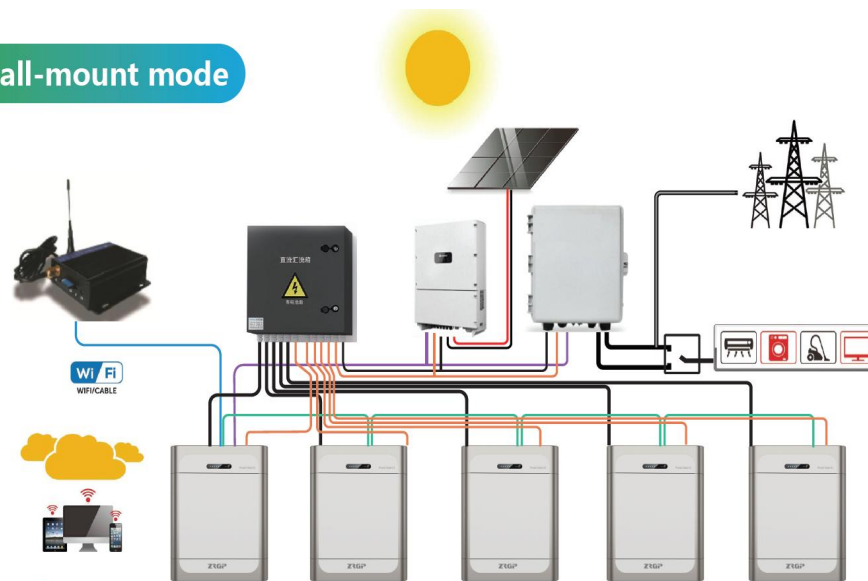
- X1 energy module can accommodate up to 5.12 Kwh capacity and parallel up to 63 module.
- Freely adapted in the interval 5.12kWh to 322kWh according to the needs of users.
- Matches with mainstream brands of the global photovoltaic inverter.



Description

- Use LiFePo₄ cells with high safety, good reliability and long cycle life.
- The system has a built-in intelligent BMS to protect the battery system in all aspects.
- The system comes with a display module, which can display the charge and discharge status and SOC.
- Cycle life ≥ 8000 times.

Wall-mount mode



Features

- Good extensibility, supporting 63 modules to be used in parallel.
- Good adaptability and can be adapted to the global mainstream photovoltaic inverters.
- Support expansion and power expansion.
- Wall-mounted installation, quick installation, and reduce the occupied area.



Power Base FC

LiFePo₄ Battery

Intelligent BMS

Structure Assembly

- FC energy module can accommodate up to 5.12 Kwh capacity and parallel up to 63 module.
- Freely adapted in the interval 5.12kWh to 322kWh according to the needs of users.
- Matches with mainstream brands of the global photovoltaic inverter.

Description

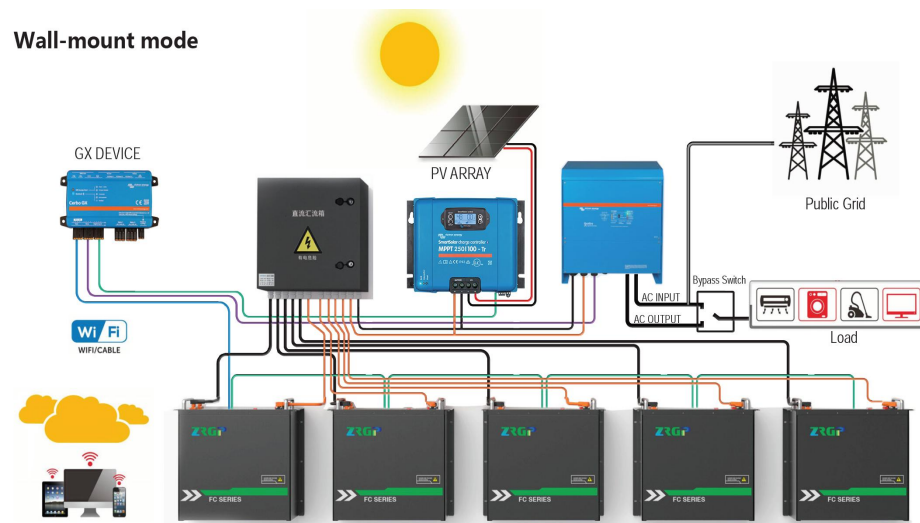
- Use LiFePo₄ cells with high safety, good reliability and long cycle life.
- The system has a built-in intelligent BMS to protect the battery system in all aspects.
- The system comes with a display module, which can display the charge and discharge status and SOC.
- Cycle life ≥ 8000 times.

Features

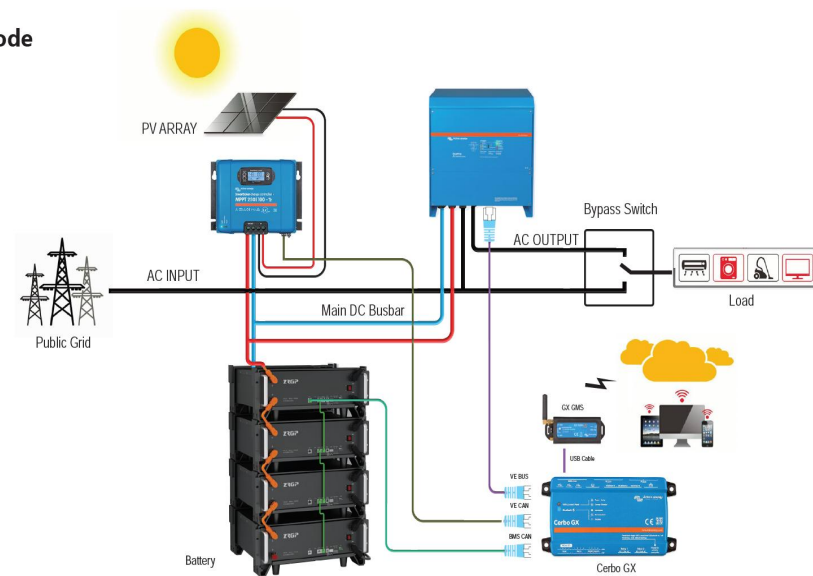
- Good extensibility, supporting 63 modules to be used in parallel.
- Good adaptability and can be adapted to the global mainstream photovoltaic inverters.
- Support capacity and power expansion.
- The standard 19-inch 3U size, which can be installed in the cabinet, wall-mounting and stacking by brackets.



