

把绿色能源带进生活
Bringing Green Power to Life

张家港协鑫超能云动科技有限公司
ZHANGJIAGANG GCL ENERGY&POWER TECHNOLOGY CO.,LTD

储能系统解决方案及产品手册
ENERGY STORAGE SYSTEM SOLUTION AND PRODUCT BROCHURE

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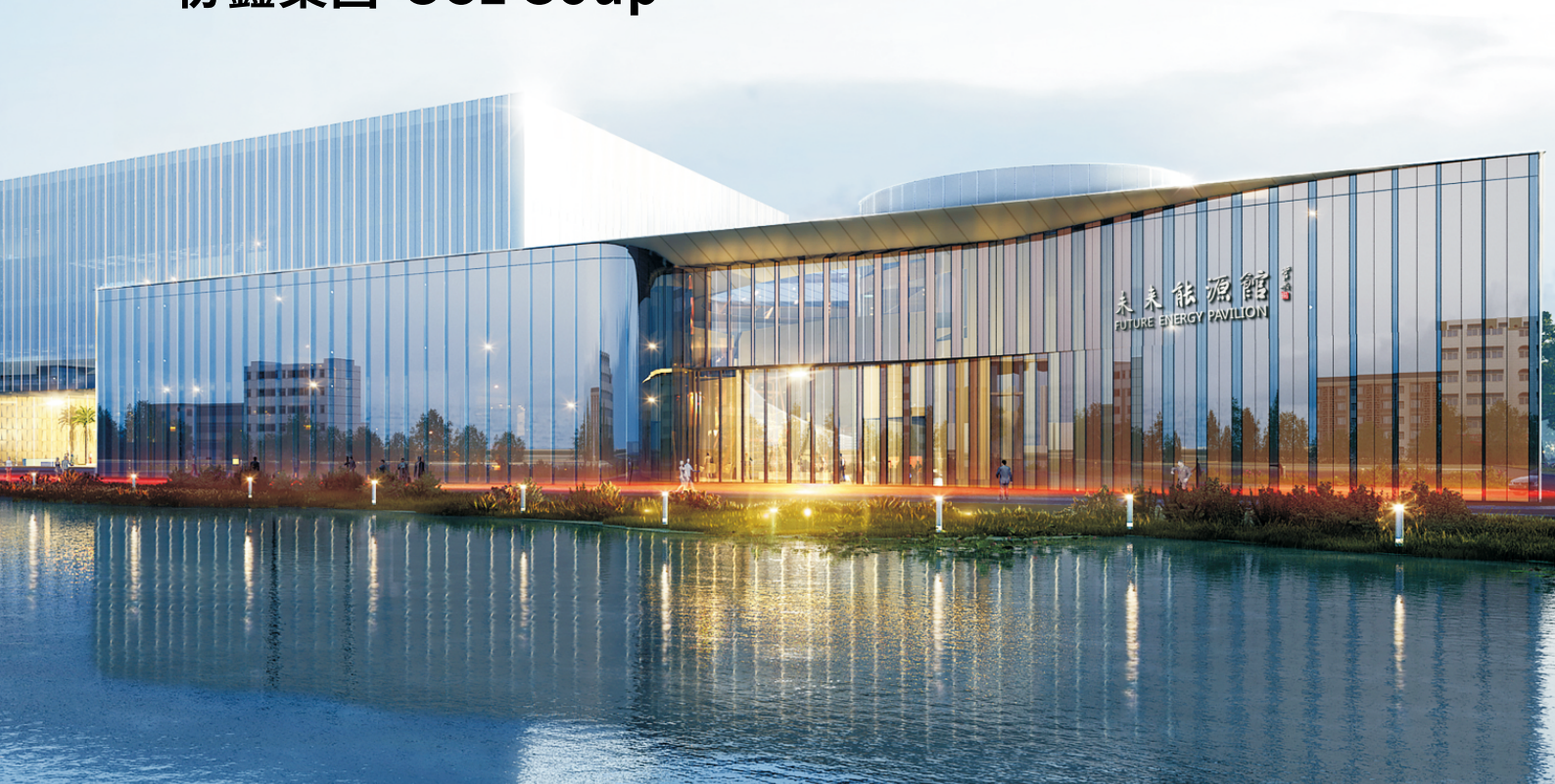
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协鑫集团-GCL Goup



全球领先的绿色能源运营商
 硅、锂、碳等新材料研发与制造商
 中国混合所有制电力企业的探路者
 中国半导体材料产业领跑者
 中国电力企业联合会副理事长单位

A Global Leading Green Energy Operator
 R&D and manufacturer of silicon, lithium, carbon and other high-tech materials
 Experimenter as one of China's mixed-ownership power companies
 Leader in China's Semiconductor Materials
 Vice president member of China Electricity Council

全球新能源企业500强（世界第二） Global Top 500 New Energy Enterprises (Ranked No.2)

中国企业500强	Top 500 Chinese enterprises
中国民营企业500强	Top 500 private enterprises in China
中国能源（集团）500强	Top 500 Energy (Groups) in China
中国最具价值品牌500强	Top 500 Most Valuable Brands in China
中国最具价值品牌 500强（品牌价值1506.75亿）	Top 500 Most Valuable Brands in China (with brand value 150.675 billion)

关键业务 / KEY BUSINESS

- 硅能源**
 Silicon Energy
 硅料、硅片、太阳能电池、组件、系统集成、硅烷流化床法(FBR)及FBR颗粒硅
 Silicone Material, Silicon Wafer, Solar cells, Module System Integration, the silane fluidized bed reactor (FBR) and FBR Granular Silicon
- 半导体材料**
 Semiconductor Materials
 电子级多晶硅、半导体硅片、装备及辅材、电子特气
 Electronic-grade Polysilicon, Semiconductor Wafer, Equipment and Auxiliary Materials, Electronic Specialty Gas
- 电力**
 Electric Power
 发电、配电、售电&碳交易、储能、能源互联网
 Electricity Generation, Distribution, Electricity Supply & Carbon Trading, Energy Storage, Energy Internet
- 天然气**
 Natural Gas
 天然气勘探、天然气开采、天然气制氨、储运、贸易分销
 Natural Gas Exploration, Natural Gas Extraction, Natural Gas Ammonia Production, Storage Trading and Distribution
- 数字能源**
 Digital Energy
 锂矿/磷矿、正极材料、电池PACK、动力电池&储能拓展应用、算力、电动生态体系运营
 Lithium/ Phosphate Ore, Cathode Materials, Battery Pack, Power Battery & Energy Storage Expanded Application, Computing Power, Electric Ecology System Operation



<p>Assets of 240 billion Four Listed Affiliates</p> <p>2400 2400亿元资产规模 拥有4家上市公司</p>	<p>Over 3,000 researchers at home and abroad 5000+ invention patents, intellectual property rights</p> <p>3000+ 3000余名海内外科研人员 5000+发明专利、知识产权</p>
<p>33年 能源服务经验 33 Years of of experience in energy services</p>	<p>6大 产业群 Six industrial clusters</p>
	<p>6业务覆盖6大洲 (100余个国家) Business covering 6 continents (more than 100 countries)</p>

协鑫集团大事记-Memorabilia

发展历程 / DEVELOPMENT HISTORY



公司介绍-Company Introduction

张家港超能云动公司

协鑫集团张家港新型储能智造基地（张家港协鑫超能云动科技有限公司）是协鑫旗下A股份上市公司协鑫能科(002015.SZ)为主体，投建的一座以先进新型储能材料为依托，以锂电池及储能系统集成为核心，在储能产业领域具备核心竞争力的智造基地。协鑫集团张家港储能基地是协鑫储能产业链的核心载体、标杆工厂；向上承接协鑫“电力+储能+算力”一体化与材料科技优势应用。协鑫全球唯一的一步物理干法正极材料、硅烷负极材料、超分子深共晶电解液、高效电芯等关键材料，打造模组PACK、终端储能产品、储能系统应用解决方案。

GCL Group Zhangjiagang new Energy storage intelligent Manufacturing Base (ZHANGJIAGANG GCL ENERGY&POWER TECHNOLOGY CO.,LTD) is the main body of GCL's A-share listed company GCL Energy Technology Co.,LTD.(002015/SZ). It is an intelligent manufacturing base with core competitiveness in the field of energy storage industry based on advanced new energy storage materials and battery and energy storage system integration as the core. GCL Zhangjiagang Energy storage Base is the core carrier and benchmark factory of GCL energy storage industry chain: to undertake GCL's integration of "power + energy storage + computing power" and application of material technology advantages. The world's only one-step physical dry anode materials, silane anode materials, supramolecular deep eutectic electrolyte, high energy efficiency cell and other key materials, to create module PACK, terminal energy storage products, energy storage system application solutions.

