



BESS Solution

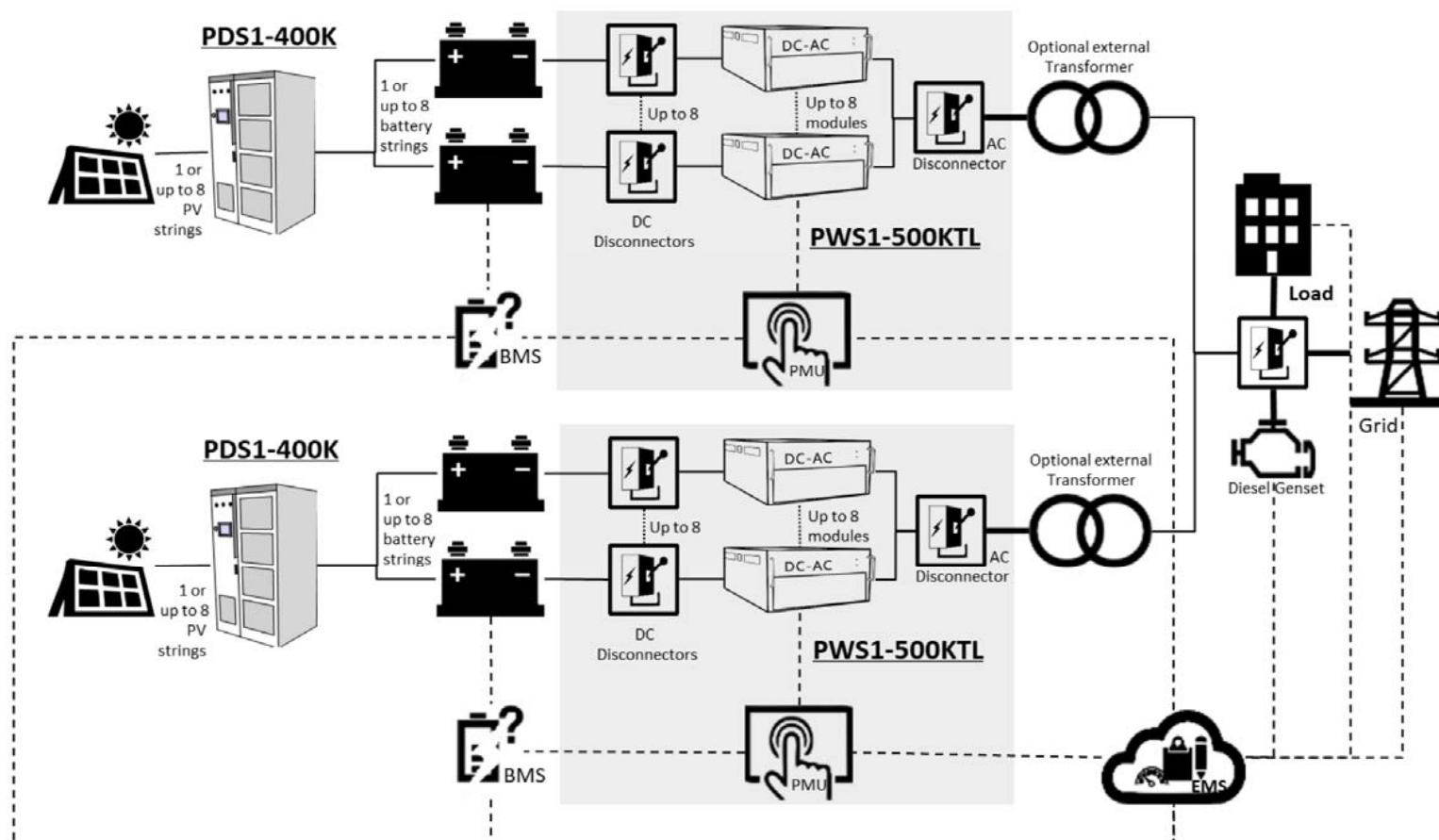
Make Energy Cleaner And More Efficient

Shanghai Huijue Technology Group Co., Ltd.