Wall-mount mode



Stack mode





Power Base Pro

LiFePo₄ Battery

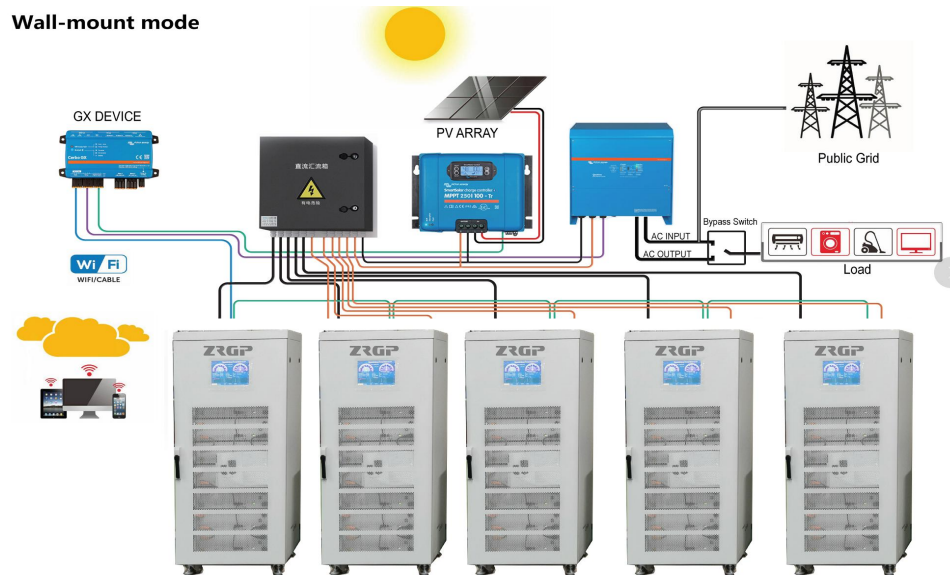
Intelligent BMS

Master Control Module

Structure Assembly

- Pro battery module can accommodate up to 5.12 Kwh capacity and parallel up to 10 module.
- Freely adapted in the interval 5.12kWh to 51.2kWh according to the needs of users.
- Matches with mainstream brands of the global photovoltaic inverter.

Wall-mount mode



Features

- Good extensibility, supporting 15 systems to be used in parallel.
- Meets 5.12kWh-768kWh capacity requirements according to user needs.
- A single system supports a load power of 12kW and has good adaptability, which can be adapted to global mainstream photovoltaic inverters.
- It supports capacity expansion and power expansion, and supports 144kW output through capacity expansion.
- With its own display screen, you can view system information and running status in real time.



Description

- Use LiFePo₄ cells with high safety, good reliability and long cycle life.
- The system has a built-in intelligent BMS to protect the battery system in all aspects.
- The system comes with a display module, which can display the charge and discharge status and SOC.
- Cycle life≥8000 times.





Power Base Mate

LiFePo₄ Battery Module

Intelligent BMS

Structure Assembly

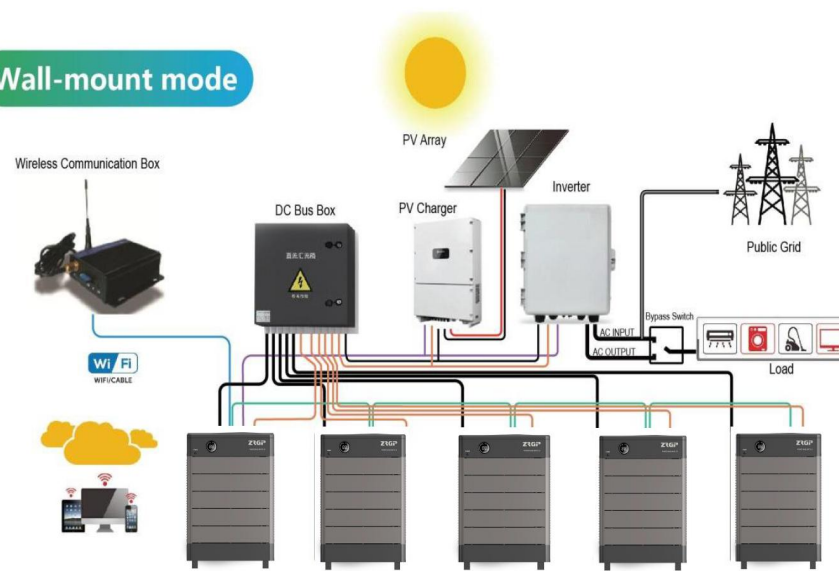
- Mate battery module can accommodate up to 5.12 Kwh capacity and parallel up to 10 module.
- Freely adapted in the interval 5.12kWh to 51.2kWh according to the needs of users.
- Matches with mainstream brands of the global photovoltaic inverter.



Description

- Use LiFePo₄ cells with high safety, good reliability and long cycle life.
- The system has a built-in intelligent BMS to protect the battery system in all aspects.
- The system comes with a display module, which can display the charge and discharge status and SOC.
- Cycle life ≥ 8000 times.

Wall-mount mode



Features

- Good extensibility, supporting 15 systems to be used in parallel.
- It can meet 5.12kWh-768kWh capacity requirements according to user needs.
- A single system supports a load power of 12kW and has good adaptability, which can be adapted to global mainstream photovoltaic inverters.
- It supports capacity expansion and power expansion, and supports 144kW output through capacity expansion.
- Stacked installation, can be quickly stacked according to actual demand capacity.
- The protection grade is IP55, and it can be installed and used outdoors.
- Built-in display, you can view system information and running status in real time.



Micro Grid Energy Storage



MAX15006D
DC Energy Storage
System



MAX15006D1
DC Energy Storage
System



MAX15050D
DC Energy Storage
System



MAX15080A
Off-grid/On-grid
AIO Machine



Power Base Cube
Micro Grid Energy
Storage System

MAX1506D1

MAX1506D1 DC Energy Storage System

Battery Module

Master Control Module

Photo-Voltaic Controller

DCDC Battery

PV Converge Module

Structure Assembly

- Accommodate up to 5.12kWh capacity, up to 3 modules can be connected in parallel.
- Freely adapted in the interval of 5.12 Kwh-15.2 Kwh according to user needs.
- Matches with mainstream brands of the global photovoltaic inverter. (Omron, Yaskawa Electric, Mitsubishi Electric, etc.)

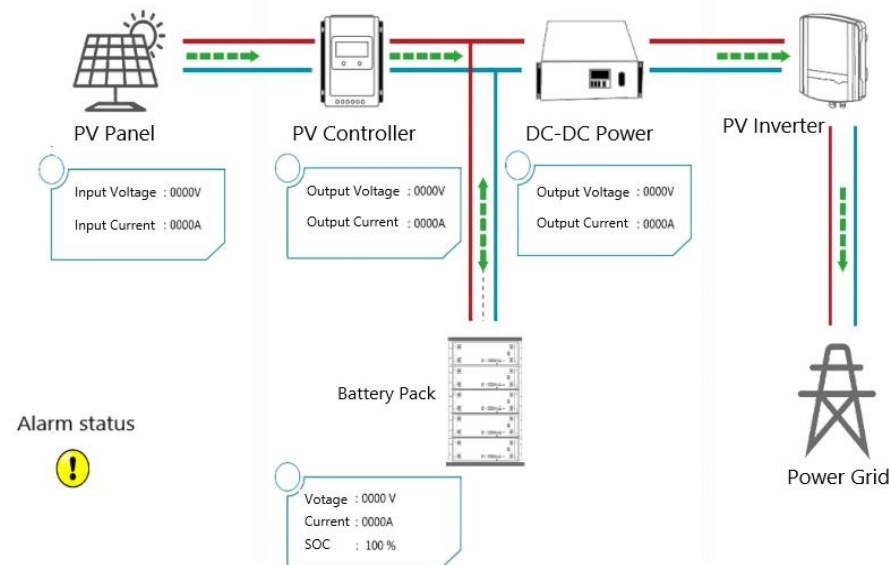


Description

- Use LiFePo₄ cells with high safety, good reliability and long cycle life.
- The system has a built-in intelligent BMS to protect the battery system in all aspects.
- The system comes with a display module, which can display the charge and discharge status and SOC.
- Cycle life ≥ 8000 times, DOD > 80%.
- Through remote monitoring, the operating status of the battery system can be monitored at all times.
- Modular design, easy to install and easy to maintain.