竞争优势-Competitive advantage

全产业链整合

Integration of the whole industrial chain

新型储能研究院

New energy storage Research Institute

世界500强平台优势

World top 500 platform advantage

精益化智能制造

Lean intelligent manufacturing

电芯原材料 65% 自供

65% of the raw material of the cell is supplied by itself

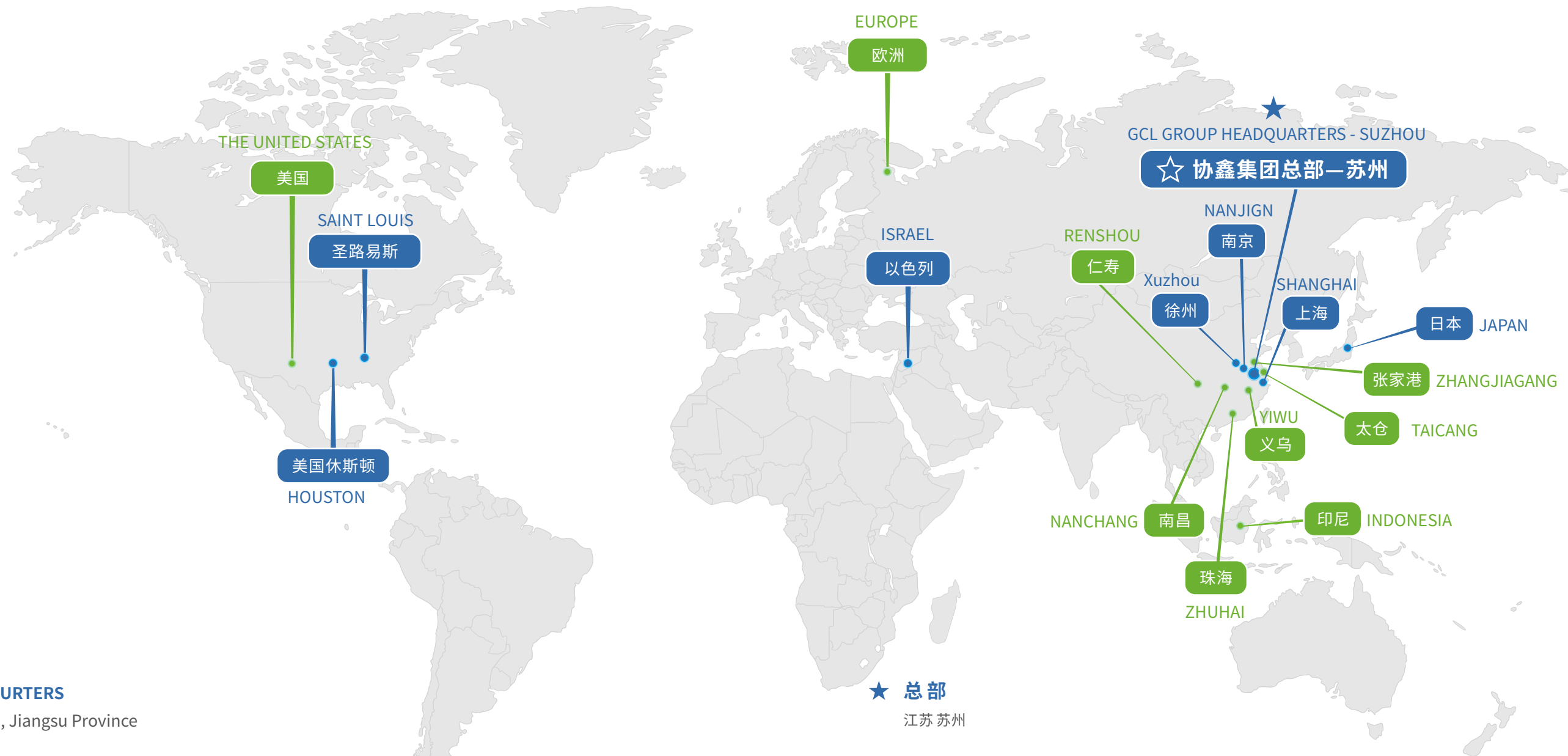
全球化产销布局

Global distribution of production and marketing

储能全球布局图-Energy Storage Globalization

研发中心 / R&D CENTER

储能产业基地 / Energy Storage Industrial Base



★ HEADQUARTERS
Suzhou, Jiangsu Province

● EIGHT R&D CENTERS
China: Shanghai, Nanjing, Xuzhou, Suzhou
Japan, Israel, Houston, Saint Louis

● ENERGY STORAGE INDUSTRIAL BASES:
China: Zhuhai, Nanchang, Yiwu, Zhangjiagang, Taicang, Renshou
the United States, Europe, Indonesia

★ 总部
江苏苏州

● 八大研发中心
中国：上海、南京、徐州、苏州
日本、以色列、美国休斯顿、圣路易斯

● 储能产业基地
中国：珠海、南昌、义乌、张家港、太仓、仁寿
美国、欧洲、印尼


关于协鑫储能-GCL ENERGY STORAGE



打通从正极材料至系统应用平台的全产业链,
从核心技术研发、生产制造至集成应用

Open up the whole industry chain from cathode material to system application platform, from core technology R&D, manufacturing to integrated application

核心技术-CORE TECHNOLOGY



大核心技术

FIVE CORE TECHNOLOGIES

True safety 真安全 100% 无起火风险 100% no fire risk	Long life time 长寿命 15000 次循环 25年寿命 15000 cycles 25 years of design lifetime	High efficiency 高效率 >93% 整机效率 >93% Complete machine efficiency	Intelligent temperature control 智控温 <3°C 温度一致性 <3°C Temperature consistency	Intelligent management 智管理 24h 超算平台AI守护 24h Supercomputing platform AI protection
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- 绿色能源提供储能电池系统与服务
Green Power provides energy storage battery system and service



- 电力转型提供储能电池系统与服务
Power Transition provides energy storage battery systems and services



产品优势-PRODUCT ADVANTAGES

SIX PRODUCT ADVANTAGES



大产品优势

- 01

安全 Safety

自有LFP正极材料技术, 多级热防护PACK设计, 智能自研BMS

Self-owned LFP cathode material technology, multistage thermal protection PACK design, intelligent self-developed BMS

02

经济 Economy

15000次长循环, 25年设计寿命, 低成本正极材料技术

15000 long cycles, 25 years of design lifetime, low-cost cathode material technology

03

高效 High efficiency

核心部件全自产, 高集成化设计, 高效热管理

core components are fully self-produced, with highly integrated design, efficient thermal management

04

智控 Intelligent control

统一网联平台, 本地EMS, 多平台APP

unified network platform, local EMS, multi-platform APP

05

灵活 Flexibility

标准模块化结构, 多电压, 多容量平台, 灵活扩展, 易安装

Standard modular structure, multi-voltage, multi-capacity platform, flexible expansion, easy installation

06

便捷 Convenience

多气候, 多地域适用, 无需工程土建, 易安装, 高防护等级

Applicable to multi-climates, multi-regions, no need for civil engineering, easy for installation, high protection level

产品矩阵-PRODUCT MATRIX

储能液冷PACK

Liquid cooling ESS battery pack



高安全
High safety



长寿命
Long lifetime



高集成
High integration

认证: GB36276/CQC, IEC 60730, IEC 62619, IEC 63056, IEC 62477-1, IEC/EN 61000, UL1973, UL 9540, IEEE 1547

- 选用热稳定性高的磷酸铁锂体系电芯;
- 高热阻隔性能的自研功能性隔板;
- 高绝缘耐压部件设计;
- 精细化结构设计,充分考量运输、安装、运维、使用可靠性;
- 选用协鑫自有的先进电极材料,电芯最长循环寿命可达8000 Cycles;
- 采用先进的补锂技术,前2000次不衰减;
- 采用一体式液冷管路设计,温差<3°C;
- 四合一前面板功能件集成;
- 底冷板壳体功能集成;
- 采集、汇流、保护电路集成;
- 电芯间散热、高温隔热、结构粘接功能集成;

