



CONNECTING WONDERFUL LIFE  
WITH OPTIC-ELECTRIC NETWORK



## ENERGY STORAGE PRODUCTS INTRODUCTION

ZTT NEW ENERGY INDUSTRY GROUP

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ZTT New Energy Industry Group





## PRODUCT INTRODUCTION

Taking 12 months and thousands of tests, ZTT finally designed long-life and high-safety cells for BESS products, which can meet the 10-year service life under the premise of ensuring product safety and reliability.



### 50Ah cell (ZTT30148135 battery cell)



Item	Parameter
Type	Energy Type LiFePO4 Battery
Model	ZTT30148135
Rated Capacity	50Ah
Nominal Voltage	3.2V
IR	≤1.0mΩ
Weight	1160 ± 50g
Dimension (T*W*H)	29.5+1*148+0.5*130+0.5 (mm)

### 100Ah cell (ZTT29173200 battery cell)



Item	Parameter
Type	Power Type LiFePO4 Battery
Model	ZTT29173200
Rated Capacity	100Ah
Nominal Voltage	3.2V
IR	≤0.5mΩ
Weight	2100 ± 100g



### 200Ah cell (ZTT54174200 battery cell)



Item	Parameter
Type	LiFePO4 Battery
Model	ZTT54174200
Rated Capacity	200Ah ( 640Wh )
Nominal Voltage	3.2V
IR	≤0.3mΩ
Weight	4065 ± 100g

### 210Ah cell (ZTT54174200 battery cell)



Item	Parameter
Type	Energy Type LiFePO4 Battery
Model	ZTT54174200
Rated Capacity	210Ah (672Wh)
Nominal Voltage	3.2V
IR	≤0.3mΩ
Weight	4075 ± 100g

### 105Ah cell (ZTT29173200-L battery cell)



Item	Parameter
Type	Power Type LiFePO4 Battery
Model	ZTT29173200
Rated Capacity	105Ah (336Wh)
Nominal Voltage	3.2V
IR	≤0.3mΩ
Weight	2200 ± 100g

### 280Ah cell (ZTT71174200 battery cell)



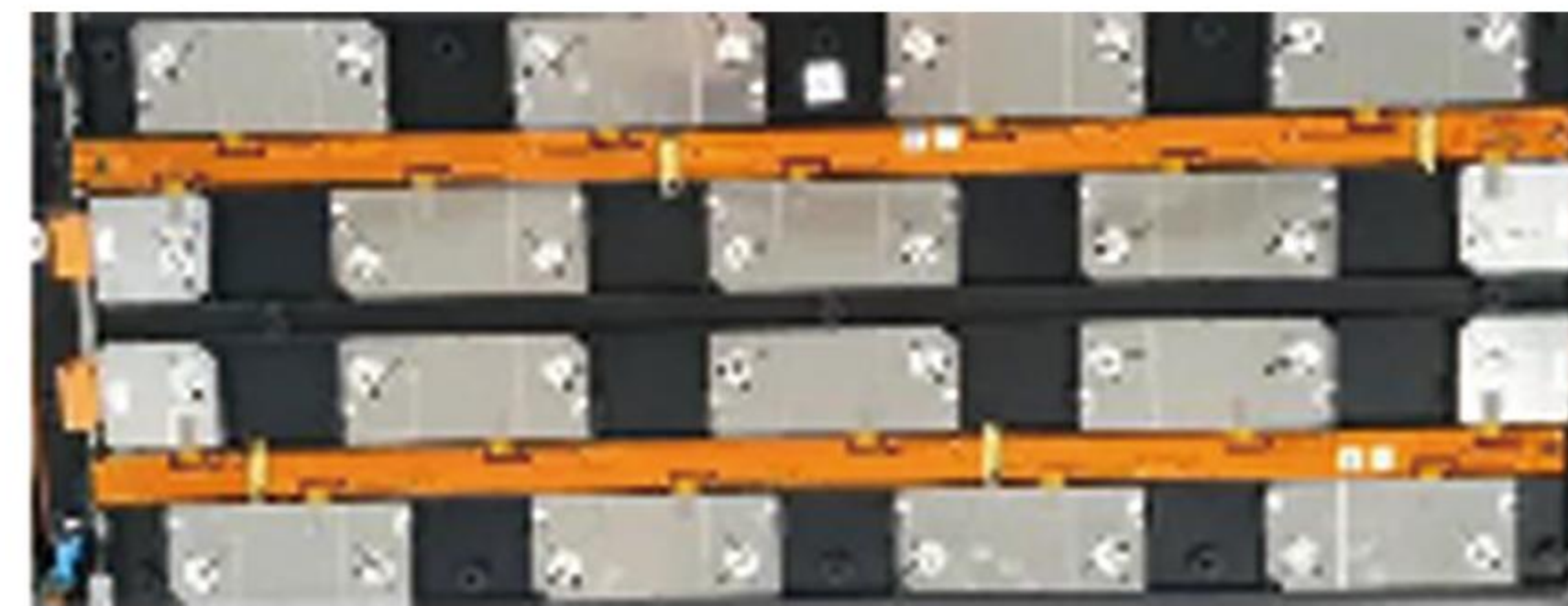
Item	Parameter
Type	Energy Type LiFePO4 Battery
Model	ZTT71174200
Rated Capacity	280Ah ( 896Wh )
Nominal Voltage	3.2V
IR	≤0.3mΩ
Weight	5500 ± 200g



## PRODUCT ADVANTAGE

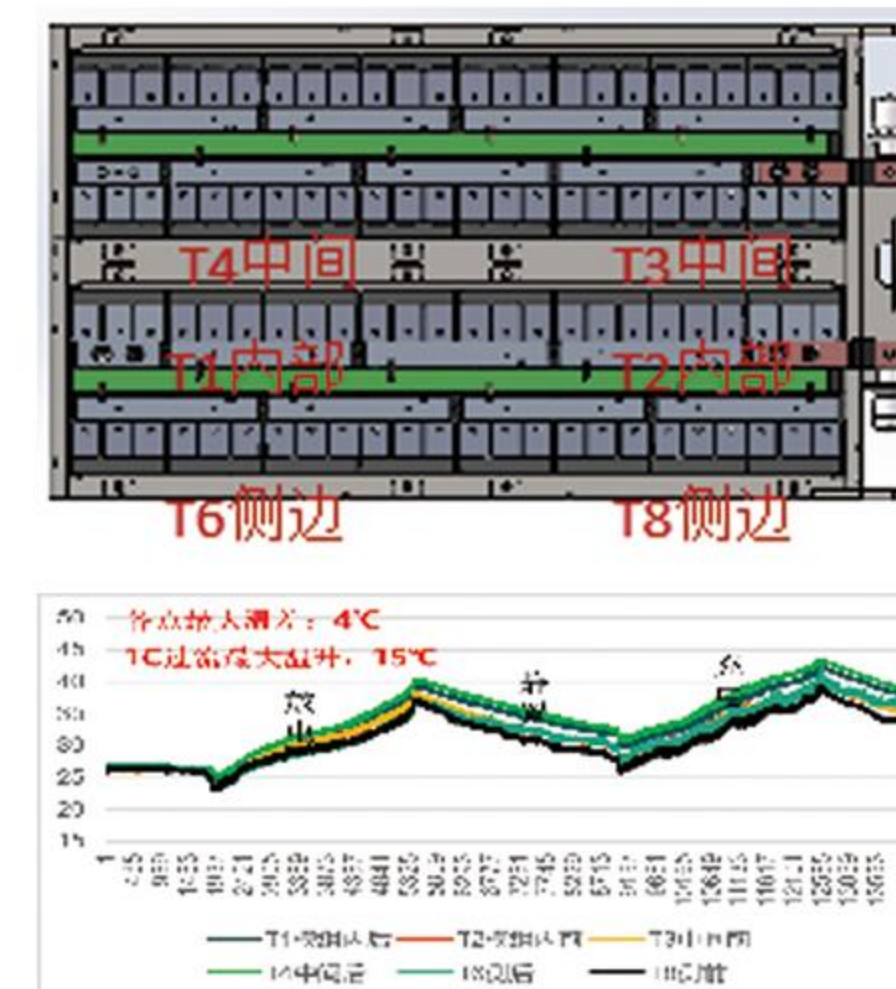
### High Degree Automation

New battery module adopts all-in-one Aluminum tape laser welding and flexible circuit board integration technology. The connection tape of cell and sampling of temperature and voltage are laser welded, the whole process is completed at the fully automated production line with very less manual process. This can reduce the manufacturing cost effectively, and improve the product stability greatly.



