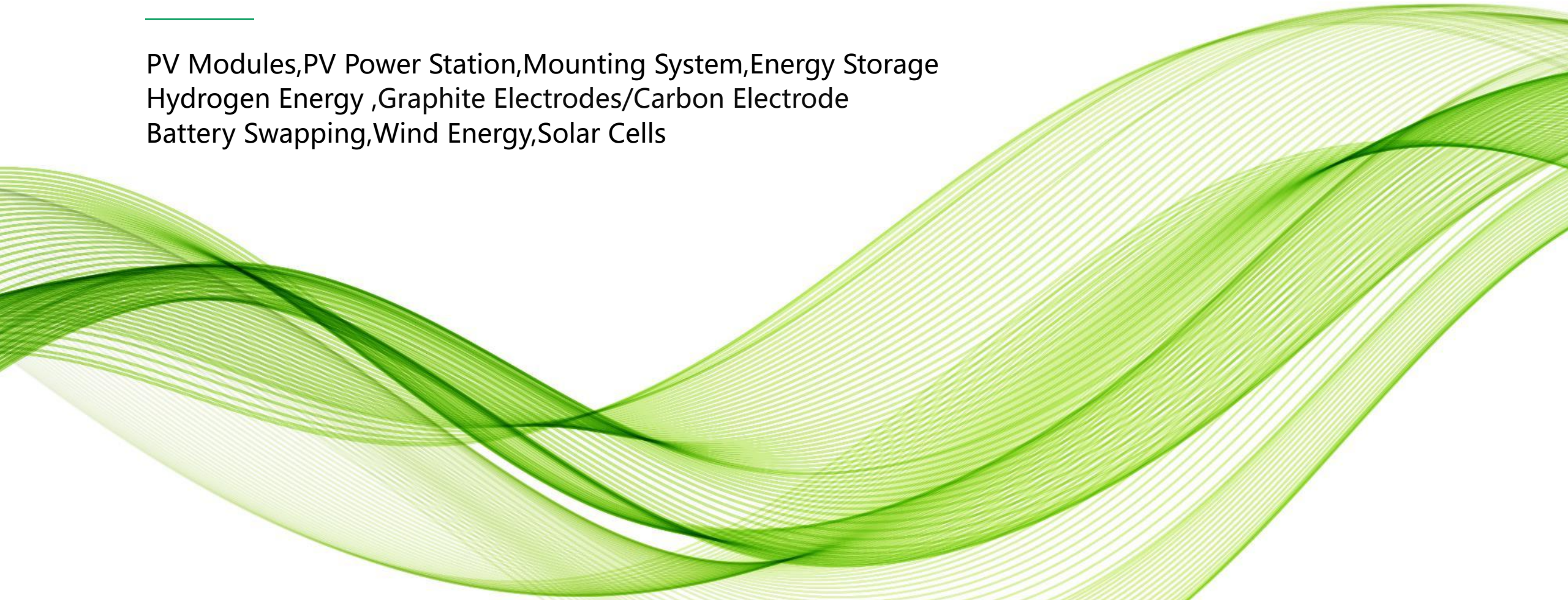
Haitai Solar

Quality builds value
value creates the brand

PV Modules,PV Power Station,Mounting System,Energy Storage
Hydrogen Energy ,Graphite Electrodes/Carbon Electrode
Battery Swapping,Wind Energy,Solar Cells



About Haitai

Haitai Solar was founded in 2006 and operates in nine major business sectors: photovoltaic modules, photovoltaic power plants, photovoltaic mounting systems, energy storage systems, hydrogen energy, graphite electrodes/carbon electrode, battery swapping, wind energy and solar cells. It began with the manufacturing of PV modules and achieved significant development by successfully listing on the Beijing Stock Exchange (Northbound Trading) on August 8, 2022. The company has grown in other sectors of the new energy industry, such as photovoltaic power plants, photovoltaic mounting systems, and energy storage systems. Both the photovoltaic mounting systems and energy storage have achieved integration of R&D, production, and sales.

Vision

Become the most valuable intelligent producer of green energy

Mission

Be committed to offering high-quality products and services to maximize the benefits of solar energy

Core Values

Serving Customers：

Customer Success is Self Achievement

Full Commitment:

Dedicated to creating value for customers and contributing to the company's sustainable growth.

Striving for Excellence：

Pursuing higher goals guided by mission and vision

Be open-minded:

Embracing openness and cooperation for mutual benefit

Development Process

2006

Haitai solar was established.