Battery Energy Storage System

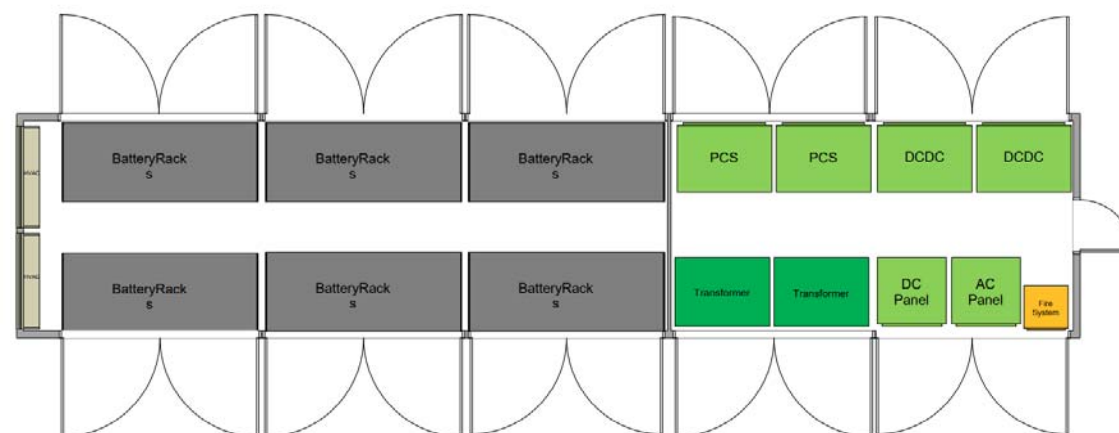
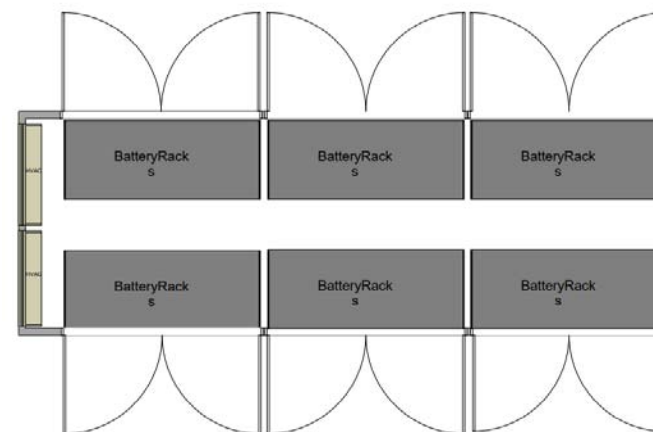
BESS solution

System Diagram



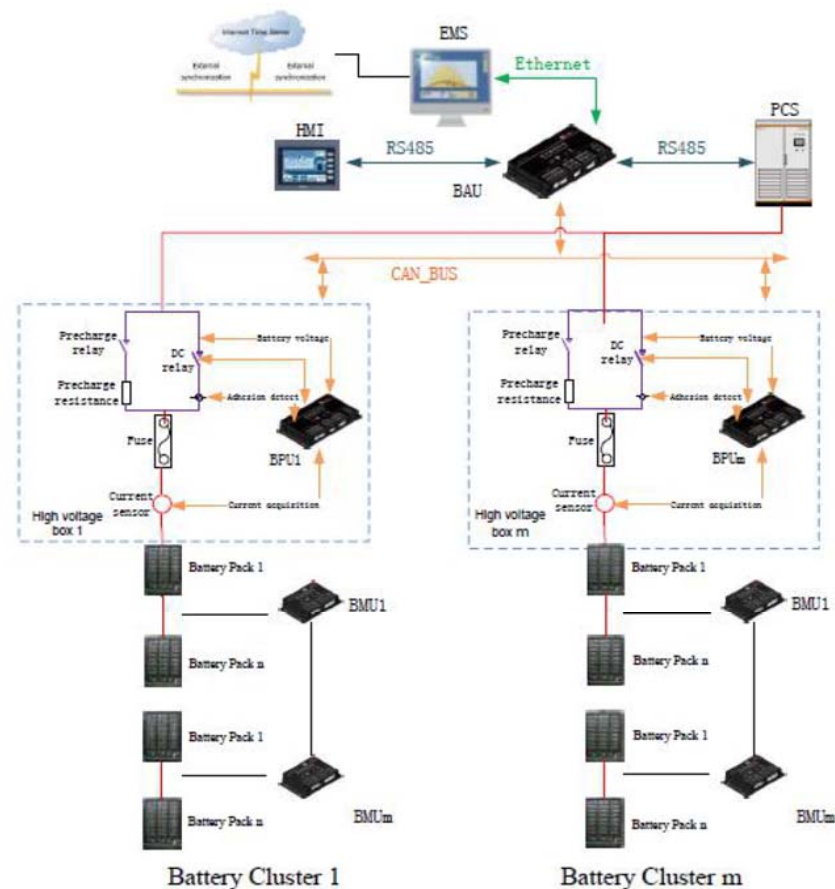
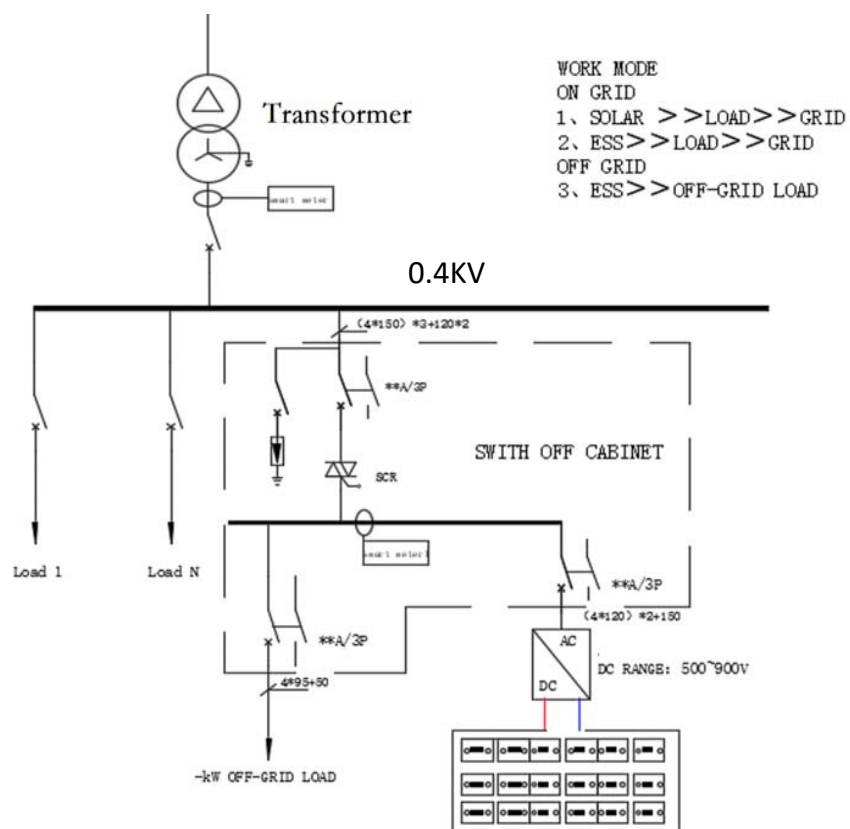
BESS solution