### Good Temperature Uniformity

With the help of simulation analysis tools, multi-simulating the internal heat dissipation of battery module. After accumulating experience, improves the sample module air in & out type and air duct design. After improving, now our battery module internal temperature difference can be controlled within 4°C.



### 1.72MW/3.44MWh –20HC–Non Walk In Liquid Cooling Battery Container System



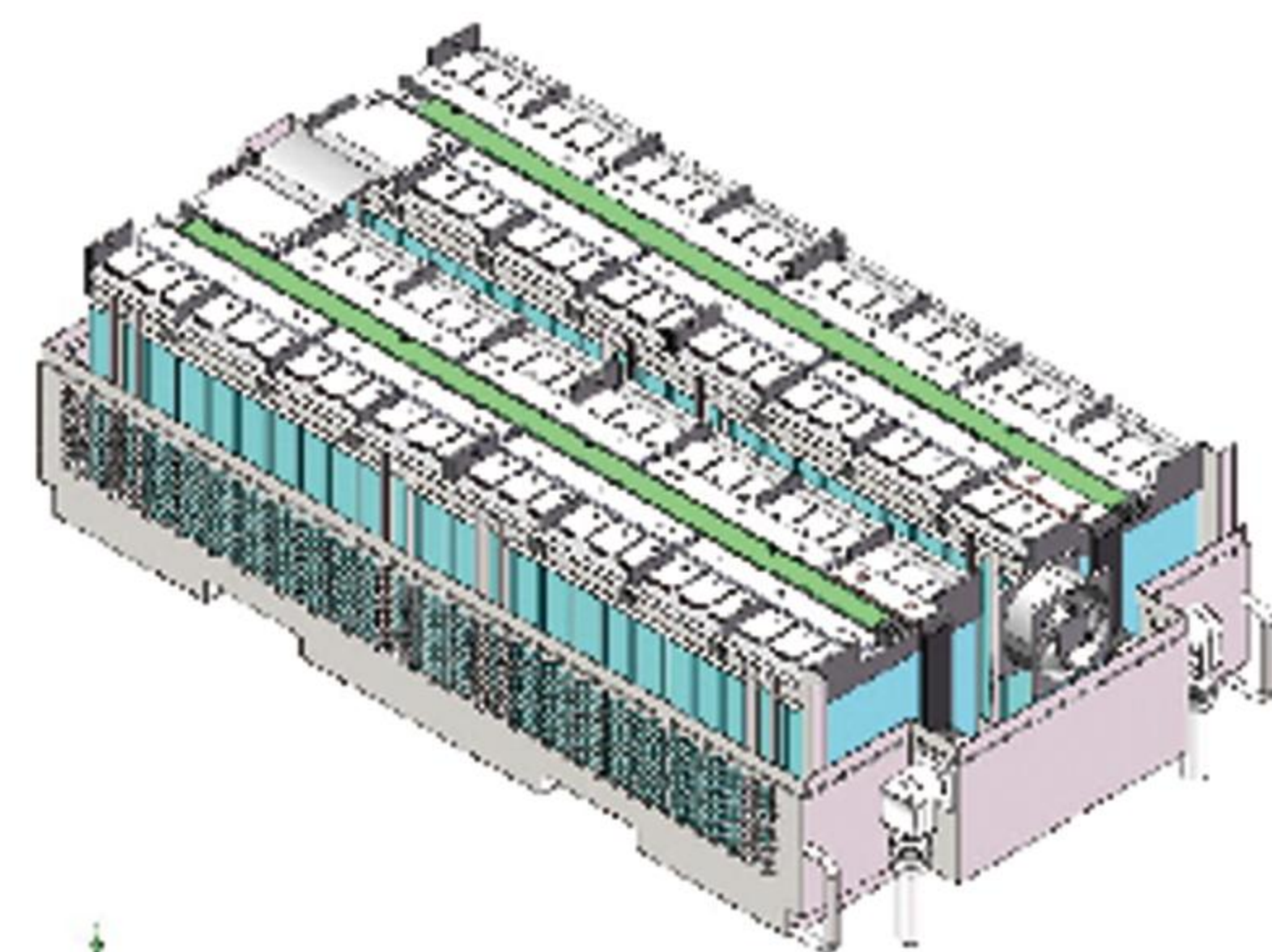
Appearance of Container

### Parameter

	Model	E22068
DC Side	Battery Type	LiFePO4 Battery
	Cell Capacity	280Ah
	Cell Connection	384S1P*10
	Nominal Voltage	1228.8V
	Voltage Range	1000–1382.4V
	Rated Energy	3.44MWh
	C-Rate	0.5C/0.5C
	System Efficiency	≥92%
	Operation Temp. Range	-20–55°C(power degrade when >45°C)
	Operation Humidity Range	5%–95%(no condensation)
Others	Altitude	3000m(degrade when >3000m)
	Temperature Control Method	Liquid Cooling
	Fire Fighting	Heptafluoropropane/PERFLUORO
	IP Class	IP54
	Anti-corrosion	C4
	Noise	<75dB
	Seismic Rating	Level 8
	Cable In and Out Way	Down in down out
	Size	6096*2462*2896mm
	Communication Protocol	Modbus-RTU, Modbus-TCP, IEC104 etc.
Communication Method	RS485, Ethernet, Dry Contact etc.	
Standards & Certification	GB/T36276, UL9540A(cell)	

### Low Packing Cost

The new battery module adopts non sub module design, the cells take by robot and into battery case as packed. It can save the packing components of sub module and lower the packing material cost.