High safety

- Lithium iron phosphate cell with high thermal stability;
- Self-developed functional partition plate with high thermal barrier performance;
- Design of high insulation and with stand voltage parts;
- Fine structure design, fully consider the reliability in transportation, installation, operation, maintenance, and usage

Long lifetime

- GCL's own advanced electrode materials, and the maximum cycle life of the cell can reach 8,000 cycles;
- Using advanced lithium replenishment technology, no attenuation for the first 2000 times;

High integration

- Integrated liquid-cooling pipeline design, temperature difference <3°C;
- 4-in-1 front panel feature integration;
- Bottom cold plate housing function integration;
- Acquisition, confluence, protection circuit integration;
- Heat dissipation between cells, high temperature heat insulation, structural bonding function integration;

基本参数 Basic parameters

成组形式	Packing form	1P52S
热管理	Thermal management	底板液冷 Bottom plate liquid cooling
容量(kWh)	Volume(kWh)	49.6(280Ah电芯) Cell
设计温差	Temperature difference design	<3°C
IP level		IP65
尺寸	Dimension	828x1172x240(WxDxH)(mm)
重量	Weight	≤350kg

产品矩阵-PRODUCT MATRIX

储能液冷大PACK

Liquid cooling ESS battery pack (big)



高安全
High safety



长寿命
Long lifetime



高集成
High integration

认证: GB36276/CQC, IEC 60730, IEC 62619, IEC 63056, IEC 62477-1, IEC/EN 61000, UL1973, UL 9540, IEEE 1547

- 选用热稳定性高的磷酸铁锂体系电芯;
- 高热阻隔性能的自研功能性隔板;
- 高绝缘耐压部件设计;
- 精细化结构设计,充分考量运输、安装、运维、使用可靠性;
- 选用协鑫自有的先进电极材料,电芯最长循环寿命可达 8000 Cycles;
- 采用先进的补锂技术,前2000次不衰减;
- 采用一体式液冷管路设计,温差<3°C;
- 四合一前面板功能件集成;
- 底冷板壳体功能集成;
- 采集、汇流、保护电路集成;
- 电芯间散热、高温隔热、结构粘接功能集成;

High safety

- Lithium iron phosphate cell with high thermal stability;
- Self-developed functional partition plate with high thermal barrier performance;
- Design of high insulation and with stand voltage parts;
- Fine structure design, fully consider the reliability in transportation, installation, operation, maintenance, and usage

Long lifetime

- GCL's own advanced electrode materials, and the maximum cycle life of the cell can reach 8,000 cycles;
- Using advanced lithium replenishment technology, no attenuation for the first 2000 times;

High integration

- Integrated liquid-cooling pipeline design, temperature difference <3°C;
- 4-in-1 front panel feature integration;
- Bottom cold plate housing function integration;
- Acquisition, confluence, protection circuit integration;
- Heat dissipation between cells, high temperature heat insulation, structural bonding function integration;

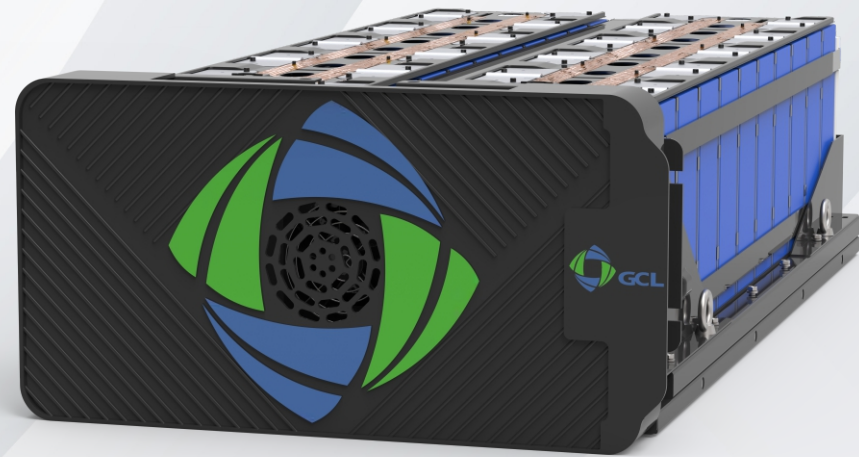
基本参数 Basic parameters

成组形式	Packing form	2P52S
热管理	Thermal management	液冷 liquid cooling
容量(kWh)	Volume(kWh)	104.5(314Ah电芯) Cell
设计温差	Temperature difference design	<3°C
IP level		IP65
尺寸	Dimension	828X2226X242(WxDxH)(mm)
重量	Weight	680Kg+/-5Kg

产品矩阵-PRODUCT MATRIX

储能风冷PACK

Air cooling ESS battery pack



高安全
High safety



长寿命
Long lifetime



高集成
High integration

认证: GB36276/CQC, IEC 60730, IEC 62619, IEC 63056, IEC 62477-1, IEC/EN 61000, UL1973, UL 9540, IEEE 1547

- 选用热稳定性高的磷酸铁锂体系电芯;
- 电芯间采用铝板集成有机硅涂料风道板;
- 端板采用SMC材料;
- 面板采用分离式设计;
- 选用协鑫自有的先进电极材料,电芯最长循环寿命可达8000Cycles;
- 采用低成本风道设计,温差<3°C;
- 下壳体和后端版采用集成设计;
- 前面板集成各类电器件,降低线体工艺成本;
- 充分考虑线路布局,优化走线路径;

High safety

- Lithium iron phosphate system cell with high thermal stability ;
- Aluminum plate integrated silicone paint duct plate is used between battery cell.
- The end plate is made of SMC material;
- Panel adopts separate design;

Long lifetime

- GCL's own advanced electrode materials, and the maximum cycle life of the cell can reach 8,000 cycles;
- Low cost air duct design, temperature difference <3°C

High integration

- Lower shell and the rear end plate adopt integrated design;
- Front panel integrates various electrical components to reduce the process cost of the wire body;
- Fully consider the route layout, optimize the route;

基本参数 Basic parameters

成组形式	Packing form	1P20S/1P24S
热管理	Thermal management	风道冷却 Air duct cooling
容量(kWh)	Volume(kWh)	17.92/21.5(280Ah电芯) Cell
设计温差	Temperature difference design	<3°C(PACK级)
IP level		/
尺寸	Dimension	448x956.93x230(WxDxH)(mm)
重量	Weight	120kg

产品矩阵-PRODUCT MATRIX

电芯系列 Cell Series



01

320Ah



02

100Ah



03

360Ah

产品名称 Product name	320Ah	100Ah	360Ah刀片电芯 The blade battery cell(360Ah)
应用场景 Application scenarios	大型储能系统 Large-scale energy storage system	小型储能产品 Small energy storage products	大型储能系统 Large energy storage system
化学体系 Chemical system	LFP/Gr	LFP/Gr	LFP/Gr
电芯尺寸 Cell dimension	174x72x204 (LxWxH)(mm)	160x49x118 (LxWxH)(mm)	23x580x207 (LxWxH)(mm)
封装形式 Encapsulation form	方形铝壳 Square aluminum shell	方形铝壳 Square aluminum shell	方形铝壳 Square aluminum shell
能量密度(重量) Energy density (weight)	190Wh/kg	160Wh/kg	190Wh/kg
能量密度(体积) Energy density (volume)	400Wh/L	360Wh/L	430Wh/L
电压范围 Voltage range	2.5V ~3.65V	2.5V ~3.65V	2.5V ~3.65V
充电倍率 Charging ratio	0.5P	0.5P	0.5P
循环寿命 Cycle life	>8000Cycles	>6000Cycles	>12000Cycles
平台电压 Platform voltage	3.2V	3.2V	3.2V