Layout



2MWH Battery storage system

System schematic diagram

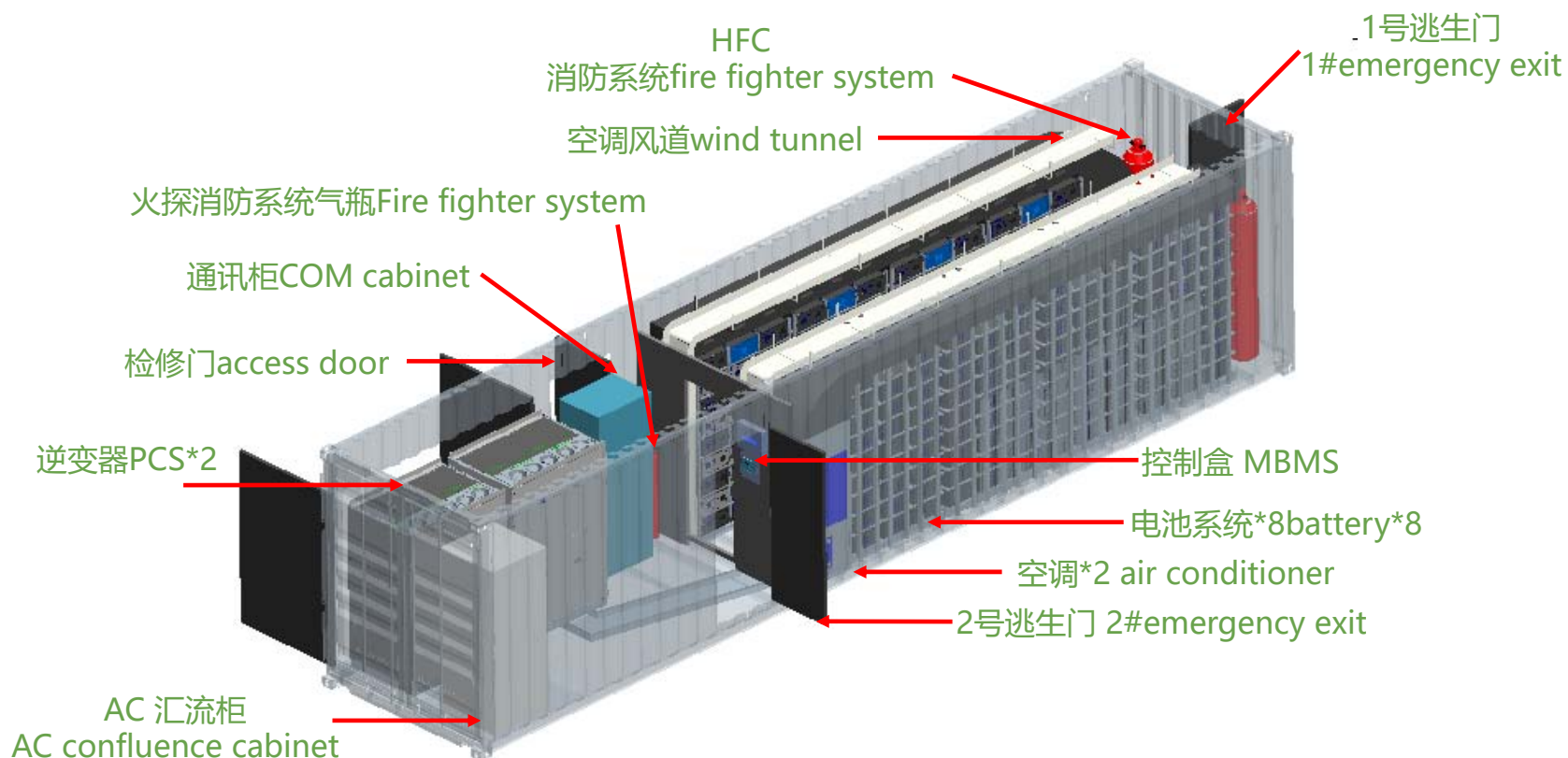


2MWH Battery storage system



Model	PH-ESS-2Mwh
Battery energy	LiFePO ₄
Rated energy	1498kwh
Rated capacity	1950Ah
Rated voltage	DC768V
Voltage range	672~876V
Max.charge /discharge current	1950A
Discharging /charging temp.	-20~55°C/0~55°C
Communication	RS485 Modbus
PCS/EMS	1000kw 315V to 400V AC
Color	RAL7035
Size	L12017*W2438*H2896mm
Weight	23000kg
IP grade	IP54
Certificate	CE/ IEC62619/TUV PPP59044a
Size	40 foot