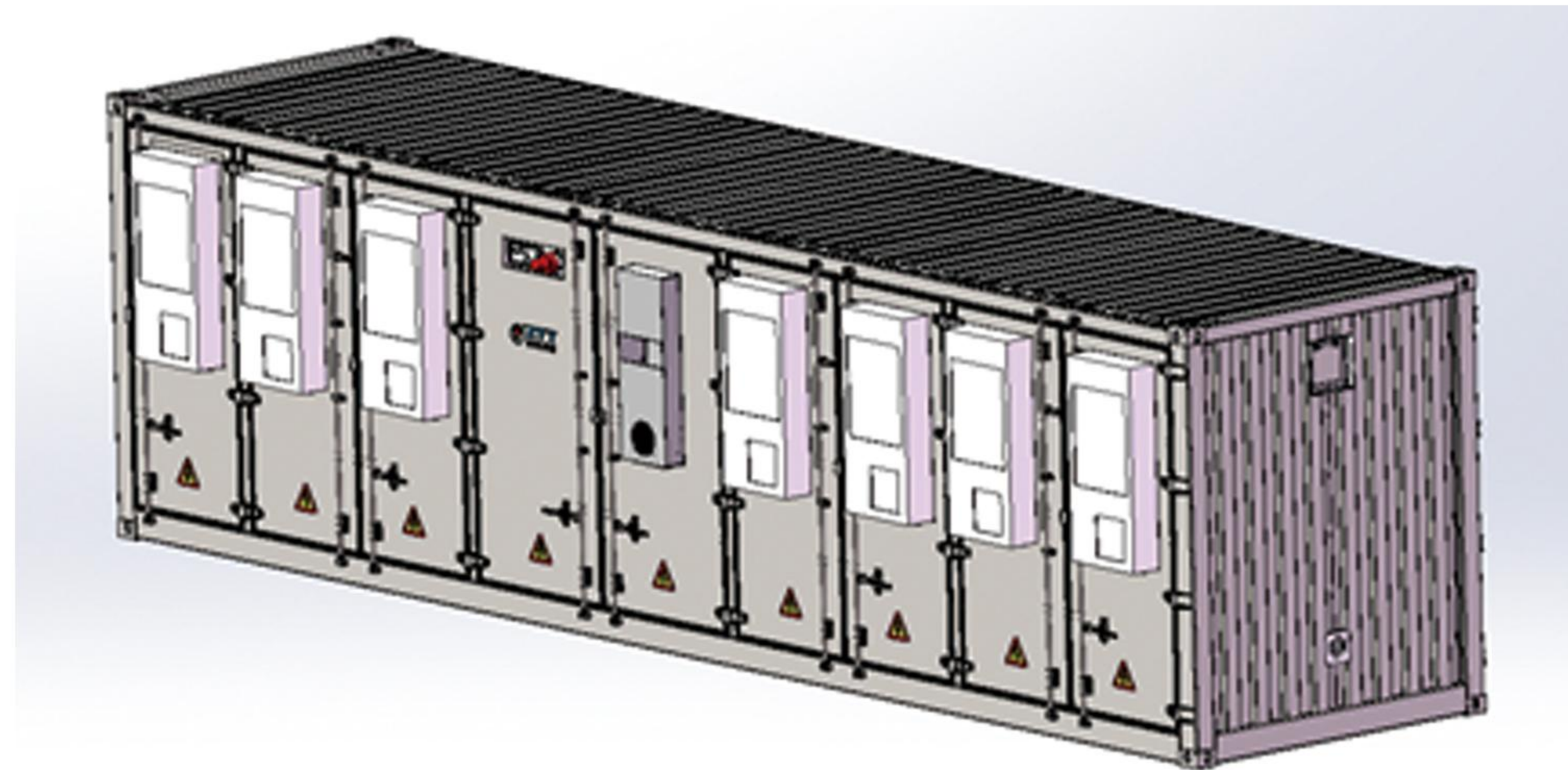
### 800V–1500V DC System Test and Verification Platform

We utilize container to pre-fabricated 800V–1500V DC system test and verification platform, which have the capability to test and verify various complicated work conditions from module level to rack level. This can be used for our product R&D, test and improvement. It can improve the competitive advantages of product performance.





### 3.65MW/3.65MWh –35HC–Non Walk In Battery Container System

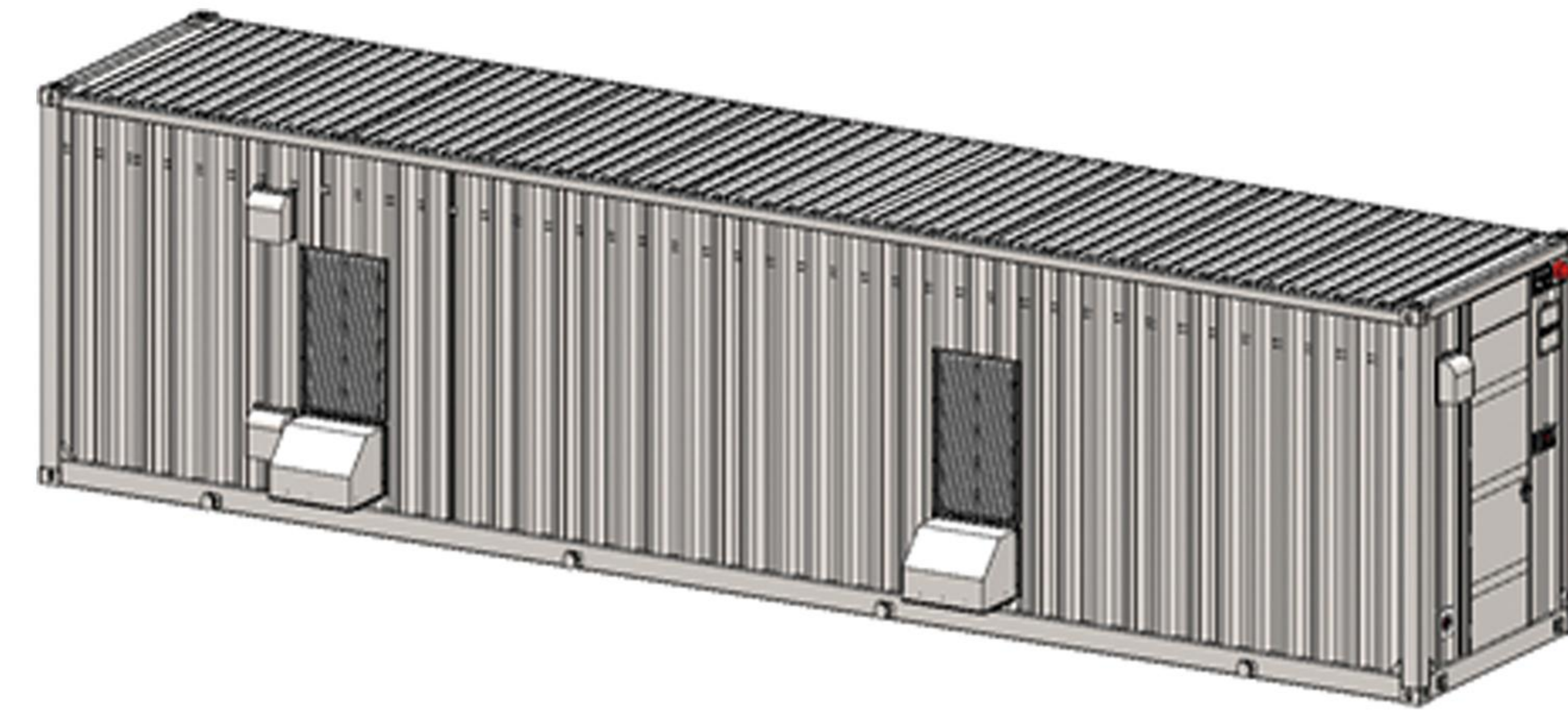


Appearance of Container

#### Parameter

	Model	E23004
DC Side	Battery Type	LiFePO4 Battery
	Cell Capacity	200Ah
	Cell Connection	408S1P*14
	Nominal Voltage	1305.6V
	Voltage Range	1060.8–1468.8V
	Rated Energy	3.65MWh
	C–Rate	1C/1C
	System Efficiency	≥92%
Others	Operation Temp. Range	–20–55°C(power degrade when >45°C)
	Operation Humidity Range	5%–95%(no condensation)
	Altitude	3000m(degrade when >3000m)
	Temperature Control Method	Air Conditioner
	Fire Fighting	Heptafluoropropane/PERFLUORO
	IP Class	IP54
	Anti–corrosion	C4
	Noise	<75dB
	Seismic Rating	Level 8
	Cable In and Out Way	Down in down out
	Size	10668*2896*2438mm
	Communication Protocol	Modbus–RTU, Modbus–TCP, IEC104 etc.
	Communication Method	RS485, Ethernet, Dry Contact etc.
Standards & Certification	GB/T36276, IEC62619 etc.	