Features

- It has good extensibility and supports up to 20 systems in parallel.
- A single system supports a load power of 6KW and has good adaptability, which can be adapted to the global mainstream photovoltaic inverters.
- It supports capacity expansion and power expansion, and supports 120kW/300kWh output through capacity expansion.
- With air conditioner, it can be installed in cold/high temperature areas.
- The protection grade is IP55, which can be installed and used in coastal areas.



MAX15050D

MAX15050D DC Energy Storage System

Battery Module

Master Control Module

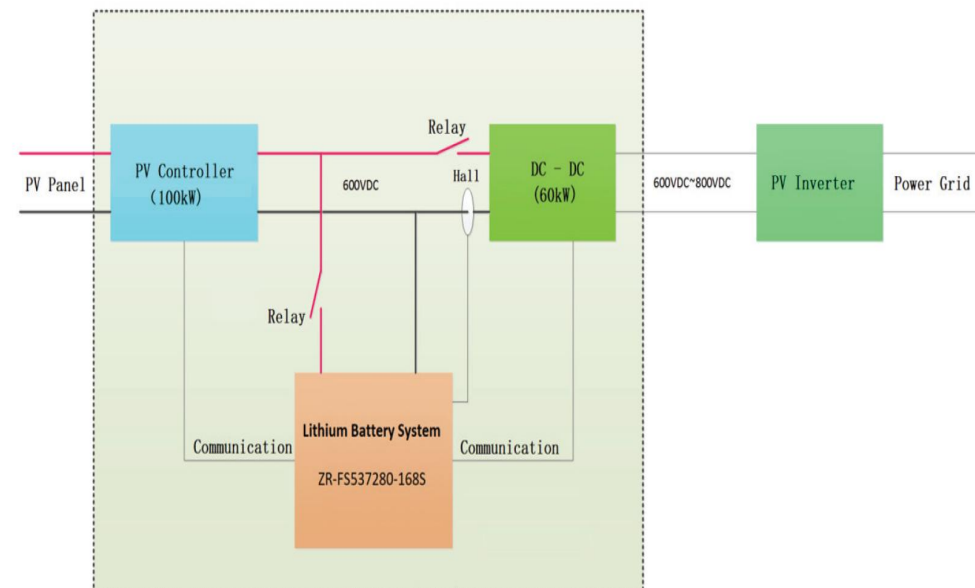
Photo-Voltaic Controller

DCDC Battery

PV Converge Module

Structure Assembly

- Can hold up to 150KWH capacity, up to 63 modules can be connected in parallel.
- Can be freely adapted according to user needs 150KWH-9450KWH.
- Matches with mainstream brands of the global photovoltaic inverter. (Omron, Yaskawa Electric, Mitsubishi Electric, etc.)



Description

- Use LiFePo4 cells with high safety, good reliability and long cycle life.
- The system has a built-in intelligent BMS to protect the battery system in all aspects.
- The system comes with a display module, which can display the charge and discharge status and SOC.
- Cycle life ≥ 8000 times.
- Through remote monitoring, the operating status of the battery system can be monitored at all times.
- Modular design, easy to install and easy to maintain.

Features

- Good extensibility, supporting 63 systems to be used in parallel.
- A single system supports a load power of 50KW and has good adaptability, which can be adapted to the world's mainstream photovoltaic inverters.
- Support expansion and power expansion, support 3MW/9.45MWH output through expansion mode.
- With air conditioner, it can be installed in cold/high temperature areas.
- With the high protection level, it meets the salt spray design.
- High voltage design, higher conversion efficiency.

MAX15080A

MAX15080A AC Energy Storage System

Battery Module

Master Control Module

Photo-Voltaic Controller

PCS

PV Converge Module

Structure Assembly

- System capacity is 150KWH, no need to add inverter.
- It can directly connect photovoltaics and the grid, achieve on-grid /off-grid connections so that it can meet their own consumption functions.

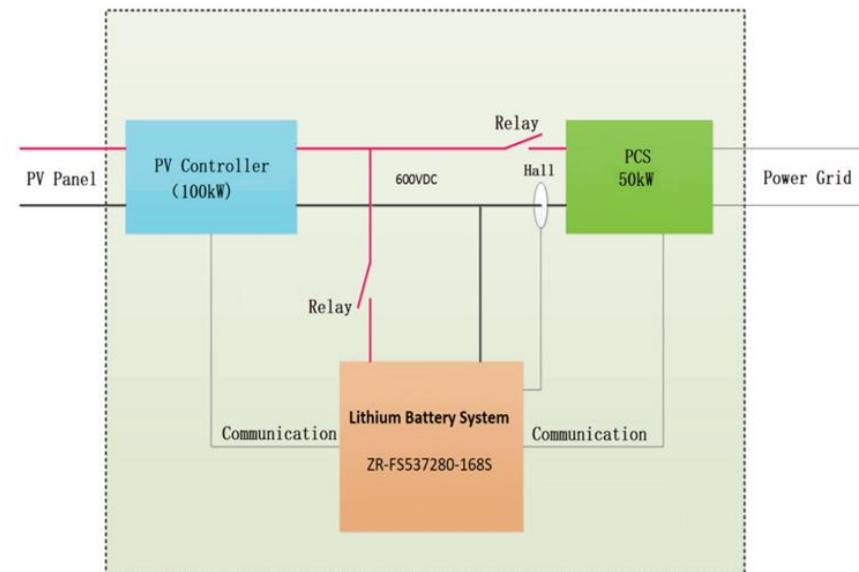


Description

- Use LiFePo₄ cells with high safety, good reliability and long cycle life.
- The system has a built-in intelligent BMS to protect the battery system in all aspects.
- The system comes with a display module, which can display the charge and discharge status and SOC.
- Cycle life ≥ 8000 times.
- Modular design, easy to install and easy to maintain.

Features

- It has good extensibility and supports parallel use of 20 systems.
- A single system supports a load power of 80KW, which can meet most industrial and commercial use scenarios.
- Support expansion and power expansion, and support 1.6MW output through expansion.
- Support local grid connection standards.
- Support expansion and power expansion.
- Intelligent control can realize the functions of matching load, smoothing photovoltaic, cutting peak and filling valley, etc.



Power Base Cube

Power Base Cube Micro-grid Energy Storage System

Battery Module

Master Control Module

Optical Storage Integrated Machine

EMS Module

Converge Module

Structure Assembly

Auxiliary System

● The battery capacity can reach 387kWh, and the output of the optical storage integrated machine can reach 100kW.

● The integrated container design is easy to install and maintain.