Battery storage system



PCS (storage inverter)



High Yield

Advanced three-level technology, max. efficiency 99% Effective forced air cooling, 1.1 overload capacity, no derating up to 55°C, Various charge and discharge mode, flexible for battery configuration

Easy O&M

Integrated current & voltage monitoring function for online analysis and fast trouble shooting
Modular design and all components front accessible, easy for maintenance,
Integrated auxiliary power supply panels for external devices

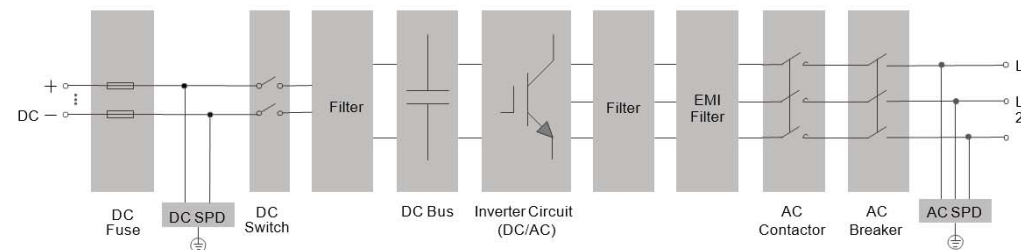
ESS Applications

Typical applications: peak shaving, energy shifting, frequency regulation, capacity firming
Bidirectional power conversion system with full four-quadrant operation
Battery charge & discharge management, black start function and VSG integrated

Grid Support

Compliance with IEC 61727, IEC 62116, SGSF Dynamic grid voltage and frequency support
L/HVRT, L/HFRT, soft start/stop, specified power factor control and reactive power support

Circuit Diagram



PCS (storage inverter)