### 2.56MW/2.56MWh–40HC–Walk In Battery Container System



Appearance of Container

#### Parameter

	Model	E23003
DC Side	Battery Type	LiFePO4 Battery
	Cell Capacity	200Ah
	Cell Connection	400S1P*10
	Nominal Voltage	1280V
	Voltage Range	1040–1440V
	Rated Energy	2.56MWh
	C–Rate	1C/1C
	System Efficiency	≥92%
Others	Operation Temp. Range	–20–55°C(power degrade when >45°C)
	Operation Humidity Range	5%–95%(no condensation)
	Altitude	3000m(degrade when >3000m)
	Temperature Control Method	Air Conditioner
	Fire Fighting	Heptafluoropropane/PERFLUORO
	IP Class	IP54
	Anti–corrosion	C4
	Noise	<75dB
	Seismic Rating	Level 8
	Cable In and Out Way	Down in down out
	Size	12192*2896*2438mm
	Communication Protocol	Modbus–RTU, Modbus–TCP, IEC104 etc.
	Communication Method	RS485, Ethernet, Dry Contact etc.
Standards & Certification	GB/T36276, IEC62619 etc.	



### 1.81MW/3.63MWh -40HC-Walk In Battery Container System

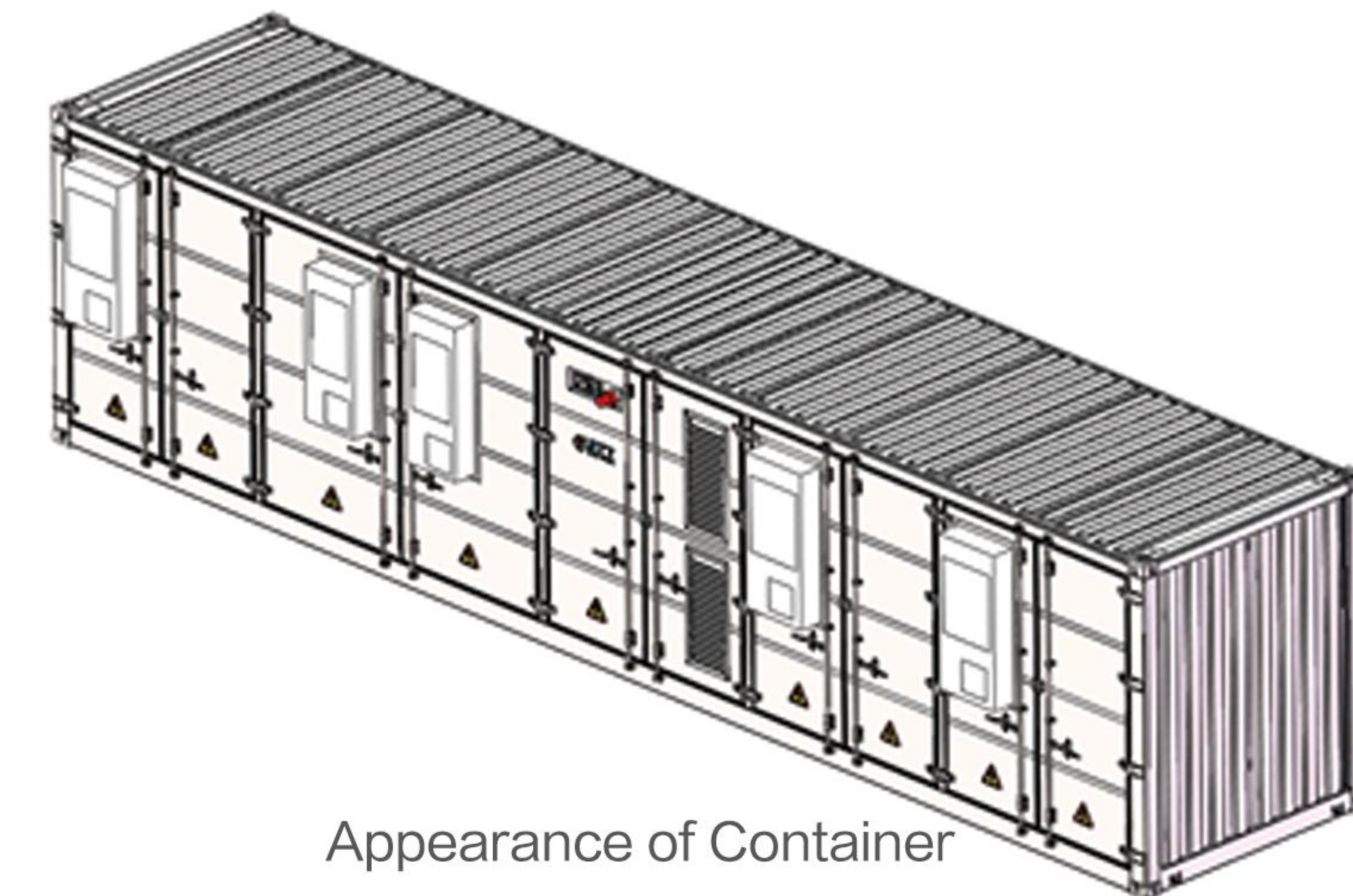


Appearance of Container

#### Parameter

	Model	E21036
DC Side	Battery Type	LiFePO4 Battery
	Cell Capacity	210Ah
	Cell Connection	416S1P*13
	Nominal Voltage	1331.2V
	Voltage Range	1081.6-1497.6V
	Rated Energy	3.63MWh
	C-Rate	0.5C/0.5C
	System Efficiency	≥92%
Others	Operation Temp. Range	-20-55°C(power degrade when >45°C)
	Operation Humidity Range	5%-95%(no condensation)
	Altitude	3000m(degrade when >3000m)
	Temperature Control Method	Air Conditioner
	Fire Fighting	Heptafluoropropane/PERFLUORO
	IP Class	IP54
	Anti-corrosion	C4
	Noise	<75dB
	Seismic Rating	Level 8
	Cable In and Out Way	Down in down out
	Size	12192*2438*3100mm
	Communication Protocol	Modbus-RTU, Modbus-TCP, IEC104 etc.
	Communication Method	RS485, Ethernet, Dry Contact etc.
Standards & Certification	GB/T36276, IEC62619 etc.	

### 2.56MW/5.0MWh -40HC-Walk In Battery Container System



Appearance of Container

#### Parameter

	Model	E23005
DC Side	Battery Type	LiFePO4 Battery
	Cell Capacity	230Ah
	Cell Connection	384S1P*18
	Nominal Voltage	1228.8V
	Voltage Range	1000-1382.4V
	Rated Energy	5MWh
	C-Rate	0.5C/0.5C
	System Efficiency	≥92%
Others	Operation Temp. Range	-20-55°C(power degrade when >45°C)
	Operation Humidity Range	5%-95%(no condensation)
	Altitude	3000m(degrade when >3000m)
	Temperature Control Method	Air Conditioner
	Fire Fighting	Heptafluoropropane/PERFLUORO
	IP Class	IP54
	Anti-corrosion	C4
	Noise	<75dB
	Seismic Rating	Level 8
	Cable In and Out Way	Down in down out
	Size	12192*2438*2896mm
	Communication Protocol	Modbus-RTU, Modbus-TCP, IEC104 etc.
	Communication Method	RS485, Ethernet, Dry Contact etc.
Standards & Certification	GB/T36276, IEC62619 etc.	



### 2.74MW/5.48MWh -40HC-Non Walk In Battery Container System



Appearance of Container

#### Parameter

	Model	E22010
DC Side	Battery Type	LiFePO4 Battery
	Cell Capacity	280Ah
	Cell Connection	340S1P*18
	Nominal Voltage	1088.0V
	Voltage Range	884.0-1224.0V
	Rated Energy	5.48MWh
	C-Rate	0.5C/0.5C
	System Efficiency	≥92%
Others	Operation Temp. Range	-20-55°C(power degrade when >45°C)
	Operation Humidity Range	5%-95%(no condensation)
	Altitude	3000m(degrade when >3000m)
	Temperature Control Method	Air Conditioner
	Fire Fighting	Heptafluoropropane/PERFLUORO
	IP Class	IP54
	Anti-corrosion	C4
	Noise	<75dB
	Seismic Rating	Level 8
	Cable In and Out Way	Down in down out
	Size	12192*2438*2896mm
	Communication Protocol	Modbus-RTU, Modbus-TCP, IEC104 etc.
	Communication Method	RS485, Ethernet, Dry Contact etc.
Standards & Certification	GB/T36276, IEC62619 etc.	