2008

Mature R&D and technological capabilities

Full entry into the photovoltaic industry

2011

Officially Launched 600MW Solar Module Production Line

Co-established the "Haitai Solar Cell R&D Center" with the Institute of Electrical Engineering, Chinese Academy of Sciences.

2013

Pass acceptance tests of Hebei Province Engineering Laboratory.

Established partnerships with Sharp and BYD, fully expanding into the Japanese market.

2016

Obtained the "Pioneer" power degradation certification in the first year.

2017

Entered into the photovoltaic power plant sector.

2020

Tier 1 module manufacturer.

2021

Entered into the fields of photovoltaic mounting systems, energy storage, and hydrogen energy.

2022

Listed on the Beijing Stock Exchange.

Entered into the wind energy sector.

2023

Establishment of a third-party verified base.

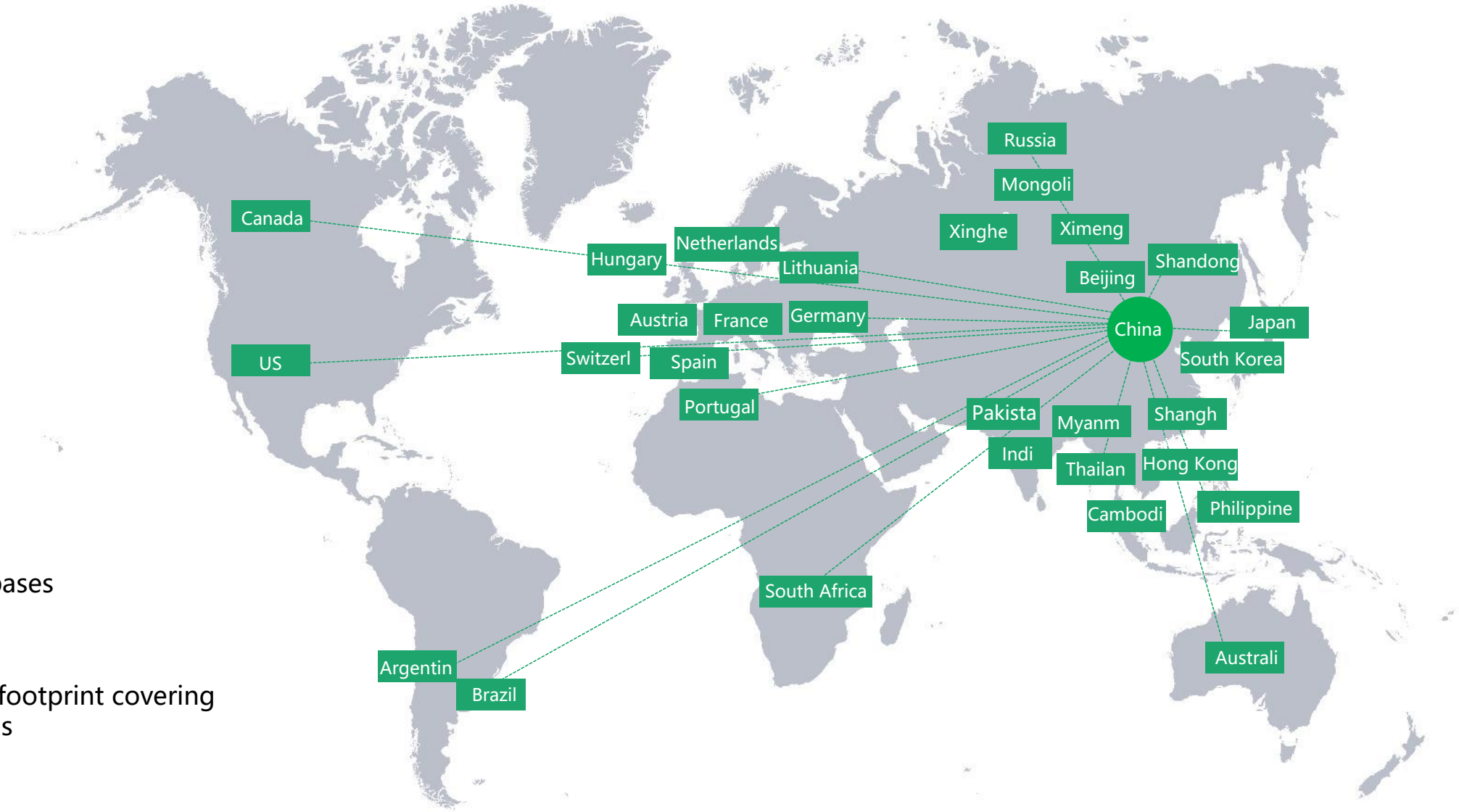
Entered the photovoltaic cell, battery swapping, and graphite electrodes/carbon electrode sectors.