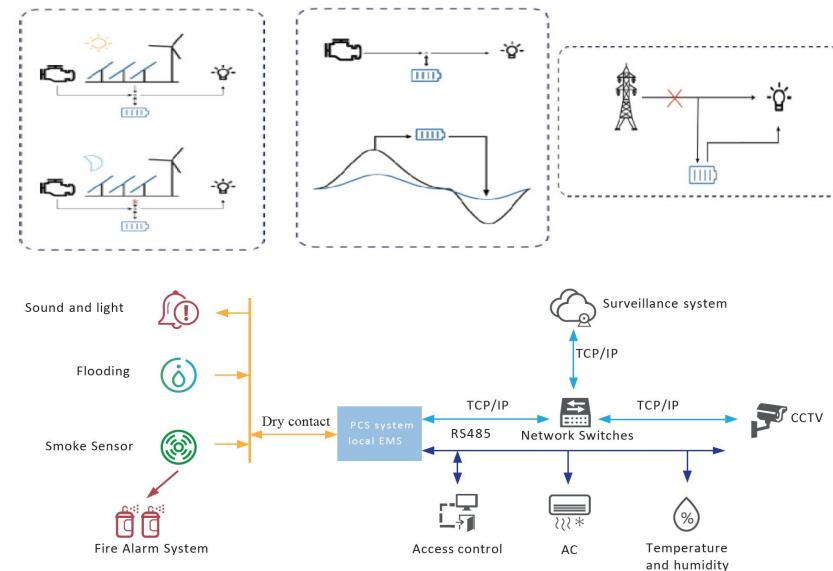


Description

- Use LiFePo₄ cells with high safety, good reliability and long cycle life.
- The system has a built-in intelligent BMS to protect the battery system in all aspects.

Features

- It has good extensibility and supports parallel use of multiple systems.
- According to user needs, the maximum capacity demand of 387kWh can be met.
- A single system supports a load power of 100kW and has good applicability, which can meet the needs of most industrial and commercial energy storage.
- Support capacity expansion and power expansion, and support 500kW output through capacity expansion.



- The system comes with a display module, which can display the charge and discharge status and SOC.
- Cycle life≥8000 times.
- Conform to local grid connection standards.
- The integrated container design is easy to install and maintain.
- The battery capacity and power output can be changed according to customer needs.
- The container design meets the harsh outdoor installation requirements.
- Intelligent control can realize the functions of matching load, smoothing photovoltaic, peak shaving and valley filling.



LiFePo4 Deep Cycle Battery

Support parallel expansion capacity

Support series connection to 48V system, and can meet 4 parallel use.

All series support 12V standard module size

The size of the interface is the same as that of lead acid, which is a perfect replacement.

Built-in BMS management system in standard battery

With safe and reliable overcharge, overdischarge, overcurrent, and short circuit protection functions, customers can choose whether to configure the Bluetooth function according to their needs.

Bluetooth function

The APP supports Android and Apple systems. Install the APP on the smart terminal to monitor and modify operating parameters.



Monitoring Of LiFePo4 Deep Cycle Battery





LiFePo4 Deep Cycle Battery Series



ZR-LFP12007



ZR-LFP12010



ZR-LFP12020



ZR-LFP12050



ZR-LFP12100



ZR-LFP12150



ZR-LFP12200



ZR-LFP24100



UPS Lithium Battery

AC DPS



DC DPS



Uranus lithium battery
energy storage system

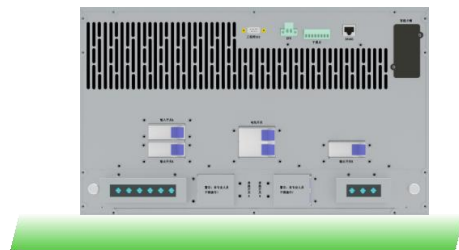
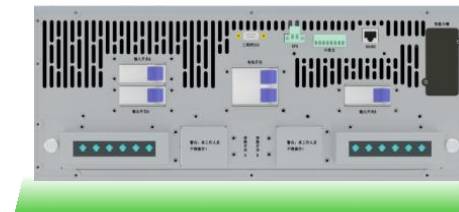


Venus lithium battery
energy storage system

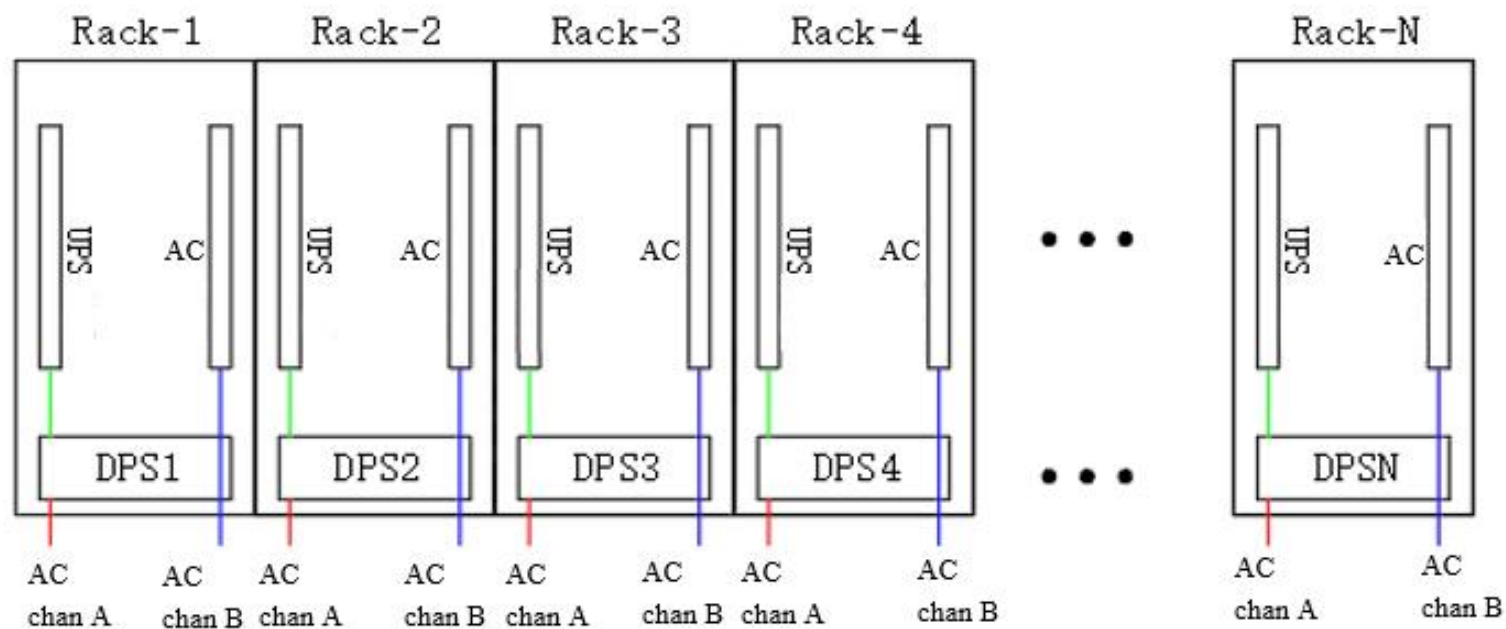


AC DPS

Item	ACDPS0604A ACDPS0606A	ACDPS0604B ACDPS0606B
Conponent	Power module, Machine Frame, Battery module, Bypass module	
Input Output	Dual 220VAC input Dual 220VAC output	Single 220VAC input Dual 220VAC output
Configuration	6KW/6KVA, 10-30Ah Lithium Battery	
Efficiency	AC mode \geq 95% Battery mode \geq 94.5%	
Feature	AC online	
Communication	RS485, Ethernet	
Dimension	4U, 6U	