产品矩阵-PRODUCT MATRIX

液冷储能一体式机柜产品 Integrated liquid cooling energy storage cabinets



- 选用热稳定性高的磷酸铁锂体系电芯；
- Ip54防护等级，满足户外应用需求；
- C5防腐，满足20年使用需求；
- 预防为主消防策略，独立消防系统；
- 选用协鑫自有的先进电极材料，电芯最长循环寿命可达8000Cycles；
- 液冷变频系统，电池簇内部电芯温差<3°C，寿命提升30%；
- 将PCS集成到机柜中，使电器件高度集成；
- 采用独立水冷系统，整机降温无忧；
- 采用标准化液冷PACK；
- 模块化设计，支持各类工商业大小电站需求的任意组合；
- 预制形式，降低现场安装调试的时间和费用；

- Lithium iron phosphate system cell with high thermal stability;
- Ip54 protection grade, to meet the outdoor application requirement;
- C5 anti-corrosion, to meet 20-year service requirement;
- "Prevention First" fire-fighting strategy, with independent fire fighting system;
- GCL's own advanced electrode materials, and the maximum cycle life of the cell can reach 8000 cycles;
- Liquid cooling frequency conversion system, cell temperature difference inside battery clusters<3°C, life increasing by 30%;
- Integrate PCS into the cabinet to make the electrical parts highly integrated;
- Adopt independent water cooling system, the whole machine cooling without any worry;
- Adopt standardized liquid cooling PACK;
- Prefabricated form, reducing the time and cost of on-site installation and commissioning;
- Modular design to support any combination of industrial and commercial power station requirements;



高安全
High safety



长寿命
Long lifetime



高集成
High integration

	100kW系列 100kW Series	215kW系列 215kW Series
接入方式 Access mode	三相三线 Three phase three wire	三相三线 Three phase three wire
额定功率 Rated power	100kW	215kW
最大交流功率 Maximum AC power	110kVA	220kVA
额定电网电压 Rated grid voltage	400V	380V
电压运行范围 Voltage operating range	-15% ~ +10%	-15% ~ +10%
额定电流 Rated current	145A	167A
最大输出电流 Maximum output current	158A	184A
额定电网频率 Rated network frequency	50Hz/60Hz	50Hz/60Hz
总电流波形畸变率(THD) Total Harmonic Distortion (THD)	<3%	<3%
功率因数 Power factor	>0.99(额定输出功率) Rated output power	-1 ~ 1
电池类型 Battery type	LFP 280Ah	LFP 314Ah
电池簇配置 Battery cluster configuration	1P260S	1P416S
额定电压 Rated voltage	832V	1331.2V
额定电量 Rated capacity	232.96kWh	418kWh
电池电压范围 Battery voltage range	702V ~ 936V	1164.8V ~ 1497.6V
充放电倍率 Charge and discharge ratio	0.5C	0.5C
放电深度 Discharge depth	95%	95%
允许最大工作温度 Allowable maximum operating temperature	0.5C@充电(charge):0°C~55°C 0.5C@放电(discharge):-30°C~55°C	0.5C@充电(charge):0°C~55°C 0.5C@放电(discharge):-30°C~55°C
循环次数 Cycle number	8000Cycles	8000Cycles
PACK箱防护等级 PACK box protection class	IP65	IP65
直流保护 DC protection	MSD+Fuse	MSD+Fuse

交流测参数

AC parameters

直流电池参数

DC battery parameters

	100kW系列 100kW Series	215kW系列 215kW Series
系统效率 System efficiency	>89%	>89%
噪音 Noise	<75dB	<75dB
工作湿度范围 Operating humidity range	0~95%, 无凝露 no condensation	0~95%, 无凝露 no condensation
运行温度范围 Operating temperature range	-35°C~+60°C (+45°C以上需要降额) (Derating required for over +45°C)	-35°C~+60°C (+45°C以上需要降额) (Derating required for over +45°C)
海拔 Altitude	4000m (超过2000m需要降额) (Derating required for over 2000m)	4000m (超过2000m需要降额) (Derating required for over 2000m)
冷却方式 Cooling mode	液冷 Liquid cooling	液冷 Liquid cooling
冷机功率 Cooling power	8kW	10kW
消防 Fire fighting	全氟己酮+火探管+柜级水浸没+主动预警+被动热阻隔 Perfluorohexanone + fire probe + container-level water immersion + active warning + passive thermal barrier	全氟己酮+火探管+柜级水浸没+主动预警+被动热阻隔 Perfluorohexanone + fire probe + container-level water immersion + active warning + passive thermal barrier
绝缘标准 Insulation standard	电池簇绝缘电阻≥200MΩ(1500V) Battery cluster insulation resistance ≥200MΩ(1500V)	电池簇绝缘电阻≥200MΩ(1500V) Battery cluster insulation resistance ≥200MΩ(1500V)
耐压标准 Voltage-withstand standard	2700V, 无击穿现象, 漏电流<20mA 2700V, no breakdown, leakage current < 20mA	2700V, 无击穿现象, 漏电流<20mA 2700V, no breakdown, leakage current < 20mA
尺寸 Dimension	1440x1400x2050 (LxWxH)(mm)	1800x1400x2150 (LxWxH)(mm)
重量 Weight	1.8t	3t
安装位置 Installation position	户外安装 Outdoor installation	户外安装 Outdoor installation
防腐等级 Anti-corrosion grade	C5可选 C5 Optional	C5可选 C5 Optional
密封等级 Protection class	IP54	IP54
通讯方式 Communication mode	CAN/RS485/LAN	CAN/RS485/LAN
低电压穿越 Low voltage ride through	具备 Yes	具备 Yes
孤岛保护 Island protection	具备(计划性孤岛) Available (planned island)	具备(计划性孤岛) Available (planned island)
交流过流、短路保护 AC overcurrent, short circuit protection	具备 Yes	具备 Yes
交流过、欠压保护 AC over-voltage/under-voltage protection	具备 Yes	具备 Yes
交流过、欠频保护 AC over and under frequency protection	具备 Yes	具备 Yes
相序错误保护 Phase-sequence error protection	具备 Yes	具备 Yes
直流过流/短路保护 DC overcurrent/short circuit protection	具备 Yes	具备 Yes
直流过压/欠压保护 DC over-voltage/under-voltage protection	具备 Yes	具备 Yes
直流极性反接保护 DC reverse polarity protection	具备 Yes	具备 Yes
内部短路保护 Internal short circuit protection	具备 Yes	具备 Yes
过温保护 Over Temperature Protection	具备 Yes	具备 Yes
绝缘检测 Insulation test	具备 Yes	具备 Yes
功率模块(IGBT)保护 Power module (IGBT) protection	具备 Yes	具备 Yes
漏电流保护 Leakage current protection	具备 Yes	具备 Yes

系统参数 System parameters

保护功能 Protection function

产品矩阵-PRODUCT MATRIX

20尺液冷集装箱(单/双开门)

20 feet liquid cooling ESS container(single-door/double-door)



- 选用热稳定性高的磷酸铁锂体系电芯;
- IP54防护等级,满足户外应用需求;
- C5防腐,满足20年使用需求;
- 预防为主的多级消防策略;
- 选用协鑫自有的先进电极材料,电芯最长循环寿命可达8000Cycles;
- 一体式液冷设计,集装箱内部温差<5°C;
- 将PCS集成到机柜中,使电器件高度集成;
- 采用独立水冷系统,整机降温无忧;
- 采用标准化液冷PACK;
- 模块化设计,支持各类工商业大小电站需求的任意组合;
- 预制形式,降低现场安装调试的时间和费用;

- Lithium iron phosphate system cell with high thermal stability;
- Ip54 protection grade, to meet the outdoor application requirement;
- C5 anti-corrosion, to meet 20-year service requirement;
- Multilevel "Prevention First" fire-fighting strategy;
- GCL's own advanced electrode materials, and the maximum cycle life of the cell can reach 8000 cycles;
- Integrated liquid cooling design, temperature difference inside the container<5°C,
- Integrate PCS into the cabinet to make the electrical parts highly integrated;
- Adopt independent water cooling system, the whole machine cooling without any worry;
- Adopt standardized liquid cooling PACK;
- Modular design to support any combination of industrial and commercial power station requirements;
- Prefabricated form, reducing the time and cost of on-site installation and commissioning;