### 2.74MW/5.48MWh -45HC-Non Walk In Battery Container System



Appearance of Container

#### Parameter

	Model	E22005
DC Side	Battery Type	LiFePO4 Battery
	Cell Capacity	210Ah
	Cell Connection	408S1P*20
	Nominal Voltage	1305.6V
	Voltage Range	1060.8-1468.8V
	Rated Energy	5.48MWh
	C-Rate	0.5C/0.5C
	System Efficiency	≥92%
Others	Operation Temp. Range	-20-55°C(power degrade when >45°C)
	Operation Humidity Range	5%-95%(no condensation)
	Altitude	3000m(degrade when >3000m)
	Temperature Control Method	Air Conditioner
	Fire Fighting	Heptafluoropropane/PERFLUORO
	IP Class	IP54
	Anti-corrosion	C4
	Noise	<75dB
	Seismic Rating	Level 8
	Cable In and Out Way	Down in down out
	Size	13716*2438*2896mm
	Communication Protocol	Modbus-RTU, Modbus-TCP, IEC104 etc.
	Communication Method	RS485, Ethernet, Dry Contact etc.
Standards & Certification	GB/T36276, IEC62619 etc.	



### 1.25MW/2.5MWh –20HC–Non Walk In Liquid Cooling Battery Container System

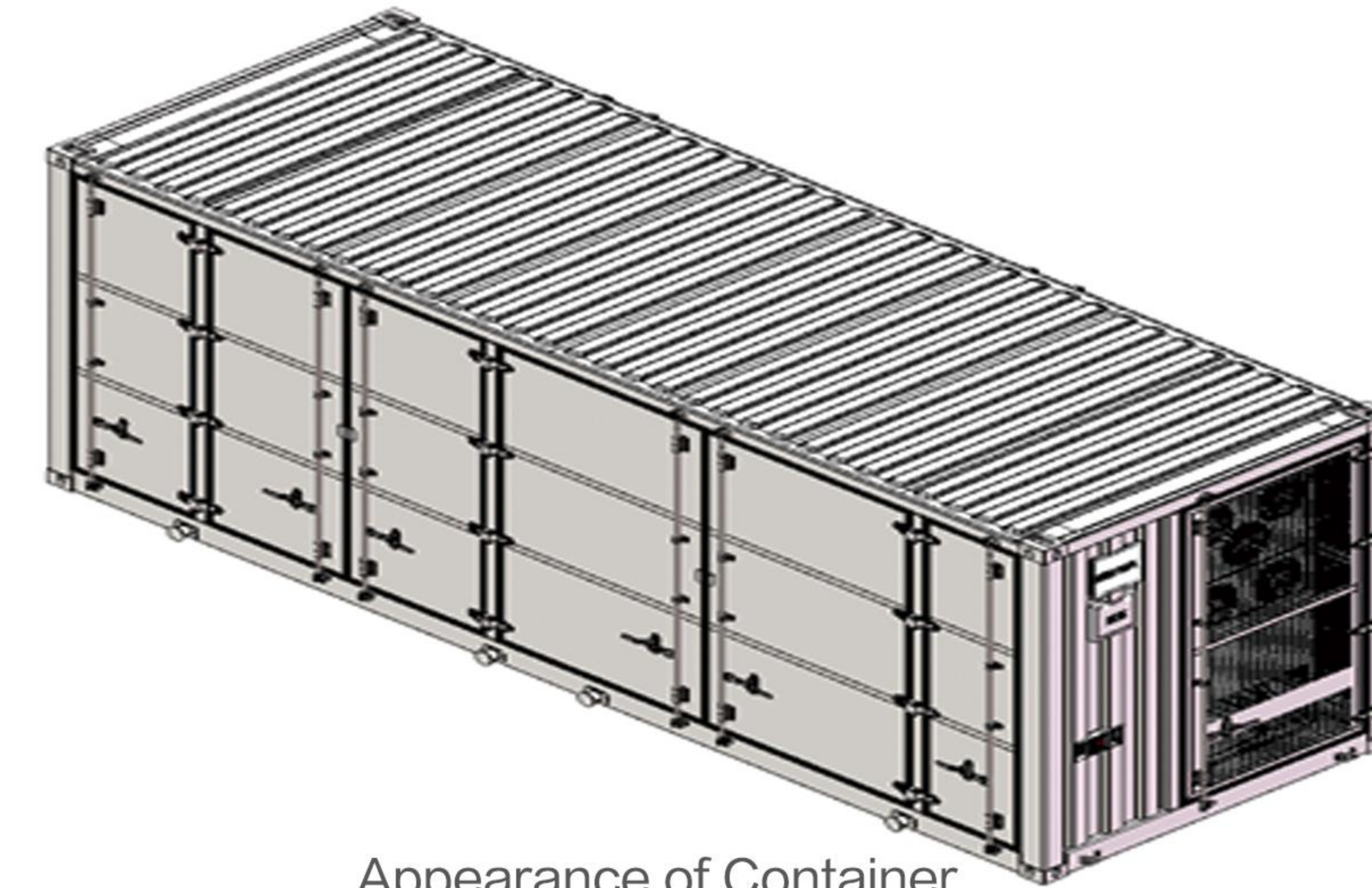


Appearance of Container

#### Parameter

	Model	E22040
DC Side	Battery Type	LiFePO4 Battery
	Cell Capacity	210Ah
	Cell Connection	416S1P*9
	Nominal Voltage	1331.2V
	Voltage Range	1081.6–1497.6V
	Rated Energy	2.516MWh
	C-Rate	0.5C/0.5C
	System Efficiency	≥92%
Others	Operation Temp. Range	-20–55°C(power degrade when >45°C)
	Operation Humidity Range	5%–95%(no condensation)
	Altitude	3000m(degrade when >3000m)
	Temperature Control Method	Liquid Cooling
	Fire Fighting	Heptafluoropropane/PERFLUORO
	IP Class	IP54
	Anti-corrosion	C4
	Noise	<75dB
	Seismic Rating	Level 8
	Cable In and Out Way	Down in down out
	Size	6000*2438*2896mm
	Communication Protocol	Modbus-RTU, Modbus-TCP, IEC104 etc.
	Communication Method	RS485, Ethernet, Dry Contact etc.
Standards & Certification	GB/T36276, UL9540A etc.	

### 3.35MW/3.35MWh –20HC–Non Walk In Liquid Cooling Battery Container System



Appearance of Container

#### Parameter

	Model	E22056
DC Side	Battery Type	LiFePO4 Battery
	Cell Capacity	230Ah
	Cell Connection	416S1P*11
	Nominal Voltage	1331.2V
	Voltage Range	1081.6–1497.6V
	Rated Energy	3.35MWh
	C-Rate	0.5C/0.5C
	System Efficiency	≥92%
Others	Operation Temp. Range	-20–55°C(power degrade when >45°C)
	Operation Humidity Range	5%–95%(no condensation)
	Altitude	3000m(degrade when >3000m)
	Temperature Control Method	Liquid Cooling
	Fire Fighting	Heptafluoropropane/PERFLUORO
	IP Class	IP54
	Anti-corrosion	C4
	Noise	<75dB
	Seismic Rating	Level 8
	Cable In and Out Way	Down in down out
	Size	7000*2438*2896mm
	Communication Protocol	Modbus-RTU, Modbus-TCP, IEC104 etc.
	Communication Method	RS485, Ethernet, Dry Contact etc.
Standards & Certification	GB/T36276, IEC62619 etc.	