AC DPS Standard Deployment Scheme

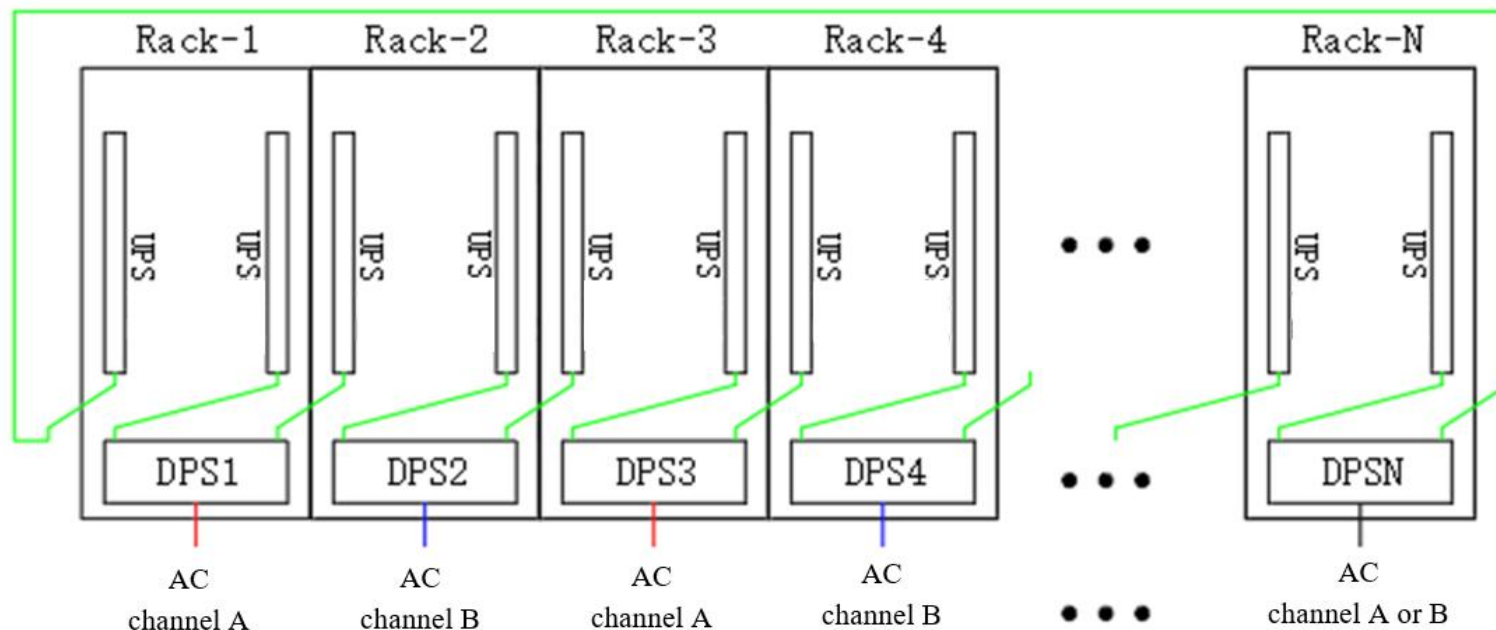
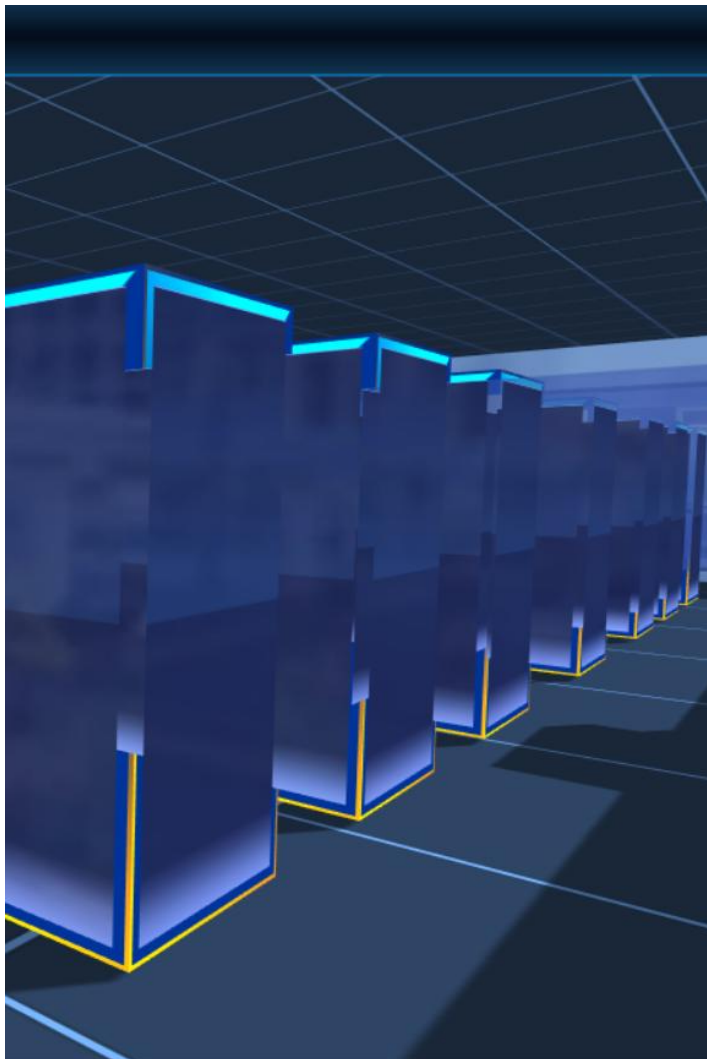


AC outputs of channel A&B from the array cabinet are connected to the DPS at the same time, DPS outputs two channels of power source to PDU.

- One channel is for backup to supply power after blackout through inverter.
- The other channel is AC, DPS is just for detection and management.



AC DPS Highly Reliable Deployment Scheme



Outputs from the array cabinet

Channel A is connected with 1,3,5.....odd number cabinet.

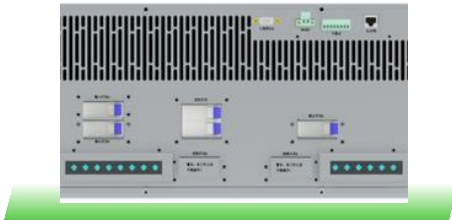
Channel B is connected with 2,4,6.....even number cabinet.

DPS outputs two channels of power source to PDU, both of them can be used as backup.

- One chan supplies for this cabinet.
- The other one supplies for adjacent cabinets.