高安全
High safety



长寿命
Long lifetime



高集成
High integration

基本参数 Basic parameters

集装箱尺寸 Container dimension	20尺 20feet
冷却方式 Cooling mode	液冷 Liquid cooling
电池类型 Battery type	LFP 280Ah
集装箱电堆配置 Container stack configuration	10P416S
额定电压 Rated voltage	1331.2V
额定电量 Rated capacity	3.727MWh
直流电压范围 Battery voltage range	1164.8V~1497.6V
充放电倍率 Charge and discharge ratio	0.5C
放电深度 Discharge depth	90%(可设置) settable
允许最大工作温度 Allowable maximum operating temperature	0.5C@充电(charge):0°C ~ 55°C 0.5C@放电(discharge):-30°C ~ 55°C
循环次数 Cycle times	8000Cycles
PACK箱防护等级 PACK protection class	IP65
直流保护 DC protection	MSD+Fuse
系统效率 System efficiency	>89%
噪音 Noise	<75dB
工作湿度范围 Operating humidity range	0 ~ 95%, 无凝露 no condensation
运行温度范围 Operating temperature range	-35°C ~ +60°C (+45°C以上需要降额) (Derating required for over +45°C)
海拔 Altitude	4000m (超过2000m需要降额) (Derating required for over 2000m)
冷却方式 Cooling mode	液冷 Liquid cooling
冷机功率 Cooling power	40kW
运行温差 Operating temperature difference	≤5°C (国标工况, 0.5C充放电) (national standard condition, 0.5C charge and discharge)
消防 Fire fighting	主动式全氟己酮+细水雾+被动热阻隔 Active perfluorohexanone + water mist + passive thermal barrier
尺寸 Dimension	单开门(single-door): 6558x2438x2896 (LxWxH)(mm) 双开门(double-door): 6058x2700x2896 (LxWxH)(mm)
重量 Weight	≈ 35t
安装位置 Installation position	户外安装 Outdoor installation
防腐等级 Anticorrosion grade	C5可选 C5 optional
密封等级 Protection class	IP54
通讯方式 Communication mode	CAN/RS485/LAN

直流电池参数 DC battery parameters

系统参数 System parameters

认证 Certification

GB36276/CQC, IEC 60730, IEC 62619, IEC 63056,
IEC 62477-1, IEC/EN 61000, UL1973, UL 9540, IEEE 1547

产品矩阵-PRODUCT MATRIX

40尺储能集装箱 40 feet ESS container

高安全·长寿命·高集成 High safety · Long lifetime · High integration



- 选用热稳定性高的磷酸铁锂体系电芯;
- IP54防护等级, 满足户外应用需求;
- C5防腐, 满足20年使用需求;
- 预防为主的多级消防策略;
- 选用协鑫自有的先进电极材料, 电芯最长循环寿命可达 8000Cycles;
- 一体式液冷设计, 集装箱内部温差<5°C;
- 将PCS集成到机柜中, 使电器件高度集成;
- 采用独立水冷系统, 整机降温无忧;
- 采用标准化液冷PACK;
- 模块化设计, 支持各类工商业大小电站需求的任意组合;
- 预制形式, 降低现场安装调试的时间和费用;

- Lithium iron phosphate system cell with high thermal stability;
- Ip54 protection grade, to meet the outdoor application requirement;
- C5 anti-corrosion, to meet 20-year service requirement;
- Multilevel "Prevention First" fire-fighting strategy;
- GCL's own advanced electrode materials, and the maximum cycle life of the cell can reach 15,000 cycles;
- Integrated liquid cooling design, temperature difference inside the container<5°C,
- Integrate PCS into the cabinet to make the electrical parts highly integrated;
- Adopt independent water cooling system, the whole machine cooling without any worry;
- Adopt standardized liquid cooling PACK;
- Modular design to support any combination of industrial and commercial power station requirements;
- Prefabricated form, reducing the time and cost of on-site installation and commissioning;

基本参数 Basic parameters

集装箱尺寸 Container dimension	40尺 40 feet	40尺 40 feet
冷却方式 Cooling mode	液冷 Liquid cooling	风冷 Air cooling
电池类型 Battery type	LFP 280Ah	LFP 280Ah
集装箱电堆配置 Container stack configuration	20P416S	14P408S
额定电压 Rated voltage	1331.2V	1305.6V
额定电量 Rated capacity	7.45MWh	5.117MWh
电池电压范围 Battery voltage range	1164.8V ~ 1497.6V	1142.4V ~ 1468.8V
充放电倍率 Charge and discharge ratio	0.5C	0.5C
放电深度 Discharge depth	90% (可设置) can set	90% (可设置) settable
允许最大工作温度 Allowable maximum operating temperature	0.5C@充电charge:0°C~55°C 0.5C@放电discharge:-30°C ~ 55°C	0.5C@充电charge:0°C~55°C 0.5C@放电discharge:-30°C ~ 55°C
循环次数 Cycle times	8000Cycles	8000Cycles
PACK箱防护等级 PACK protection class	IP65	/
直流保护 DC protection	MSD+Fuse	Fuse
系统效率 System efficiency	>89%	>85%
噪音 Noise	<75dB	<75dB
工作湿度范围 Operating humidity range	0 ~ 95%, 无凝露 no condensation	0 ~ 95%, 无凝露 no condensation
运行温度范围 Operating temperature range	-35°C ~ +60°C(+45°C以上需要降额) (Derating required for over +45°C)	-35°C ~ +60°C(+45°C以上需要降额) (Derating required for over +45°C)
海拔 Altitude	4000m(超过2000m需要降额) (Derating required for over 2000m)	4000m(超过2000m需要降额) (Derating required for over 2000m)
冷却方式 Cooling mode	液冷 Liquid cooling	风冷 Air cooling
冷机功率 Cooling power	40kW*2	/
运行温差 Operating temperature difference	≤5°C(国标工况,0.5C充放电) (national standard condition, 0.5C charge and discharge)	≤7°C(国标工况0.5C充放电) (national standard condition, 0.5C charge and discharge)
消防 Fire fighting	全氟己酮+细水雾+被动热阻隔 Perfluorohexanone + water mist + passive thermal barrier	全氟己酮+细水雾+被动热阻隔 Perfluorohexanone + water mist + passive thermal barrier
尺寸 Dimension	12192x2438x2896 (LxWxH)(mm)	12129x2438x2896(LxWxH)(mm)
重量 Weight	≈ 75t	≈60t
安装位置 Installation position	户外安装 Outdoor installation	户外安装 Outdoor installation
防腐等级 Anticorrosion grade	C5可选 C5 optional	C5可选 C5 optional
密封等级 Protection class	IP54	IP54
通讯方式 Communication mode	CAN/RS485/LAN	CAN/RS485/LAN

直流电池参数 DC battery parameters

系统参数 System parameters

认证 Certification

GB36276/CQC, IEC 60730, IEC 62619, IEC 63056,
IEC 62477-1, IEC/EN 61000, UL1973, UL 9540, IEEE 1547

产品矩阵-PRODUCT MATRIX

移动式储充一体车

Mobile Energy storage & Charging Station



- **高能量密度:** 高容量电池组实现更大的能量存储。
 - **快速充放电:** 支持高功率充电和快速释放, 提高使用效率。
 - **长循环寿命:** 可靠的电池技术, 具备长达数千次的循环寿命
 - **直流耦合架构:** 提供更高效率的能量传输, 摆脱电网装机束缚。
 - **可拖挂式运输:** 适应各种场地需求, 方便快速搬迁。
 - **轻巧便携:** 紧凑的设计, 方便移动和部署。
 - **多功能用途:** 适配多种应用场景, 满足不同的能源存储需求。
 - **高功率输出:** 支持高达240kW的单枪最大输出功率, 提供快速充电服务。
 - **宽电压范围:** 输出电压范围宽泛, 适配200V至1000V的汽车充电需求。
 - **多充电枪设计:** 配备多个充电枪, 可同时为多辆车辆提供便捷充电。
- **High energy density:** High capacity battery packs enable greater energy storage.
 - **Fast charging and discharging:** supports high-power charging and quick release to improve usage efficiency.
 - **Long cycle life:** Reliable battery technology with thousands of cycle lives
 - **DC coupling architecture:** Provides more efficient energy transmission and gets rid of the constraints of power grid installation.
 - **Trailable transportation:** adapts to various site requirements and facilitates quick relocation.
 - **Lightweight and portable:** Compact design, easy to move and deploy.
 - **Multifunctional use:** adapts to a variety of application scenarios to meet different energy storage needs.
 - **High power output:** supports maximum output power of a single gun up to 240kW and provides fast charging service.
 - **Wide voltage range:** The output voltage range is wide, adapting to car charging needs from 200V to 1000V.
 - **Multi-charging gun design:** Equipped with multiple charging guns, it can provide convenient charging for multiple vehicles at the same time.