## 1500VDC Energy Storage PCS



DC 1500V PCS

### Product Description

1500VDC system can greatly increase PCS power and battery energy density. Benefit from higher energy density, it can reduce the investment of BESS containers and auxiliaries equipment in the containers, and saving the space, reduce civil construction and installation cost. Meanwhile, by the reduce of equipment and increase of DC voltage, it can reduce the loss of whole BESS station charge and discharge and power consumption.

### Product Feature

**High convert efficiency:** Brand new three-level topology technology. Max efficiency reach to 98.9%

**High efficiency structure:** 1500VDC, has bi-directional conversation, battery management

**Grid friend:** reactive compensation, isolated grid operation

**Flexible configuration:** wide DC operation voltage range, multi-parallel connection, VSG, black start, suitable for various scenario BESS application such as power generation side/grid side/user side.

**System stability:** 45°C full load no degrade, high system stability

### Parameter

Type	Item	Parameter		
		Product Model	ZTT-TM-1250KE	ZTT-TM-1500K
DC side	Max. DC busbar Voltage	1500Vdc		
	Max. DC current	1389A	1667A	1917A
	DC voltage range	1000-1500Vdc		
	DC voltage ripple coefficient	< 2%		
AC side	Rated power	1250kW	1500kW	1725kW
	Max. output power	1375kW	1650kW	1897kW
	AC connection mode	Three-phase three-wire		
	Isolation mode	No isolation transformer		
Grid operation parameter	Reactive power rage(KVar)	-100%-100%		
	Rated grid voltage	690V		
	Allowable grid voltage	(586-759)V		
	Rated frequency	50Hz/60Hz		
	Allowable frequency	± 10%		
	THD current	<3%(at rated output power)		
	Power factor	>0.99		
	Exchange time of charge and discharge	<100ms		
	Rated output voltage	690V		
	Output voltage accuracy	<1%		
Off grid operation parameter	Voltage unbalance	<2%		
	THD voltage	<3%(linear load)		
	Rated output frequency	50Hz		
	Dynamic voltage transient range	<10%		
	Output over voltage protection	759V		
	Output under voltage protection	586V		
General parameter	Efficiency	98.9%		
	Allowable Env. Temperature range	-35-+60 °C(>45°C degrade operation)		
	Allowable relative humidity	0-100%		
	Noise	<80dB		
	Dimension (W*D*H)	1403*978*2098mm		
	Weight	1500kg		
	IP grade	IP21		
	Cooling method	Intelligent forced air cooling		
Display and communication	Insulation resistance(MW)	>1M		
	Medium strength	2.5kV/1min no breakdown, no arcs		
	Communication port	RS485/CAN/Ethernet		
	HMI	HMI		
	Communication protocol	Modbus-RTU/Modbus-TCP/IEC61850/IEC104		



## Integrated PCS and Boost Transformer System



## Product Description

Integrated PCS and boost transformer system adopts integrated design, it has advantages such as installation convenience, high efficiency, less area, easy to commission and maintenance etc. It has lower kwh cost of BESS and increase the economic benefits to customer. The product quality is reliable, and can manage charge and discharge independently. It has intelligent air cooling design, which can meet with full load operation under 45°C condition. The product designs for IP54, C5 anti-corrosion, which can meet complicated operation condition in coastal area. It can ensure the BESS station operation reliably, and help our customer to increase value and extra incomes.

## Product Features

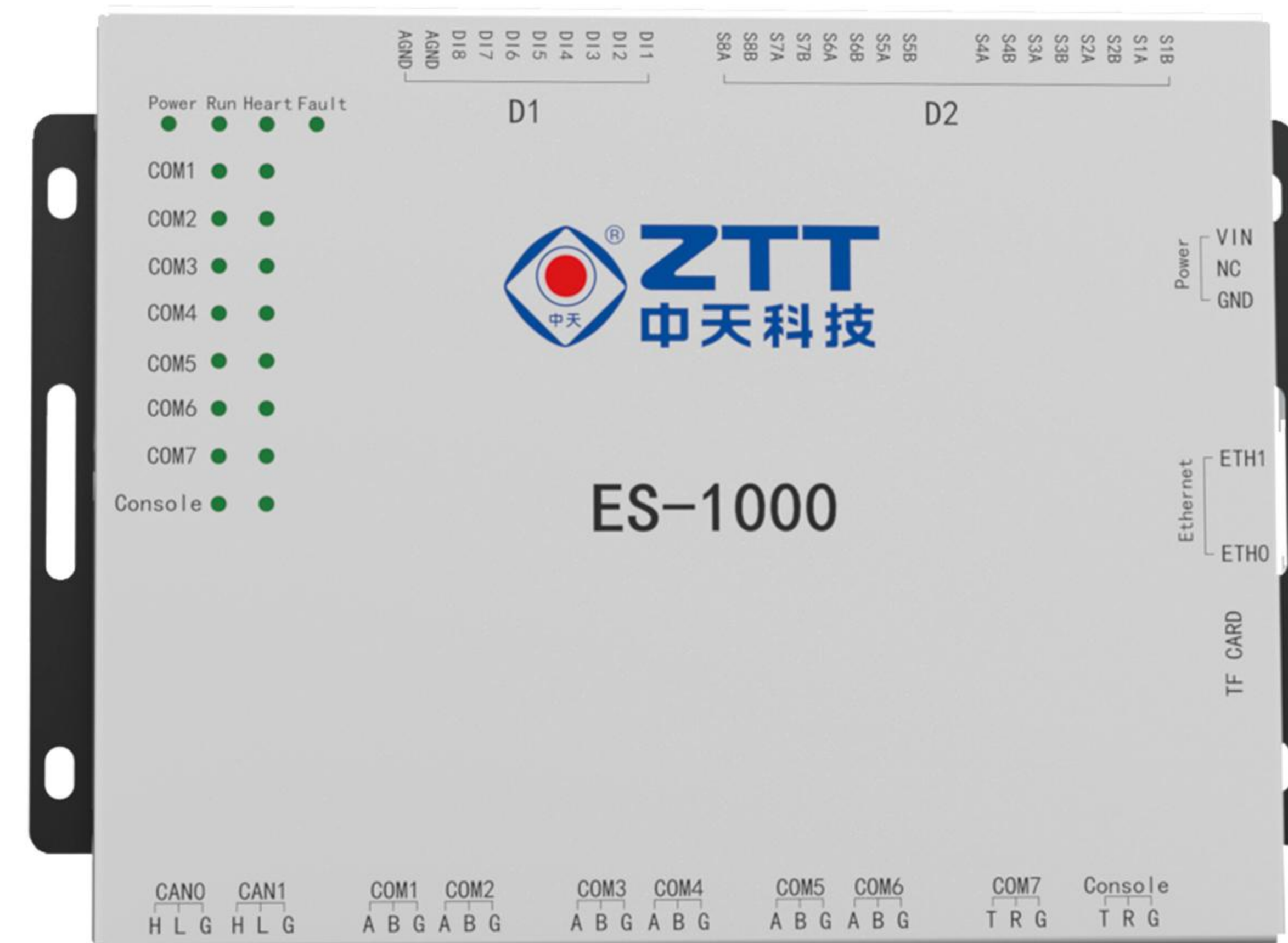
- Pre-fabricated design: easy for transportation and installation, saving investment
- High integration: integrated PCS, boost transformer, RMU and intelligent monitor and control unit
- Strong extensibility: support multi-parallel, easy for expansion
- IP 54 protection: suitable for outdoor
- Friendly Grid Adaptability: accept grid dispatch, can do active/reactive power compensation