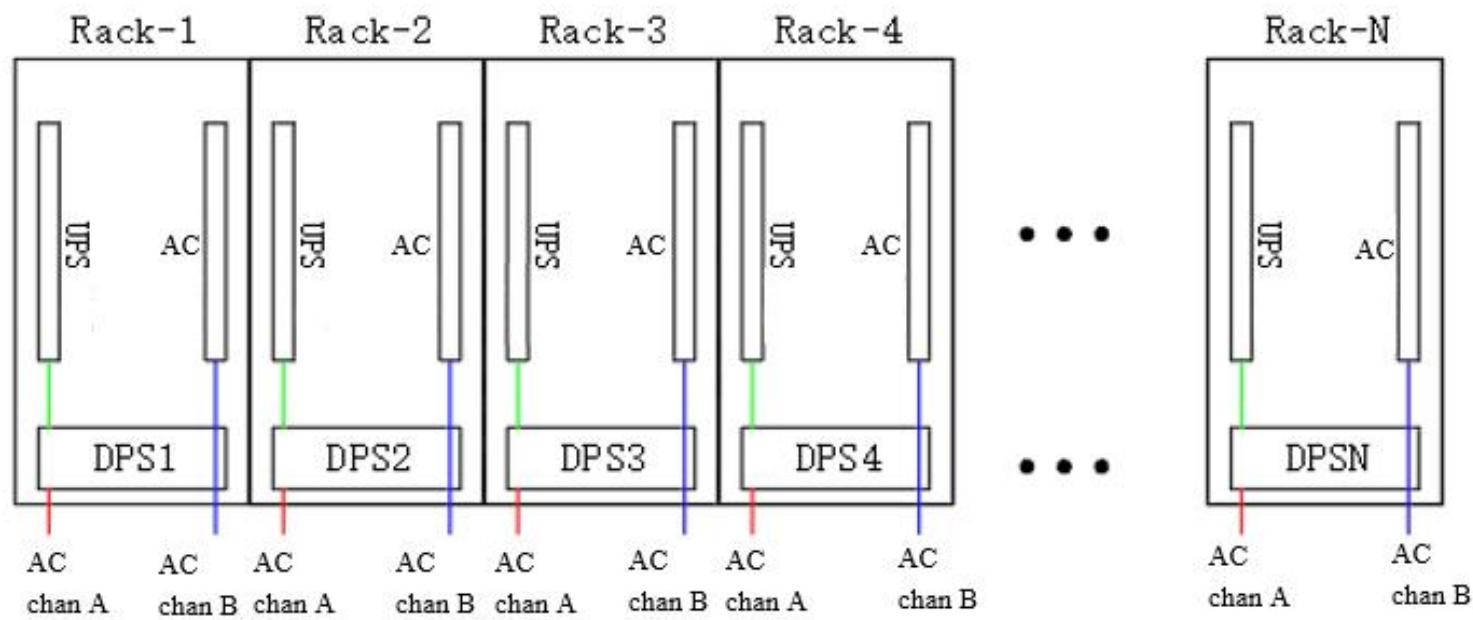


HVDC DPS



Item	DCDPS0903E DCDPS0905E	DCDPS0903F DCDPS0903F
Component	Rectifier Module, Shell, Battery Module, Bypass Module	
Input Output	Dual-input , Dual-output Single-input , Dual-output	
Configuration	9kW(3kW*3), 230V 10-30AH Lithium Battery	
Efficiency	Overall Efficiency≥95%	
Characteristic	Input: 0.99	
Communication	RS485, Ethernet	
Dimension	3U, 5U	
Power Compatibility	Comply with Standard HVDC power supply, compatible with Standard UPS of IT equipment	

DC DPS Standard Deployment Scheme

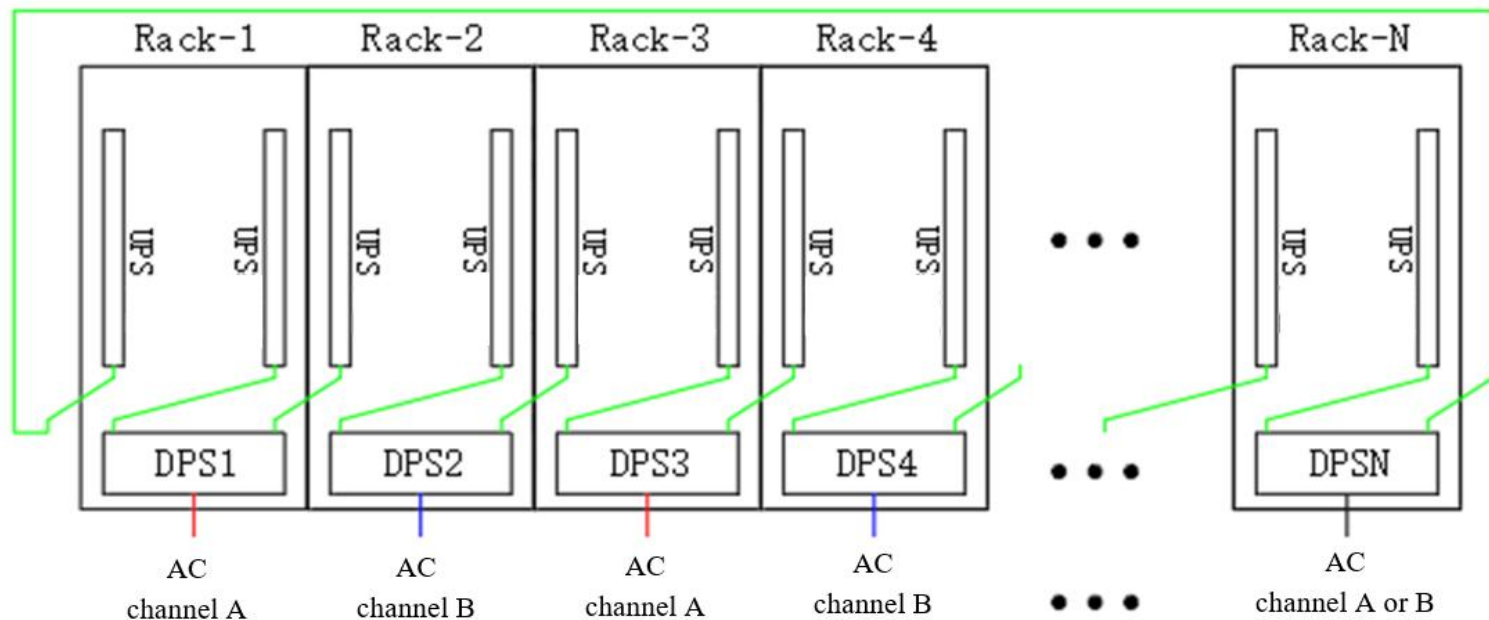


AC outputs of channel A&B from the array cabinet are connected to the DPS at the same time, DPS outputs two channels of power source to PDU.

- One channel is for backup to supply power after blackout through battery.
- The other channel is AC, DPS is just for detection and management.



DC DPS Highly Reliable Deployment Scheme



Outputs from the array cabinet

Channel A is connected with 1,3,5.....odd number cabinet.

Channel B is connected with 2,4,6.....even number cabinet.

DPS outputs two channels of power source to PDU, both of them can be used as backup.

- One chan supplies for this cabinet.
- The other one supplies for adjacent cabinets.

Veunus Lithium Battery Cabinet

Product Description

- Veunus series lithium batteries are developed specially for modular UPS, the internal LFP batteries has high safety and long cycle life.
- Nominal voltage is 512V, can be expanded to ±256V by changing the mode of connection.
- Nominal Energy is 51.2KWH.
- Intelligent built-in BMS for managing charging and discharging.
- CAN, RS485 communication outputs to communicate with external UPS conveniently.

Product Features

- High safety, cycle life 3500 times, DOD≥80%.
- High discharge C-rate, supports 1C charge and discharge.
- Wide temperature range, charge temperature 0°C-55 °C, discharge temperature 20°C-55 °C.
- BCU system configuration management system supports battery cabinet mix of old and new, lithium and lead-acid mix.