高效能量存储
Efficient energy storage



灵活移动设计
Electrical maintenance configuration



智能安全管理
Intelligent security management

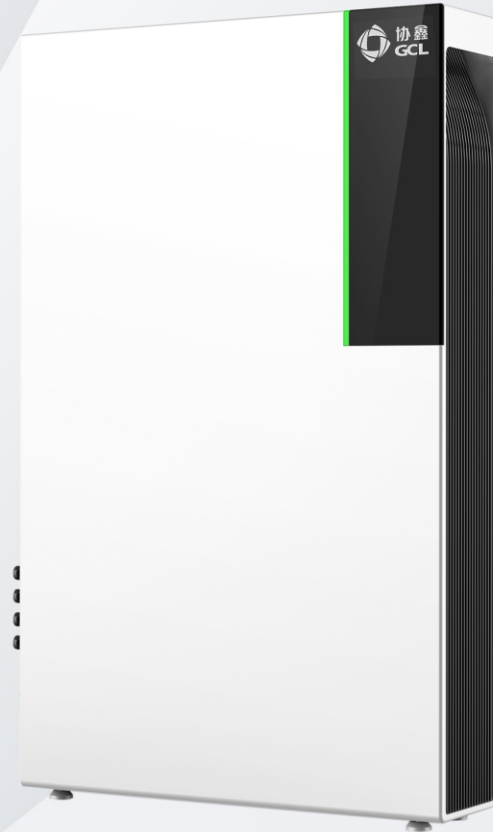
基本参数 Basic parameters

直流电池参数 Dc battery parameters	冷却方式 Cooling mode	液冷 Liquid cooling
	电池类型 Battery type	LFP 314Ah
	电堆配置 Stack configuration	6P252S
	额定电压 Rated voltage	806.4V
	额定电量 Rated power	1.52MWh
	电池电压范围 Battery voltage range	630V~920V
	充放电倍率 Charge and discharge ratio	0.5P
	放电深度 Discharge depth	90%
	允许最大工作温度 Allowed maximum operating temperature	0.5P@充电(charge)0°C~55°C 0.5P@放电(discharge)-30°C~55°C
	循环次数 Cycles	6000Cycles
充电桩参数 Charging pile parameter	PACK箱防护等级 PACK protection level	Ip65
	充电枪数量 Number of charging guns	6
	单枪最高输出功率 Maximum output of a single gun	240kW
	输出电压范围 Output voltage range	200V~1000V
	输出电流范围 Output current range	4A~240A
	散热 Heat dissipation	液冷 Liquid cooling
	载体类型 Carrier type	拖挂式 Pull type
	预制集装箱 Prefabricated container	20尺 20 feet
	车体能源类型 Body energy type	新能源/换电 New energy/power change
	满载续航 Full endurance	180km
系统参数 System parameter	系统耦合方式 System coupling mode	直流耦合/交流耦合 (根据系统配置) Dc coupling/AC coupling (depending on system configuration)
	消防 Fire fighting	全氟己酮+被动热阻隔 Perfluorohexanone + passive heat barrier
	上装质量 Top quality	~30t
	上装尺寸 Top size	6058X2438X2896
	运行模式 Operation mode	移动式/固定式 Mobile/stationary
	车顶光伏 Roof PV	选配 assorting
	防护等级 Class of protection	C5可选 C5 Optional
	运行温度范围 Operating temperature range	-35°C~60°C(45°C以上需要降额) -35°C to 60°C(Derating above 45°C is required)
	防护等级 Class of protection	IP54
	光伏参数 Photovoltaic parameter	2kWp
广告牌参数 Billboard parameter	120寸/LED 120 inch /LED	
交流供电 Ac power supply	380/400 (-15%~15%) Vac	

产品矩阵-PRODUCT MATRIX

户储一体机

Household hybrid photovoltaic and storage converter



- 插拔式设计, 易安装
- 电池模块化设计, 灵活扩展
- APP监控, 实时管控家庭能源
- 并离网模式无缝切换
- 高品质锂电池, 安全高效
- 24小时备用电源, 用电无忧
- 清洁能源自发自用, 减少碳排放
- 内置EMS优化电池管理
- 白天充电晚上峰时放电, 节省电费

- Plug-in design, easy to install
- Battery modular design, flexible expansion
- APP monitoring, real-time control of household energy
- Seamless switching between off-grid and on-grid modes
- High-quality lithium battery, safe and efficient
- 24 hours standby power, no worry about electricity
- Clean energy self-generation and self-consumption, reducing carbon emissions
- Built-in EMS optimizes battery management
- Charge during the day and discharge at night to save electricity cost



安全稳定
Security and stability



经济环保
Economy and environmental protection



灵活便捷
Flexible and convenient

基本参数 Basic parameters

输入参数 (光伏) Input parameters (PV)

最大功率 Maximum power	6000W
启动电压 Starting voltage	125V
最大直流电压 Maximum DC voltage	580V
MPPT电压范围/额定电压 MPPT voltage range/rated voltage	125V ~ 550V/360V
各组件最大输入电流 Maximum input current of each component	13A

输出参数 (交流) Output parameters (AC)

额定输出功率 Rated output power	5000W
最大输出电流 Maximum output current	22.8A
电网电压 Grid voltage	220/230V
电网频率 Grid frequency	50/60Hz
EPS自动切换时间 EPS automatically switches time	<20ms

电池参数 Battery parameter

电池容量 Battery capacity	14.3kWh
电池重量 Battery weight	88kg
放电深度 Discharge depth	90%
额定电压 Rated voltage	51.2V
电压范围 Voltage range	43.2V ~ 57.6V
持续充放电电流 Continuous charge and discharge current	140A
最大充放电电流 Maximum charge and discharge current	280A
电池类型 Battery type	磷酸铁锂 Lithium iron phosphate
通讯接口 Communication interface	CAN

机械参数 Mechanical parameter

噪音 Noise	<35dB
环境温度 Ambient temperature	-25°C ~ +60°C
冷却方式 Cooling mode	自然冷却 Natural cooling
相对湿度 Relative humidity	0-95%无冷凝 0-95% no condensation
防护等级 Protection class	IP65
重量 Weight	200kg
尺寸 Dimension	760x220x1100(WxDxH)(mm)

产品矩阵-PRODUCT MATRIX

超充

Ultra-quick charging pile



基本参数 Basic Parameters

系统规格 System specification

直流接入符合标准 DC access meeting standards	CCS1/CCS2;GB/T
适用场地 Applicable site	室内, 室外都支持 Applicable for indoor and outdoor
工作温度范围 Operating temperature range	-30°C ~ +55°C
湿度范围 Humidity range	5 ~ 95%
防护等级 Protection class	IP54
盐雾防护 Salt spray protection	IK10
系统效率 System efficiency	97.50%

电网侧 Grid side

正常电压 Normal voltage	380V
最大输入功率 Maximum input power	1250kW
频率 Frequency	50/60Hz
PFC 功率校正因数 PFC power correction factor	>98.5% (national standard condition, 0.5C charge and discharge)

直流侧 DC side

最大直流输出功率 Maximum DC output power	100kW/1 个充电模块, 最大电流 400A 600kW/6 个充电模块, 最大电流 800A 1200kW/12 个充电模块, 最大电流 800A	100kW/1 charging module, with maximum current 400A 600kW/6 charging modules, with maximum current 800A 1200kW/12 charging modules, with maximum current 800A
功率粒度 Power granularity	50kW	
直流输出电压范围 DC output voltage range	150V ~ 1500V	
最大输出电流 Maximum output current	800A	