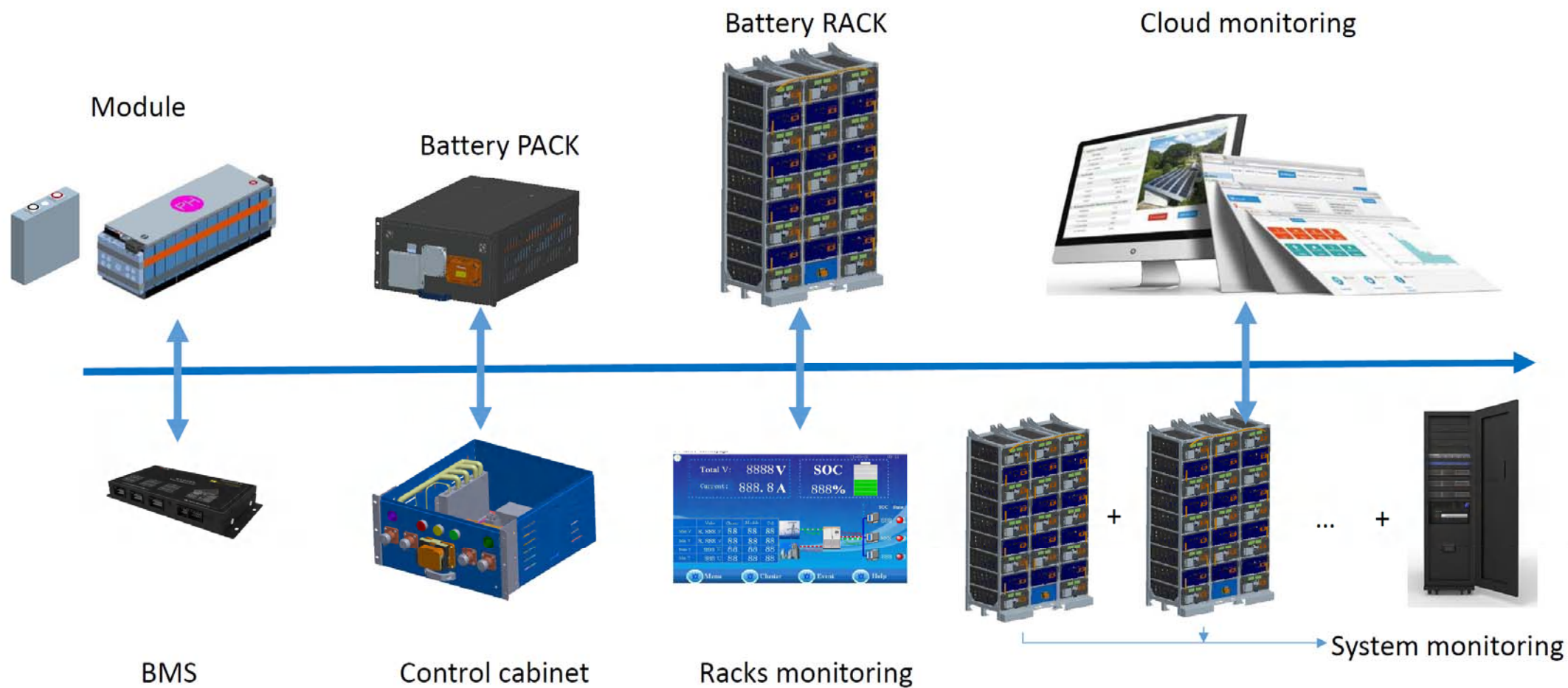
Specification

	PWS1-500KTL-EX	PWS1-500KTL-NA
Utility-interactive Mode		
Battery voltage range	600~900V	630~900V
DC max current	873A	
Quantity of battery strings	1/4/8	
AC voltage	380V	400V
AC current	760A	720A
Nominal power	500kVA	
AC frequency	50/60Hz(±2.5Hz)	60Hz(59.5~60.5Hz)
THDi	≤3%	
AC PF	Listed: 0.8~1 leading or lagging (Controllable)	
	Actual: 0.1~1 leading or lagging (Controllable)	
Stand-alone Mode		
Battery voltage range	600~900V	630~900V
DC Max Current	873A	
Quantity of battery strings	1/4/8	
AC output voltage	380V(±10% configurable)	400V(±10% configurable)
AC output current	760A(short term overload 836A max)	720A(short term overload 792A max)
Nominal AC output power	500kVA	
AC max power	550kVA	

Output THDu	≤2% (Linear load)	
AC frequency	50/60Hz	60Hz
AC PF	Listed: 0.8~1 leading or lagging (Load-depend) Actual: 0.1~1 leading or lagging (Load-depend)	
Overload Capability	105%~115%	10min;
	115%~125%	1min;
	125%~150%	200ms
Physical		
Cooling	Forced air cooling	
Noise	70dB	
Enclosure	IP20	NEMA1
Max elevation	3000m/10000feet (> 2000m/6500feet derating)	
Operating ambient temperature	-20°C to 50°C (De-rating over 45°C)	
Humidity	0~95% (No condensing)	
Size (W×H×D)	1100×2160×800mm	
Weight	600kg	
Installation	Floor standing	
Other		
Peak efficiency	98.20%	
CEC efficiency	-	97% w/o transformer
Protection	OTP, AC OVP/UVP, OFP/UFP, EPO, AC Phase Reverse, Fan/Relay Failure, OLP, GFDI, Anti-islanding	
Configurable protection limits	Upper/Lower AC Voltage/Frequency limit, Battery EOD voltage.	
AC connection	3-Phase 3-Wire	
Display	Touch Screen	
Communication	RS485,CAN,Ethernet	
Isolation	Non-isolation	
Certification	CE LVD IEC 62477, CE EMC IEC 61000, EN 50549-1:2019 G99, AS4777	ETL listed conforming to UL1741/UL 1741SA/UL 9540, CPUC RULE 21, , CSA 22.2
Short circuit		
Fault current	2000A	
Fault duration	100ms	

Battery Rack

Battery Rack



Battery Rack



A: 12S2P

Item	Spec
Module Specifications	12S2P (0.5C)
Rack Series and parallel	240S20P (10 racks parallel)
Rated capacity	300Ah/3000Ah
Rated voltage	DC768V
Usable Voltage range	672V-876V
Operating voltage range	696V~852V
Rack Rated energy	230.4kWh
Container energy	2304kWh
Cell&Pack Series and parallel	240S2P (20modules+1 control cabinet)