2024

Provincial-level reliability laboratory put into operation.

Establishment of a third-party verified base.

Business Sectors



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Manufacturing bases

100+

Global business footprint covering countries/regions

7000+

Global Customer Base

Business Partner

Haitai Solar

Sincere cooperation for creating brilliance.

CGGC 中国葛洲坝集团 | THRIFT ENERGY GROUP | HUAWEI | 中国长江三峡集团公司

WAKO GROUP | COLIBRI CAPITAL | 住友电工 SUMITOMO ELECTRIC | SHARP

Ichigo | +SOLAR | TBEA 特变电工 | Marubeni 丸紅株式会社

YUASA | METALEX SUMISHO METALEX CORPORATION | RAYSTECH Your Trusted Solar Partner | WEST GROUP

PANDA | ACME | audax renovables | WEGA ENERGY

Company profile

The Company's energy storage business sector was founded in 2021. It is the supplier of global energy storage integrated products and system solutions of the Company. Full-auto, intelligent and efficient lithium battery module and PACK production line with single-line output up to 2GWh.

Haitai Digital Energy's products include

- Containerized Energy Storage System (1-10MWh)
- Industrial and commercial energy storage system(215kWh, 233kWh, 256kWh, 372kWh)
- Residential Energy storage (single-phase 3-6kW, 3-phase 8-15kW, 5-30kWh)

Advantage

Product Advantages

Long lifespan, high safety, high efficiency/intelligence and digitalization/multi-level protection of software and hardware/modular design, facilitating capacity expansion, installation, operation and maintenance.

Production Advantages

Full-auto production equipment such as full-auto KUKA robot, high-accuracy OCV/IR and EOL test device, advanced plasma cleaner, lossless laser welding machine, full-auto production line, intelligent AGV robot, high-feedback charging/discharging test device; strictly control 256 quality control points, such as insulation, differential pressure, gluing welding detection, box airtightness test and capacity test of cell, module and PACK, in order to guarantee the product quality.

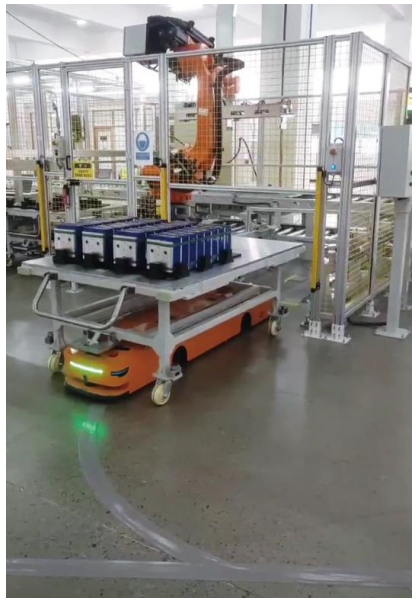
Service Advantages

Provide one-to-one, customized and professional system solutions, O&M management plans for customers, including on-grid and off-grid micro-grid, user end, grid end and power supply end.

Advantage

Smart Operations Collaborating with Tsinghua University to develop BMS, EMS, PCS, enabling three-level monitoring of energy storage systems to ensure high efficiency and safety

Solution Analyzing requirements with a focus on high safety, differentiation, and customization, we can provide one-stop, highly integrated system solutions



Intelligent logistics, using AGV

Automatic production line, beats up to 10 ppm

Production line MES, tracing whole life cycle

Production Environment

- Location Type: Standard Workshop
- Ambient Temperature: 0~40°C
- Relative Humidity: 25%~75%
- Production Line Area Dimensions: Assembly Line for Square Shell Modules ≤100m * 5.5m * 3.5m
- Floor Load Capacity: 2000kg/square meter
- Power Supply Voltage: 380VAC+/-10%, 50Hz, Total Power 350KW (excluding charging and discharging)
- Compressed Air Pressure: 0.7~1.5Mpa, Total Demand: Not less than 4000L/min