常规 Normal specification

标准协议 Standard protocol	CCS1/2, ISO 15118, GB/T 27930
支付系统 Payment system	刷卡支付、扫码支付 Pay by card or by code scanning
网络连接 Network connection	支持 wifi, 蓝牙, 4G, 5G, 10/100M- 以太网 Support wifi, Bluetooth, 4G, 5G, 10/100M- Ethernet
用户界面 User interface	7 寸触摸屏 7 "touch screen

机械结构 Mechanical structure

机柜尺寸 Cabinet dimension	1420x1150x2150 (LxWxH)(mm)
外形尺寸 Outline dimension	800x750x2238 (LxWxH)(mm)
重量 Weight	350/500kg
噪音 Noise	70dB

产品矩阵-PRODUCT MATRIX

7kw 交流充电桩 7kw AC charging pile



- 便捷充电刷卡+蓝牙
 - 安全保障漏电检测
 - 无线升级蓝牙+4G (选)
 - 智能人机IOT定位
-
- Convenient charging swipe card + Bluetooth
 - Safety leakage detection
 - Wireless Upgrade Bluetooth +4G (Optional)
 - Intelligent man-machine IOT positioning

7kw 交流充电桩规格 7kw AC charging pile specifications

工作环境温度 Operating ambient temperature	-30°C~50°C	
储存温度 Storage temperature	-40°C~85°C	
相对湿度 Relative humidity	5%~95%	
漏电保护 Leakage protection	30mA	具备漏电检测 With leakage detection
剩余电流保护动作 Residual current protection action	≤100mS	
输出功率 Output power	7kW max	
充电方式 Charging mode	刷卡/蓝牙 Credit card/Bluetooth	
通信方式 Communication mode	4G(选配) 4G(optional)	
密封等级 Seal class	Ip54	
交流输入 Ac input	220VAC±20%;50Hz	
交流输出 Ac output	220VAC±15%;32Amax	
连接器机械寿命 Connector mechanical life	>10000 次 >10000 times	
枪线长度 Line length	5m	
重量 Weight	≤5Kg	
尺寸 Dimension	128mm (D)x195mm (W)x350mm (H)	参考 GB / T19804-2005 线性尺寸公差B级, 直线度、平面度、平行度按F级 Refer to GB/T19804-2005 linear dimensional tolerance Class B, Straightness, flatness and parallelism are rated F
状态指示 Status indication	LED 所有灯灭 LED All lights are off	未上电 power off
	LED 绿灯常亮 LED green on	车-桩未连接 Car-pile not connected
	LED 蓝灯闪烁 LED blue light flashing	充电等待中 Charge waiting
	LED 蓝/绿常亮 LED Blue/green on	充电中... In charging...
	LED 红灯闪烁 LED red light flashing	故障 breakdown

产品矩阵-PRODUCT MATRIX

直流快充桩(一体式) DC quick charging pile (Integrated)



- 便捷充电刷卡+蓝牙+4G
- 风冷快充120~480kW
- 无线升级蓝牙+4G
- 功率投切智能控制

- Convenient charging card + Bluetooth +4G
- Air cooling fast charge 120~480kW
- Wireless Upgrade Bluetooth +4G
- Intelligent control of power switching

直流快充桩(一体式)规格 DC quick charging pile (Integrated) specifications

	型号 Model number	GCLFC120	GCLFC160	GCLFC240
基本指标 Basic index	功率 power	120kW	160kW	240kW
	桩体形态 Pile shape	一体式 integrated	一体式 integrated	一体式 integrated
	枪数 Number of Guns	2	2	2
	散热方式 Heat dissipation mode	风冷 Air cooling	风冷 Air cooling	风冷 Air cooling
	参考尺寸 Reference size	一体机:700X450X1730 All-in-one	一体机:700X450X1730 All-in-one	一体机:800X650X1880 All-in-one
	防护等级 Class of protection	Ip54	Ip54	Ip54
输入特性 Input characteristic	输入电压 Input voltage	380VAC±15%, 三相/N/PE 380VAC±15%, three-phase /N/PE	380VAC±15%, 三相/N/PE 380VAC±15%, three-phase /N/PE	380VAC±15%, 三相/N/PE 380VAC±15%, three-phase /N/PE
	输入电流 Input current	194A	258A	388A
	频率 frequency	45~65Hz	45~65Hz	45~65Hz
	功率因数 Power factor	>0.99	>0.99	>0.99
	谐波 Harmonic wave	<5%	<5%	<5%
输出特性 Output characteristic	电压范围 Voltage range	200~1000VDC	200~1000VDC	200~1000VDC
	最大电流 Maximum current	风冷枪:250A;液冷枪:600A Air gun: 250A; Liquid cooling gun: 600A	风冷枪:250A;液冷枪:600A Air gun: 250A; Liquid cooling gun: 600A	风冷枪:250A;液冷枪:600A Air gun: 250A; Liquid cooling gun: 600A
	峰值效率 Peak efficiency	95%	95%	95%
	单枪最大 Single gun maximum power	120kW	160kW	240kW
	稳压精度 Voltage regulation accuracy	≤±0.5%	≤±0.5%	≤±0.5%
	稳流精度 Steady flow accuracy	≤±1%	≤±1%	≤±1%
环境指标 environment index	纹波峰峰值 Ripple crest peak	≤±1%	≤±1%	≤±1%
	工作温度 Operating temperature	-20°C~50°C	-20°C~50°C	-20°C~50°C
	存储温度 Storage temperature	-40°C~75°C	-40°C~75°C	-40°C~75°C
	相对湿度 Relative humidity	5%~95%	5%~95%	5%~95%
海拔高度 Altitude	2000m 以上温度降额 (100m 对应 1°C) Temperature derating above 2000m (100m corresponds to 1 °C)	2000m 以上温度降额 (100m 对应 1°C) Temperature derating above 2000m (100m corresponds to 1 °C)	2000m 以上温度降额 (100m 对应 1°C) Temperature derating above 2000m (100m corresponds to 1 °C)	

产品矩阵-PRODUCT MATRIX

直流快充桩(分体式)

DC quick charging pile (split type)



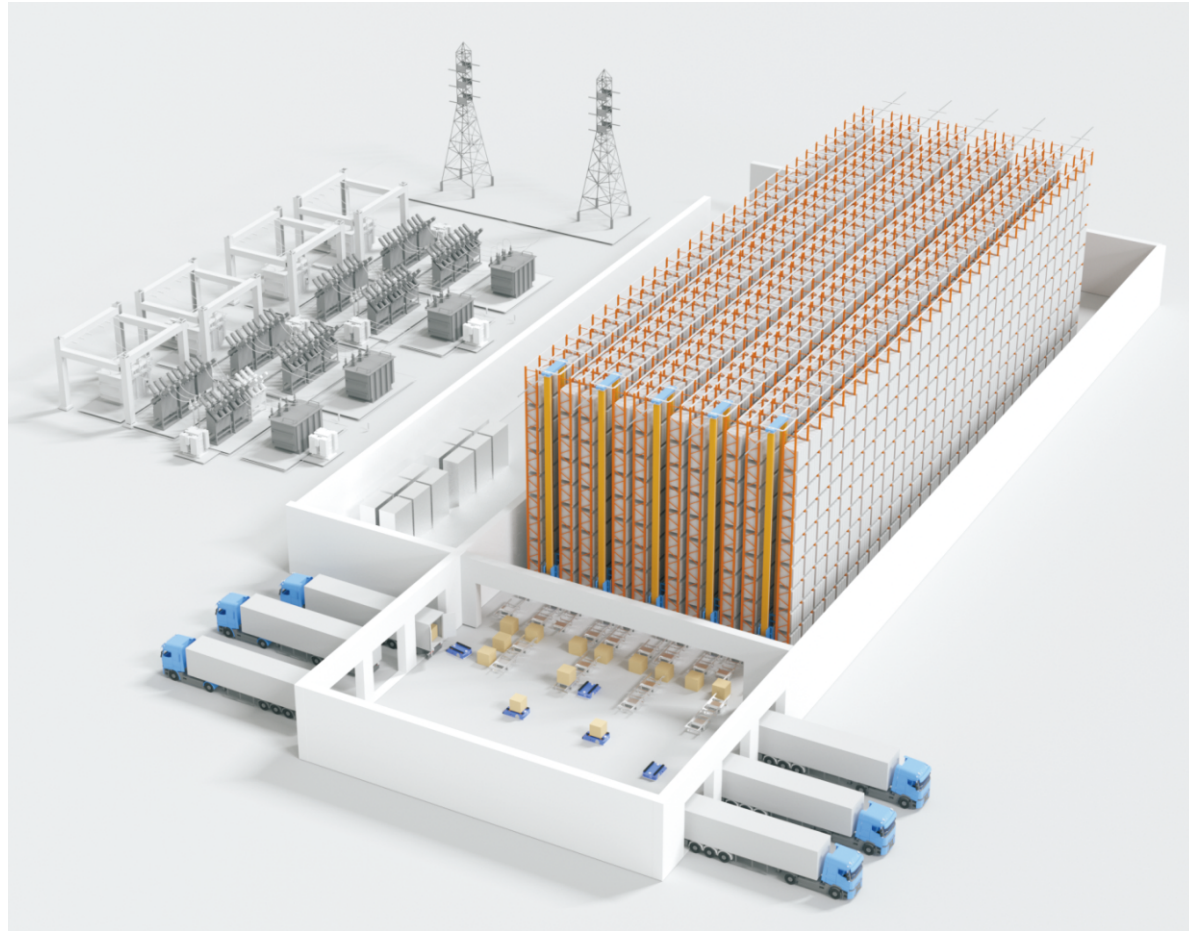
- 便捷充电刷卡+蓝牙+4G
- 风冷快充120~480kW
- 无线升级蓝牙+4G
- 功率投切智能控制