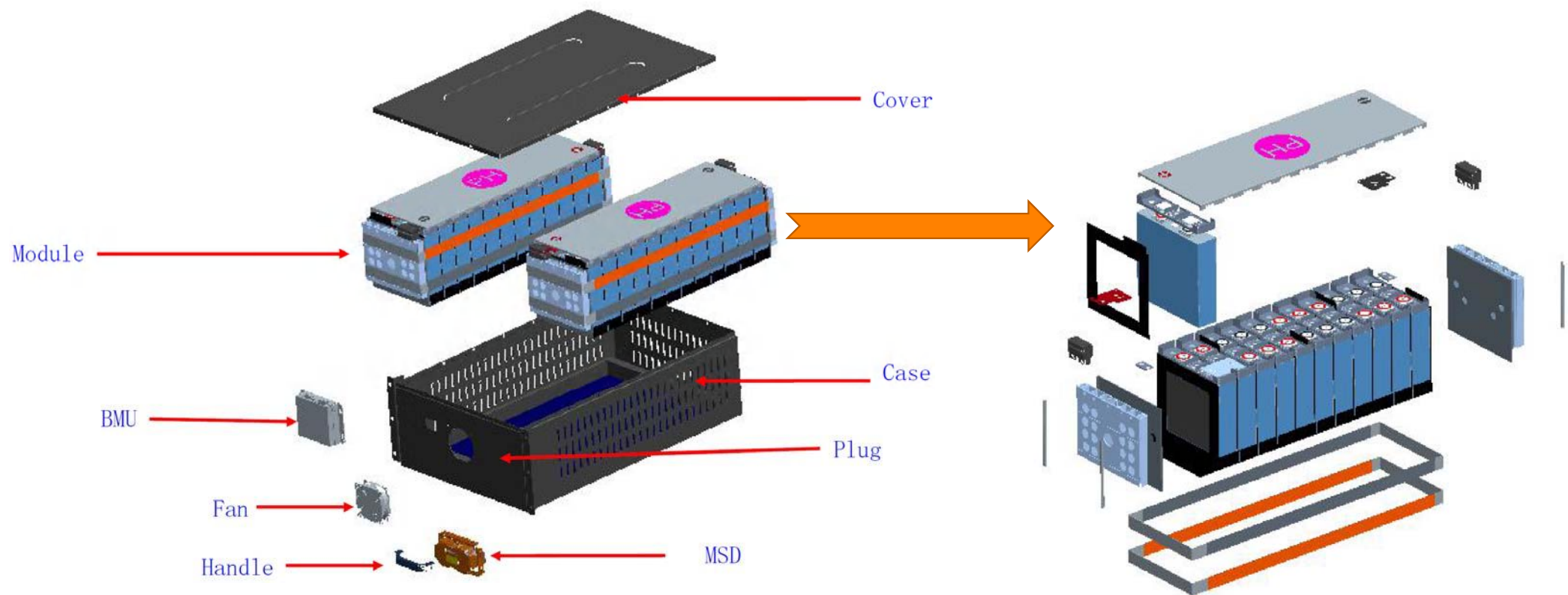


Battery Pack



NO.	Item	SPEC.		
		24S1P	12S2P	8S3P
1	Series and parallel	24S1P	12S2P	8S3P
2	Rated capacity	150Ah	300Ah	450Ah
3	Rated voltage	DC76.8V	DC38.4V	DC25.6V
4	Voltage range	60V~87.6V	30V~43.8V	20V~29.2V
5	Rated energy	11.52kWh		
6	Max. charge current	75A(0.5C)	150A(0.5C)	135A(0.3C)
7	Max. discharge current	75A(0.5C)	150A(0.5C)	135A(0.3C)
8	Peak current	90A (25℃, SOC50%, 10s)	180A (25℃, SOC50%, 10s)	162A (25℃, SOC50%, 10s)
9	IP grade	IP20		
10	discharge temp.	-20℃~55℃		
11	Charge temp.	0℃~55℃		
12	size	W450*D683*H242mm		
13	weight	92kg		

Battery Pack





HUIJUE GROUP
ENERGY CREATES A BETTER LIFE

Battery Pack

Temperature and fluid simulation

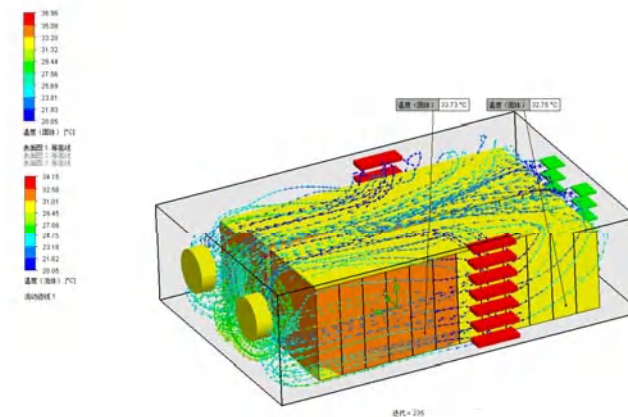
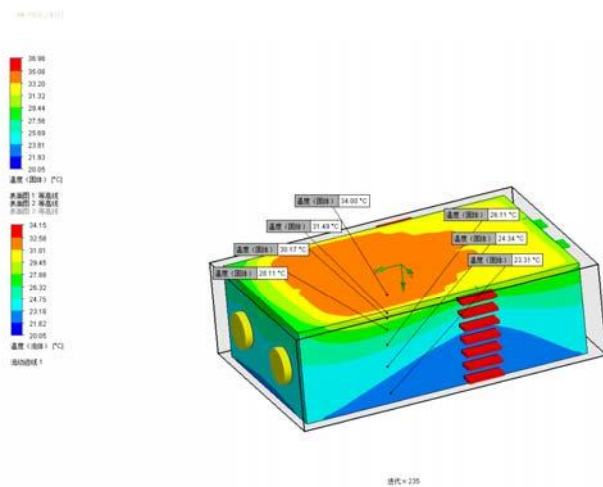
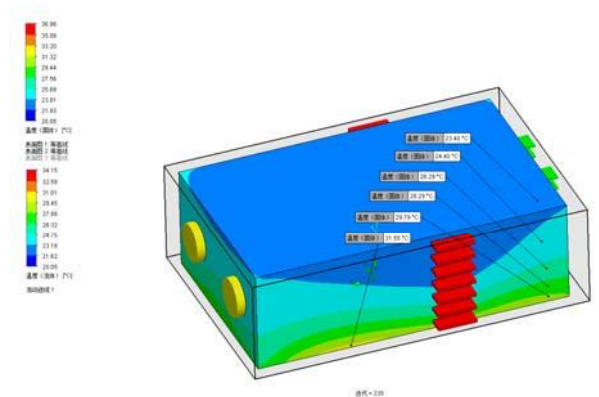