Haitai - Blue Shield

Liquid Cooled Energy Storage Battery Container Syste

- Multi-dimensional and multi-layer battery protection strategies and fault isolation measures ensure the safety and stability of energy storage system
- Simple and convenient O&M and small workload Low maintenance cost
- Equipment such as firefighting equipment, thermal management system,door access, monitoring and liquid leakage protection equipment are introduced to ensure the safe and stable running of battery integration system
- Large battery capacity High conversion efficiency of energy storage system Comprehensive efficiency>85%
- High-quality LFP batteries with a long cycle life > 6,000 cycles
- Pre-installed container energy storage system can apply to various scenarios quickly Lower installation costs
- Intelligent BMS system 3-level monitoring for energy storage system Ensure high efficiency and safety
- Modular structure design Form various voltage platforms flexibly Various capacity grade systems

Technical Parameters of Liquid Cooled Energy Storage Battery Container System

Liquid-cooled energy storage system	
Model	HTDESS 1725/3420-LC
Cell capacity	3421kWh
Cell Specifications	3.2V/300Ah (0.5P)
Pack specification	1P44S
Rated voltage	1267.2V
Voltage range	1108.8~1425.6V
Rated current	1350A
Voltage accuracy (FSR)	1%
Current accuracy (FSR)	1%
Temperature accuracy	2℃
SOC accuracy	5%

Technical Parameters of Liquid Cooled Energy Storage Battery Container System

Liquid-cooled energy storage system	
Model	HTDESS 1725/3420-LC
AC system	
Rated power	1725kW
Output voltage	690V
Voltage range	690V±15%
Rated current	1443A
Power factor	> 0.99 (rated power)
Rated frequency	50/60Hz
Frequency	-5 ~ 5 Hz
THD	Below 3%
Transformer Parameters	
Rated power	2000kVA
Voltage transformation ratio	0.69kV /10~ 35 kV
Transformer model	Dry transformer/oil transformer

Technical Parameters of Liquid Cooled Energy Storage Battery Container System

Liquid-cooled energy storage system	
Model	HTDESS 1725/3420-LC
Other Parameters	
Cell container dimensions (mm)	6058×2438×2896
Gross weight(t)	<36
Converter container dimensions (mm)	6058×2438×2896 mm
Cell cooling mode	Intelligent liquid cooling
Converter cooling mode: Temperature control and forced air cooling	Temperature control and forced air cooling
Firefighting	Gas firefighting, combustible gas detection + exhaust air, water firefighting (optional)
Cycle life	>6000 times (@25℃, EOL80%)
Protection grade	Whole equipment: IP54; key equipment: IP65
Allowed temperature range	-25~+50℃
Allowed humidity range	0 to 95% non-condensing
Max. altitude of running	≤ 4,000*m

Note: *The equipment should enter derating operation at altitude above 2,000m

For changes in product dimensions and parameters, please refer to the latest materials; no further notice will be given

Haitai - Blue Star

Industrial and commercial energy storage system

PCS: 100kW/110kW/125kW

Energy storage battery: 215kWh/ 233kWh/256kWh/372kWh

Application scenarios

***Base station**

5G communication base station

Backup cell, charging at high battery level or discharging at low battery level

***Power transmission and distribution**

Auxiliary services

Delay the demand for capacity expansion of grid

***Island off-grid energy storage**

Microgrid

Energy storage in area without electricity

***Renewable energy power generation**

Peak load and frequency regulation

Smooth the intermittent energy sources

Increase the new energy consumption

***Industrial and domestic electricity**

Peak-load shifting

Level loads and restrain demands

Improve power supply safety and quality of electric energy

Product Introduction

- Haitai digital energy industry & commerce energy storage system is integrated with liquid-cooled battery PACK, high-accuracy BMS (battery management system), intelligent EMS (energy management system), PCS and fire prevention system, etc.
- Flexible application in different scenarios based on modular design.
- The system can improve the energy quality of power grid, such as voltage deviation, 3-phase imbalance and harmonic wave.
- Fitted with functions such as load tracking, standby power supply and peak regulation
- The system can help industry & commerce owners reduce the electricity expense, increase the green electricity consumption, and maintain the safe and stable running of system.