## Parameter

Type	Item	Parameter						
	Internal configuration	2 sets of TM-500KE	2 sets of TM-630KE	4 sets of TM-500KE	4 sets of TM-630KE	2 sets of TM-1250KE	2 sets of TM-1500KE	2 sets of TM-1725KE
	Product Model	TM-1000KE-T	TM-1260KE-T	TM-2000KE-T	TM-2520KE-T	TM-2500KE-HV-T	TM-3000KE-HV-T	TM-3450KE-HV-T
DC side	Max. DC voltage	1000Vdc				1500Vdc		
	DC voltage range	600-900Vdc				1000-1500Vdc		
On Grid parameter	Max. DC current	926A*2	1167A*2	926A*4	1167A*4	1389A*2	1667A*2	1917A*2
	Rated power	1000kW	1260kW	2000kW	2520kW	2500kW	3000kW	3450kW
	Max. Output power	1100kW	1386kW	2200kW	2772kW	2750kW	3300kW	3795kW
	Grid connection voltage	10kV/35kV(optional)						
	Rated frequency	50Hz/60Hz						
Off Grid parameter	THD current	<3% (at rated output power)						
	Power factor	>0.99						
	Rated output voltage	10kV/35kV(optional)						
	Output voltage accuracy	<1%						
	THD current	<3% (at rated output power)						
General parameter	Overload ability	110% overload						
	PCS Max. efficiency	98.9%						
	Isolated transformer	Oil type or dry type						
	IP grade	IP54						
	Allowable Env. Temperature range	-35~+60 °C(>45°C degrade operation)						
General parameter	Allowable relative humidity	0-100%						
	Cooling method	Intelligent forced air cooling						
	Communication	Modbus-RTU/Modbus-TCP/IEC61850/IEC104						



## ES-1000 ESS Controller



ES-1000 ESS Controller

## Product Description

ESS Controller can be used for the communication integration of different equipment in ESS, management of faults and alarm and multi-PCS parallel control. It can collect realtime data and information of PCS, battery, HVAC, fire fighting equipment and environment then upload to EMS through Ethernet. And EMS can control ESS equipment through controller, to realize the ESS equipment start/stop, protection and alarm management. The controller simplify the control of ESS, uniform the external ports of ESS, and it helps EMS realize the system control policy.

## Product features

**Flexible Configuration:** ESS can flexibly configure and support different equipment, battery system combination.

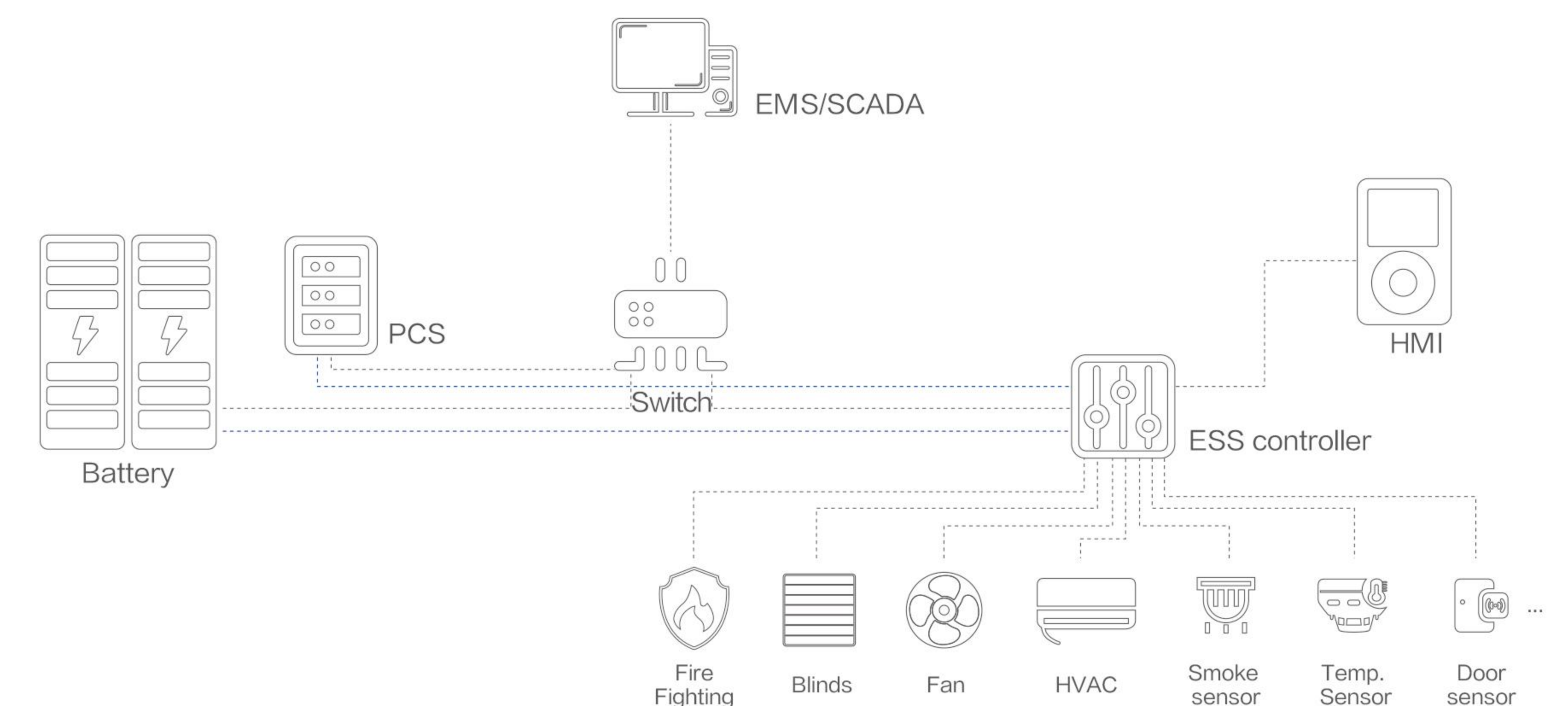
**Security:** realtime monitor the bottom layer equipment of Grid operation status, support balance the subsystem and system protection and alarm management

**High efficient operation:** independently manage group of equipment, coordinately manage the control between group of equipment, increase the operation efficiency of group of equipment.

**Friendly operation:** uniform system data collection and control port, remote operation configuration interface.

## Parameter

Platform	Adopts high performance embedded hardware platform, embedded Linux operation system, safe and stable. Platform has strong function, can support functions such as internet communication, realtime data collection, database management, file storage and management, and expandable.	Adopt industrial level chips
Input Amount	8 optocoupler isolates input	Remote communication anti-shake time can be set
Output amount	Output mode: relay normal open contact DO quantity: 8	Connection point capacity: AC250V, 5A DC30V, 5A
Serial communication interface	6 RS485, 2 CAN 2.0, 1 RS232	
Ethernet port	2 10/100 BASE-T Ethernet	
HMI	10" LED display, Web port	
Power supply	DC (9--36) V	
Power consumption	Normal operation less than 10W	
Operation environment	Temperature (-30--65)°C Relative humidity: 5-95%	
Dimension (W*H*D)	(285.6×198.6×33.9) mm	
Installation method	Wall mount	