图 1-2-20

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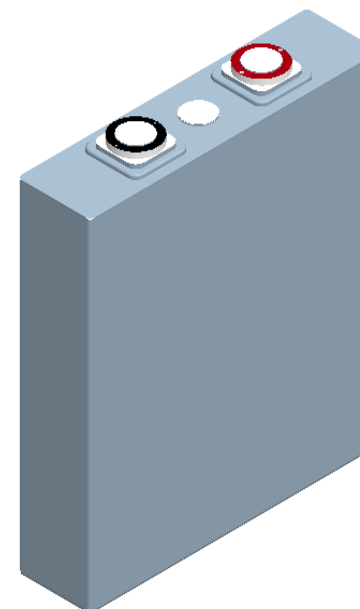
图 1-2-20

图 1-2-20

Standard battery CELL SPEC. for Battery Rack

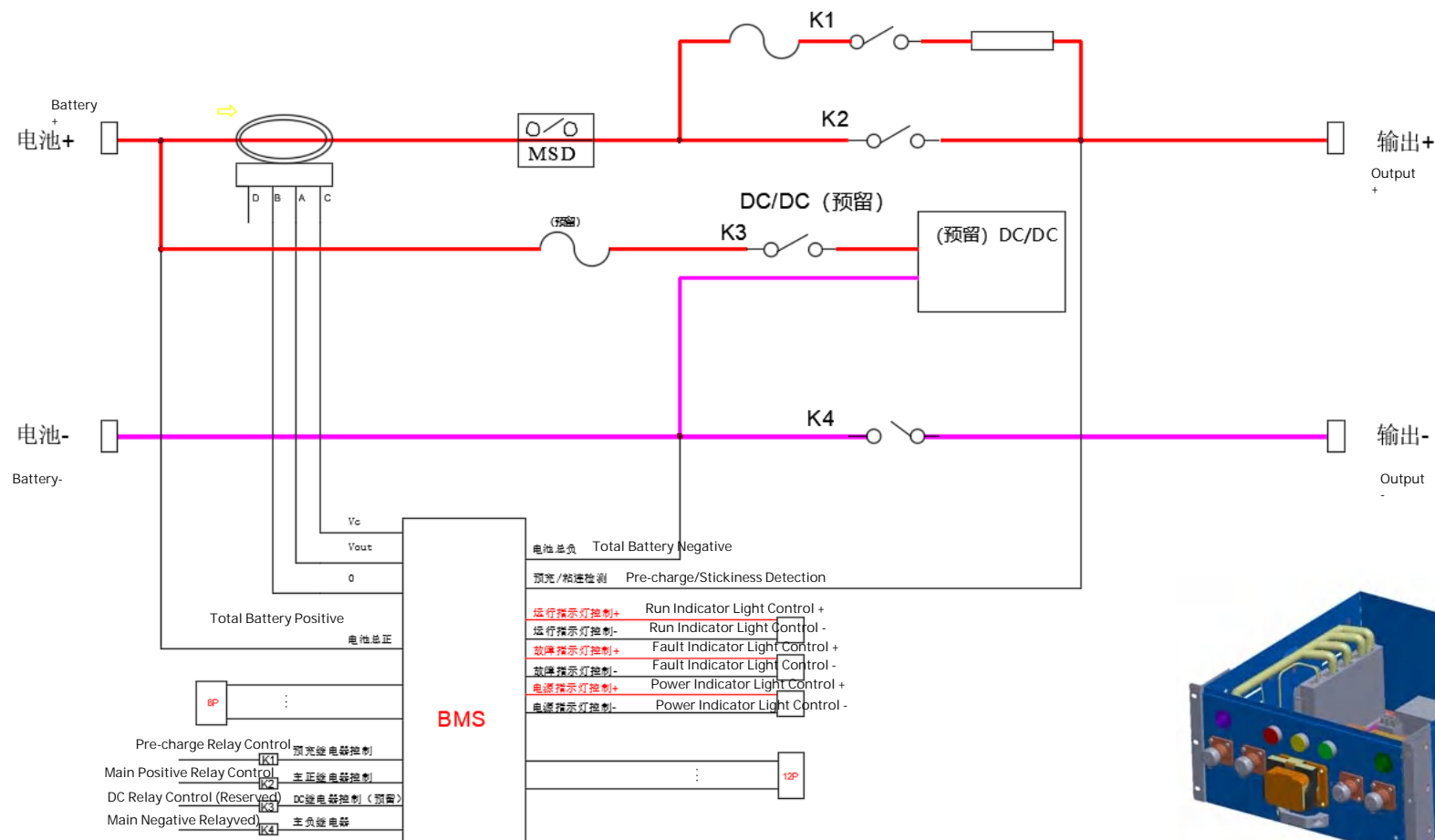
GSP42173205 Cell spec.