No.	Items		Parameters	
1	Nominal Voltage		±256V 51.2kWh	512V 51.2kWh
2	Voltage	Recommend Charging	±284V	568V
		Max. Charging	±292V	584V
		Discharge Cut-off	±240V	480V
3	Main Control Module		ZR-MC500-150M	
4	Battery Module Type		ZR-FE48100-1635R1	
5	Battery Module QTY		10	
6	Module Configuration		160S1P	
7	Nominal Capacity		100Ah	
8	Nominal Energy		51.2kWh	
9	Chemistry		LiFePo4	
10	Current	Max. Charging	100A	
		Max. Discharging	100A	
		Peak for 30s	150A	
11	Weight (Approx.)		500kg	
12	Dimensions (L*H*W))		600*2020*600 mm	
13	Communication		RS485, CAN	
14	Cycle Life		3500 times@80%DOD	
15	Designed Calendar Life		≥10 years	
16	Safety Function		Over-charge, Over-discharge, Over-current, Low/High-temperature, Low-voltage, Short-circuit Protections	
17	Parallel Capability		Maximum 10 units (Recommended 6 units)	
18	Cable Outlet		Top-back	

±256V



512V



Uranus Lithium Battery Cabinet

Product Description

- Uranus series lithium batteries are developed specially for modular UPS, the internal LFP batteries has high safety and long cycle life.
- Nominal voltage is 512V, can be expanded to $\pm 256V$ by changing the mode of connection.
- Nominal Energy is 51.2KWH.
- Intelligent built-in BMS for managing charging and discharging.
- CAN, RS485 communication outputs to communicate with external UPS conveniently.

Product Features

- High safety, cycle life 3500 times, $DOD \geq 80\%$.
- High discharge C-rate, supports 5C charge and discharge, maximum discharge C-rate up to 204KW.
- Wide temperature range, charge temperature 0°C-55 °C, discharge temperature 20°C-55 °C.
- BCU system configuration management system supports battery cabinet mix of old and new, lithium and lead-acid mix.

No.		Items	Parameters	
1	Model		PowerBase Uranus 20	PowerBase Uranus 40
2	Main Control Module		ZR-MIN-R0	
3	Battery Module Type		ZR-FE4840-1630R1	ZR-FE4880-1630R1
4	Module Configuration		10S1P	
5	Nominal Capacity		40Ah	80Ah
6	Nominal Energy		20.48kWh	40.96kWh
7	Chemistry		LiFePo4	
8	Voltage	Nominal	512V \pm 250V	
		Recommend Charging	568V	
		Max. Charging	584V	
		Discharge Cut-off	480V	
9	Current	Max. Charging	40A	80A
		Max. Discharging	200A	400A
10	Weight (Approx.)		470kg	650kg
11	Dimensions (W*D*H)		600*870*2000 mm	
12	Communication		RS485, CAN, SNMP	
13	Cycle Life		≥ 3500 times	
14	Designed Calendar Life		≥ 10 years	
15	Safety Function		Over-charge, Over-discharge, Over-current, Low/High-temperature, Low-voltage, Short-circuit Protections	
16	Parallel Capability		Maximum 10 units (Recommended 6 units)	
17	Cable Outlet		Top-back	



Part 04



Strategic Target

- Market Goal
- Technical Direction
- Quality Goal
- Development Goal



Market Goal

Target
Market

Europe, America, Japan, South Africa



2020



2021



2022



2023



2024



2025

Total

80 million

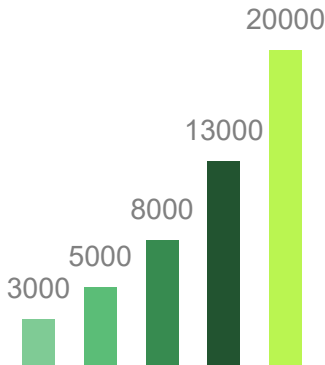
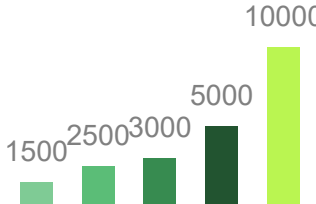
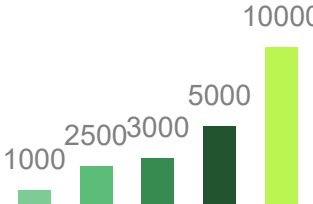
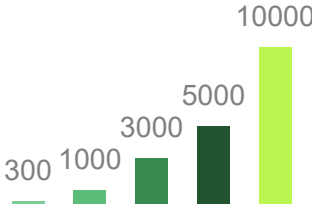
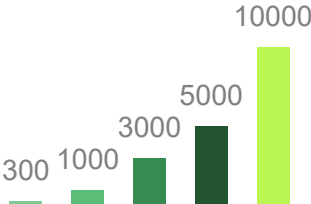
180 million

360 million

720 million

1500 million

Sales
Target



Business
Model

Agent

Agent

Agent

Agent

Agent

Agent

Executive
Department

Department 1

Department 2

Department 3

Subsidiary in Japan



Technical Direction



BMS

Manage and maintain the entire cycle life of lithium batteries through AI technology.

BMS self-maintenance function

Adjust the battery management strategy based on the analysis and estimation of the actual operating data to achieve the function of safe using and extended service life.

IoT function

Make energy storage system interacted with a variety of user terminals, manage and maintain the entire cycle life of lithium batteries through IoT technology.