- Convenient charging card + Bluetooth +4G
- Air cooling fast charge 120~480kW
- Wireless Upgrade Bluetooth +4G
- Intelligent control of power switching

直流快充桩(分体式)规格 DC quick charging pile (split type) specifications

	型号 Model number	GCLFC360	GCLFC480
基本指标 Basic index	功率 power	360kW	480kW
	桩体形态 Pile shape	分体式 Seperated	分体式 Seperated
	枪数 Number of Guns	6	12
	散热方式 Heat dissipation mode	风冷+液冷 Air cooling + liquid cooling	风冷+液冷 Air cooling + liquid cooling
	参考尺寸 Reference size	主: 1000*800*1850 从1:450*200*1600 从2:650*350*1750	主: 1300*800*1950 从1:450*200*1600 从2:650*350*1750
	防护等级 Class of protection	Ip54	Ip54
输入特性 Input characteristic	输入电压 Input voltage	380VAC±15%, 三相/N/PE 380VAC±15%, three-phase /N/PE	380VAC±15%, 三相/N/PE 380VAC±15%, three-phase /N/PE
	输入电流 Input current	581A	775A
	频率 frequency	45~65Hz	45~65Hz
	功率因数 Power factor	>0.99	>0.99
	谐波 Harmonic wave	<5%	<5%
	输出特性 Output characteristic	电压范围 Voltage range	200~1000VDC
最大电流 Maximum current		风冷枪:250A;液冷枪:600A Air gun: 250A; Liquid cooling gun: 600A	风冷枪:250A;液冷枪:600A Air gun: 250A; Liquid cooling gun: 600A
峰值效率 Peak efficiency		95%	95%
单枪最大 Single gun maximum power		360kW	480kW
稳压精度 Voltage regulation accuracy		≤±0.5%	≤±0.5%
稳流精度 Steady flow accuracy		≤±1%	≤±1%
纹波峰峰值 Ripple crest peak		≤±1%	≤±1%
环境指标 environment index	工作温度 Operating temperature	-20°C~50°C	-20°C~50°C
	存储温度 Storage temperature	-40°C~75°C	-40°C~75°C
	相对湿度 Relative humidity	5%~95%	5%~95%
	海拔高度 Altitude	2000m 以上温度降额(100m 对应 1°C) Temperature derating above 2000m (100m corresponds to 1°C)	2000m 以上温度降额(100m 对应 1°C) Temperature derating above 2000m (100m corresponds to 1°C)

超级储能电站 Super energy storage power station



1GWh 超级储能电站, 占地约 10 亩, 室内温差更可控 ◀

采用由自动堆垛机和立体支架组成的自动化立体储能站系统

- 单个模块容量125kWh, 每4个模块一组组成500kWh储能单元, 单个模块尺寸1200x400x1800(LxWxH)(mm)
- 堆高总计9层, 总层高20米, 单垛储能容量4.5MWh, 占地面积约3平方米。单列27垛, 总储能容量120MWh
- 总计9列组成1GWh储能电站
- PCS及变压器部分采用分区布局
- 电池模组与支架采用对插自动连接方式, 可以由堆垛机器人自动取出及安装
- 总占地面积约3000平方米
- 热管理采用统一制冷站, 统一空调系统, 从建筑, 支架及PACK布置三级消防系统, 单垛之间设立隔火板

1GWh super energy storage power station, occupying an area of about 10 acres, with indoor temperature difference more controllable

Automated three-dimensional energy storage station system consisting of automatic stacking machines and three-dimensional racks.

- The capacity of each module is 125kWh, and each 4 modules are grouped into a 500kWh energy storage pack. The size of each module is 1200x400x1800 (LxWxH) (mm).
- Height of total 9 layers is 20 meters, each stack energy storage capacity of 4.5MWh, covers an area of about 3 square meters. There are 27 stacks in a row, with total storage capacity 120MWh.
- Partitioned layout is adopted for PCS and transformer section
- Battery modules are automatically connected to the racks by plug-in method, which can be automatically removed and installed by stacking robots.
- Total land area is about 3000 square meters
- Thermal management adopts unified refrigeration station, unified air conditioning system, three-level fire protection system from building, racks and PACK, and fire barrier between individual stacks.

项目案例-PROJECT CASES



扬州—嫦娥一号项目
Yangzhou - Chang'e 1 Project

规模: 2MWh
Scale: 2MWh



无锡—嫦娥二号项目
Wuxi - Chang'e 2 Project

规模: 1MWh
Scale: 1MWh

项目案例-PROJECT CASES



镇江—嫦娥五号项目
Zhenjiang - Chang'e 5 Project

规模:2MWh
Scale: 2MWh



金昌—光储一体化项目
Jinchang - PV Power and Energy Storage Integration Project

规模:80MWh
Scale: 80MWh

80 MWh Energy Storage Power Plant
Jinchang, Gansu 200MW Photovoltaic Power Plant



德令哈—光伏领跑项目
Delingha - PV Leading Project

规模:76.5MWh
Scale: 76.5 MWh

项目名称 Project Name	规模 Scale
苏州-协鑫光伏科技项目 Suzhou - GCL PV Technology Project	10MWh
青海-光储一体化项目 Qinghai - PV Power and Energy Storage Project	18MWh
常熟-嫦娥三号项目 Changshu - Chang 'e 3 Project	2MWh
毛里塔尼亚-微电网项目 Mauritania -Micro-grid Project	10MWh
泰国-离网分布式项目 Thailand - Off-grid Distributed project	10MWh
日本-恭城光储互补项目 Japan - Gongcheng light storage complementary project	7.5MWh
东部军区-微电网项目 Eastern Military Region - Micro-grid Project	2MWh
泰国-海岛微电网项目 Thailand-Island Micro-grid Project	12.5MWh
东莞-电港换电项目 Dongguan - Energy Hub Power SwapProject	100MWh
荆州-电港换电项目 Jingzhou - Energy Hub Power Swap Project	100MWh
长沙-电港换电项目 Changsha-Energy Hub Power SwapProject	100MWh
乌鲁木齐-电港换电项目 Urumqi - Energy Hub Power Swap Project	100MWh
成都-电港换电项目 Chengdu-Energy Hub Power Swap Project	300MWh
阜宁-风光储一体化项目 Funing - Wind Cower-PV Power-Battery Swap-Storage-Charging Integration Project	50MWh
徐州-用户侧项目 Xuzhou - User Side Project	2MWh
苏州-太仓港调频项目 Suzhou-taicang port FM project	5MWh