序号 No.	Item	3.2V150Ah
1	Type	Lithium-ion battery
2	Model	GSP42173205
3	Size	205*166*42mm
4	Weight	3
5	Internal res	-
6	Rated capacity	150Ah
7	Rated voltage	3.2V
8	Energy density	160
9	Charge end voltage	3.65 V
10	Discharge end voltage	2.5 V
11	Max. charge rate	1C
12	Max. discharge rate	2C



1MWH Battery storage system

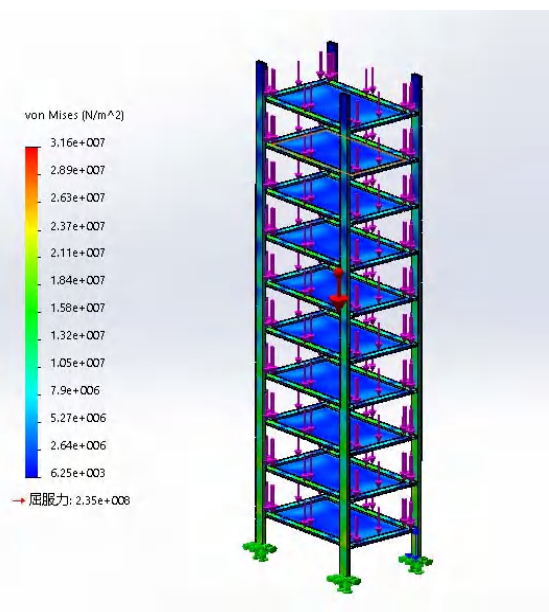
Electrical schematic diagram of high voltage box



Battery Rack

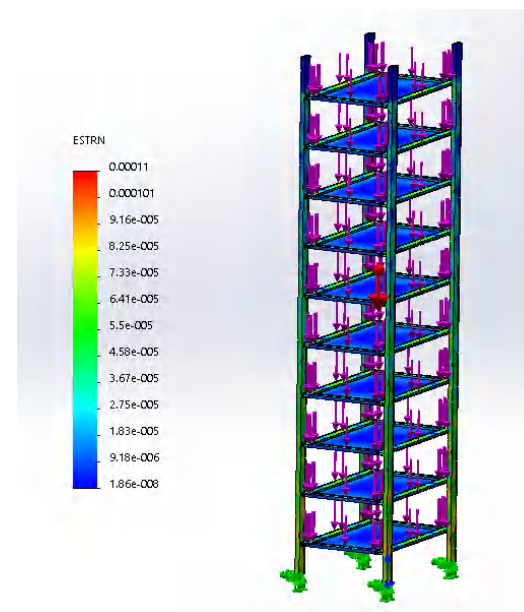
Battery rack simulation analysis

Load stress analysis (3G)



(31.6Mpa<235Mpa, The stress is far less than the material yield force.)

Load deformation analysis (3G)



(Deformation is about 1.1 mm, within the allowable range.)

Container

Provide reliable strength design for the product

Provide reliable basis for equipment in shipment and operation

Better design, lower cost



Coating test

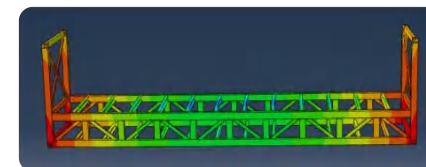
Waterproof test

IP55 protection level of the whole machine

High quality coatings with a life span of up to twenty years

Meet the certification of the classification society

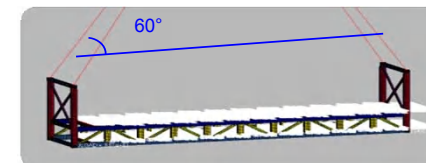
Column stacking
analysis results



Stress cloud



60 °C oblique hanging
Analysis



Column stacking
analysis



FSS (fire-Surpression system)

Customized design according to customer's product specification

Professional fire fighting density calculation, alarm logic, wiring layout

Meet the standard needs of different regions

Profession is an important condition for safety protection

Rich experience with production

CE/UL/3C can meet different international needs

Full automatic detection, power-off maintenance, fire fighting and equipment linkage control

To support the acceptance and certification of the National Fire Department

External debugging is supported

Unify installation and debugging before delivery

Temperature detection

Early detection

Size projection detection

Smoke detection



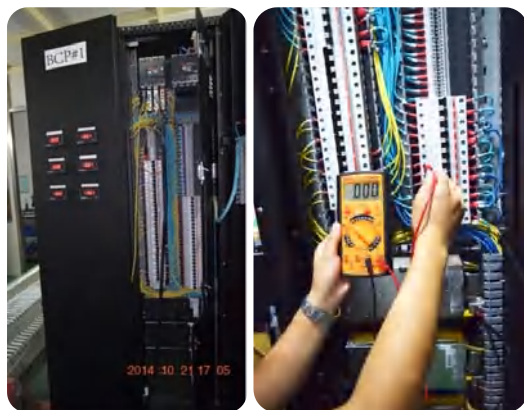
Power Distribution Unit

Provide power distribution equipment customized design, manufacture, installation

Professional wiring, meet electrical standards

Standard production line

Rich experience in power distribution production



Power test

Pressure test

Insulation test

Environmental management system

Intelligent chain system YT ECC

Support access control, humidity, temperature, wifi, air conditioning, video



Supports on - site, back-office and cloud management modes



Other Units



Increase lightning protection system
naccording to product demand



Class A fire escape door
protection class IP55
automatic closing
o.5seconds of instant unlock



The box adopts heat insulation design

Calculate According to the radiation situation in different regions

Class a flame retardant, fire resistant 30 mins

Surface of white and customized color are provided

Performance





No.333 Fengcun Road, Fengxian District Shanghai, ChinaShanghai