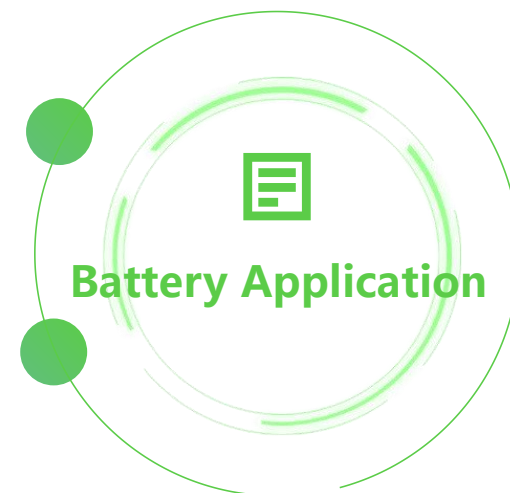


Optimize the overall solution continuously

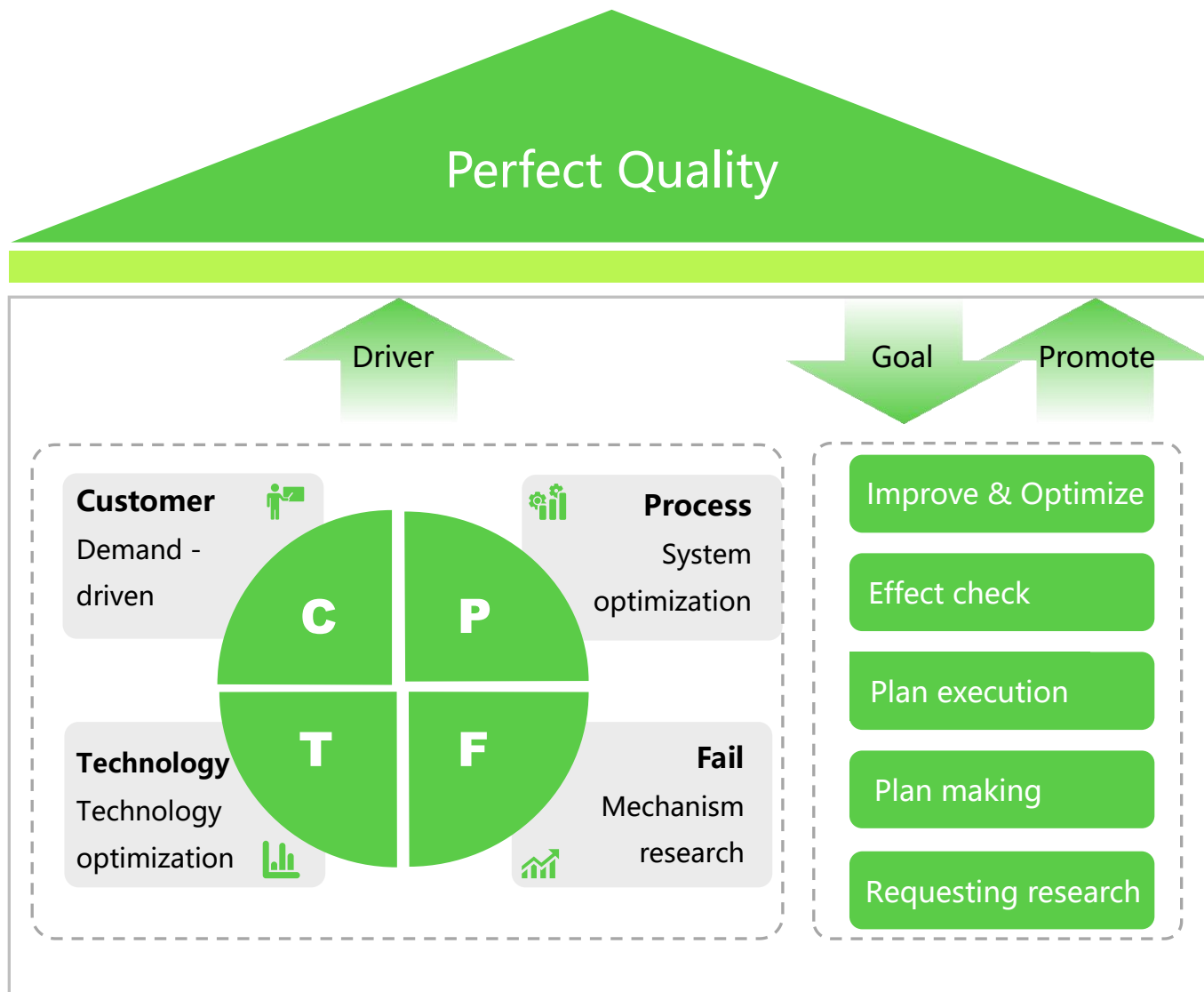
We are committed to the application technology research of lithium batteries in data centers, energy storage systems, micro grid energy storage, UPS lithium battery and LiFePo4 deep cycle batteries.

Transform the latest cell technology into market products

Establish strategic partnerships with industry-leading brands of cell companies to transform the latest battery cell technology into market products.



Quality Goal



Company' s Quality Goals

Improve the quality management system continuously, adjust and expand it in time according to the needs of the company's development.

- Serious customer complaints of quality accidents 0 time
- Process defect rate $\leq 0.3\%$
- Product delivery achievement rate $\geq 95\%$



Design Quality Goals

- New technology innovation ≥ 3 items/year
(Technological innovation R&D, process innovation and improvement.)
- Design error rate ≤ 1 time/year
- Design verification success rate of mass production projects $\geq 100\%$



Service Quality Goals

- Customer complaints ≤ 5 times
- Customer satisfaction $\geq 98\%$

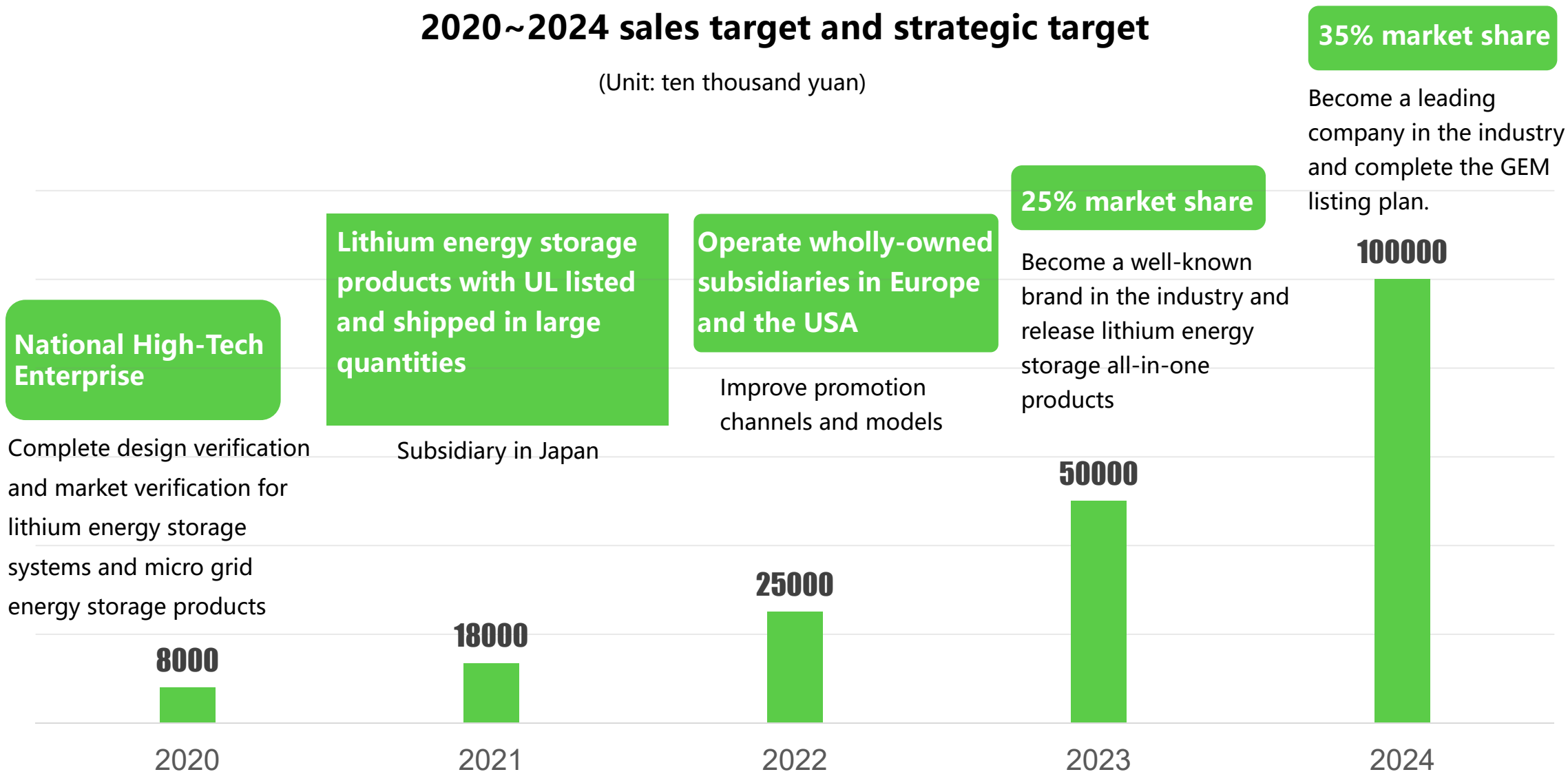




Development Goal

2020~2024 sales target and strategic target

(Unit: ten thousand yuan)



2021

THANKS

01

Power Storage