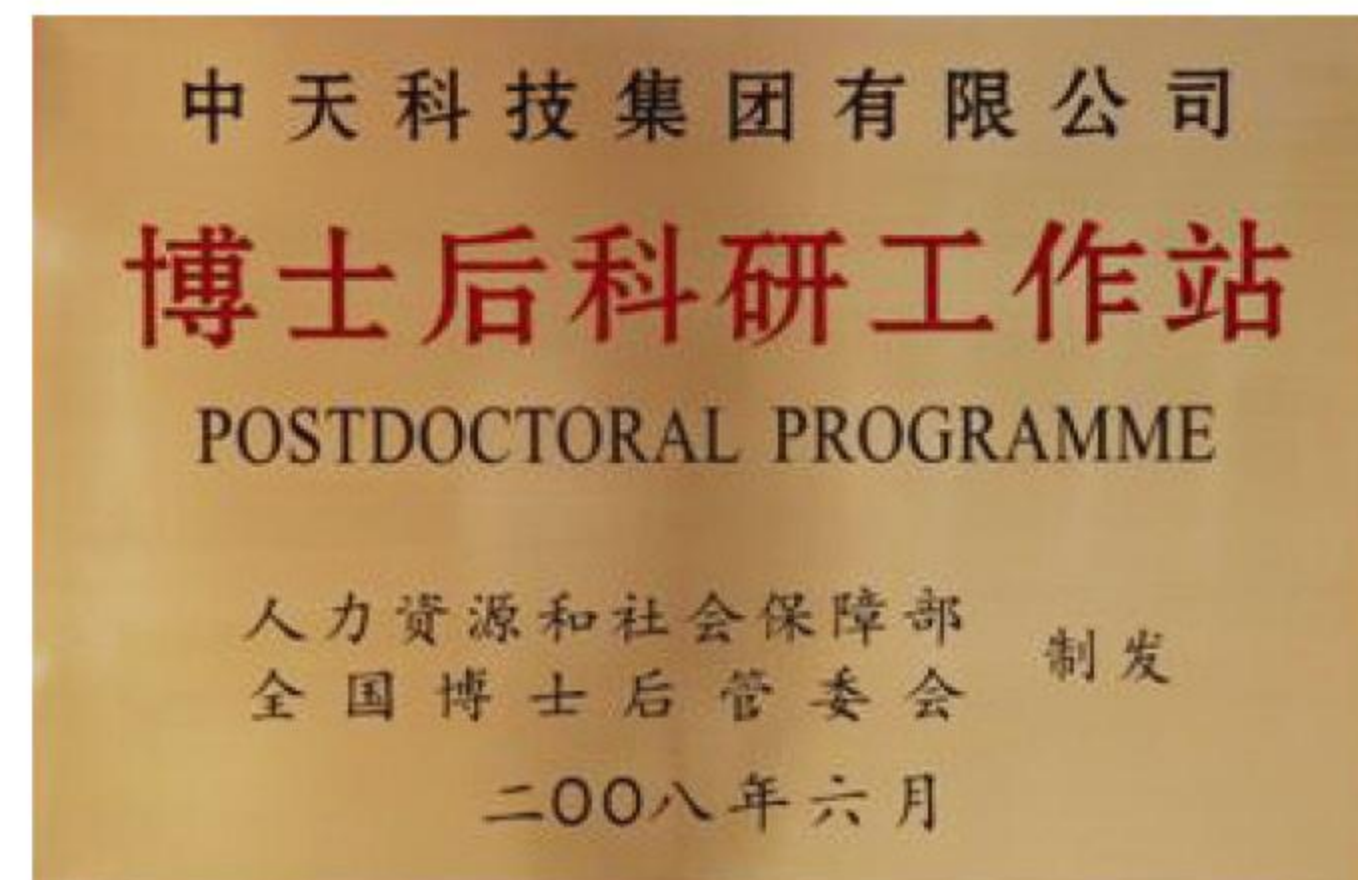
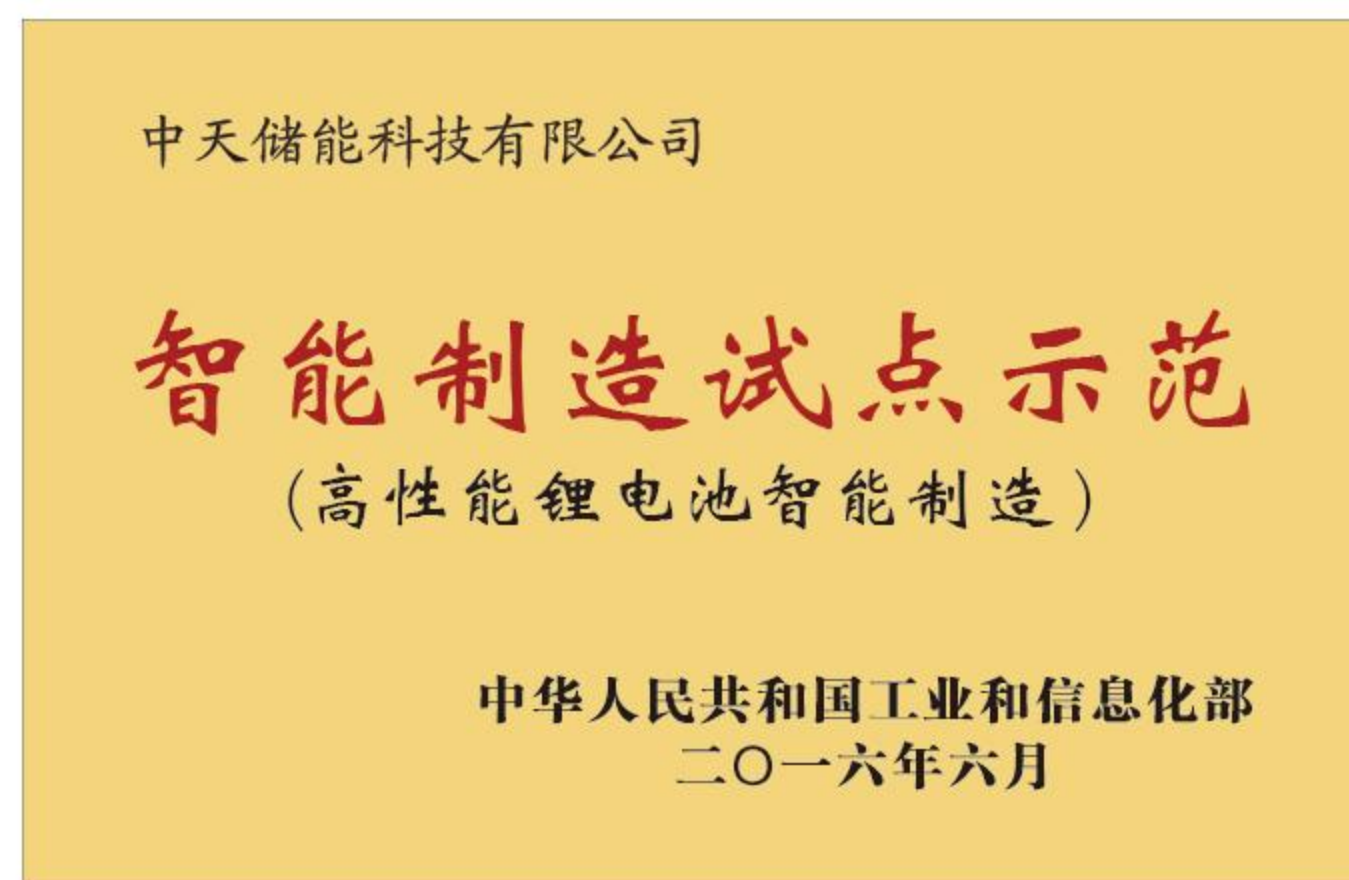




# SCIENCE AND TECHNOLOGY INNOVATION

## First "Intelligent Manufacturing Demonstration Enterprise" in the Domestic Lithium Battery Industry by MIIT

- Has a National enterprise technology center, a post-doctoral research station and an enterprise research institute;
- Establish an innovative cooperation platform with 5 institutes of the Chinese Academy of Sciences;
- Establish a R&D cooperation platform with 6 national research institutes;
- Establish industry-university-research cooperation relationships with 15 domestic key universities, including Tsinghua University and Zhejiang University;
- Provide intellectual support and talent guarantee in terms of technology development, market development, and talent training.



# PRODUCT CERTIFICATION

- Passed ISO9001, ISO14000, OHSAS18001 Three-standard System Certification, SA8000 Social Responsibility System Certification, TS16949 System Certification;
- Certified by authoritative organizations in Europe and America, with UL, CE, MSDS, UN38.3 and other Safety and Transportation Certifications; the products have passed various tests of the new national standard, and equipped with CNAS Laboratories.