Main advantages

- Efficient liquid cooling technology, cell temperature difference <3℃
- Intelligent monitoring system, integrating BMS and EMS intelligent safety system
- All-in-one, easy transport, plug and play
- Built-in independent firefighting system

Technical Parameters of Industrial and Commercial Energy Storage

Model	HTDESS-100TS(DC100) (233kWh)
Battery rated capacity	233kWh
Battery rated voltage	832V
Battery voltage range	728V~936v
Battery type	Lithium iron phosphate battery(LFP)
Battery cell capacity	280Ah
Series of Battery	1p*52S*5S
Maximum charge and discharge current	140A
Rated AC power	100kW
Rated AC current	180A
Rated AC voltage	400V,3W+PE
Rated AC frequency	50/60Hz
THDI	<3% (Rated power)
Power Factor	-1leading to+ 1 lagging
THDU	<3%(Linear load)

Technical Parameters of Industrial and Commercial Energy Storage

Model	HTDESS-100TS(DC100) (233kWh)
Degree of protection	IP54
Protective Class	/
Isolation mode	No-Isolation(Adding isolation transformer is optional)
Shutdown self-discharge	<100W(Without transformer)
Display	LCD
Relative humidity	0~95% (no condensation)
Noise	<78dB
Ambient temperature	-25℃ to +60℃(with derating at temperatures above 45℃)
Cooling mode	Intelligent air-cooled
Altitude	3000m(>3000m reduction)
Communication interface	CAN/Ethernet/485
Size (W*D*H)	1612*1350*2300mm
Weight (approx.)	3025kg

Outdoor cabinet energy storage system

Product Highlights

- Support flexible expansion of PV power generation capacity;
- Support access of load, battery, grid, diesel generator and PV at the same time;
- Integrated with EMS functions, to ensure high safety and stability;
- Support prediction of battery capacity and discharging time;
- Built-in isolated transformer, with strong adaption to loads.

Outdoor Cabinet Type Integrated Optical Storage System

Model	ESSA0030B-0055	HTDESS0050B-0055	HTDESS0050B-0100	HTDESS0100B-0215
Rated power (kW)	30	50	50	100
Rated voltage (V)	400			
Rated current (A)	43	72	72	144
Voltage range (V)	320V-460V			
Rated frequency	50/60Hz			
Frequency range	45-55/55-65Hz			
THDi (on-grid)	<3%			
THDu (off-grid)	≤1% linear, ≤5% nonlinear			
Power factor	1 (0.8 lead ~ 0.8 lag)			
Overload capacity	110% long-term			
AC output	3W+N+PE			
Isolation transformer	100/400	200/400	200/400	270/400
On-grid/off-grid switching	Supported			

Outdoor Cabinet Type Integrated Optical Storage System

Model	ESSA0030B-0055	HTDESS0050B-0055	HTDESS0050B-0100	HTDESS0100B-0215
PV				
Max. PV input voltage (V)	1000			
Max. PV power (kW)	60/120	60/120	60/120	120/180/240
MPTT working voltage range (V)	250-850			
MPPT full load voltage range (V)	450-850			
Voltage increase/decrease mode	Supported			

Communication power supply system

The new energy mixed power supply system of communication base station can be configured with different power supply system devices according to the requirements of base station

- PV MPPT controller and mains supply rectifier are provided with modular installation, supported PV ranges from 5kW to 30kW; mains supply rectifier supports 5-15kW capacity expansion.
- It can manage multiple energies at the same, such as solar energy, wind energy, mains supply, fuel oil generator and battery.
- The product supports multiple protections such as overvoltage, overcurrent, overheat, undervoltage and short-circuit.
- Integrated with battery management function, with protection against reverse connection, overcharging and over-discharging of battery.
- Support RS232, RS485, CAN and other communication interfaces.
- Outdoor IP54 protection grade, multiple safety controls and lightning prevention design, adaptive to severe environment such as high altitude and ultra-low temperature.

Communication power supply system

Parameters of control cabinet	
Input voltage of PV controller	60Vdc~150Vdc
Output voltage and current of PV controller	48Vdc/50A
Install quantity of PV controller	3-10PCS
Input voltage of rectifier module	90Vac to 300Vac
Output voltage and current of rectifier module	48Vdc/50A
Install quantity of rectifier module	3-6PCS
Protection grade	IP54
Cooling method	Natural air cooling
Dimensions	600×600×2000
Power cabinet parameters	
Battery module capacity	51.2V100AH
Battery module dimensions	3U
Cell type	Lithium iron phosphate
Parallel operation quantity	<10 PCS
Cooling method	AC

Residential Energy storage

Product Introduction

- The single-phase hybrid inverter is 3-6kW,three-phase hybrid inverter is 6-15kW. Supports multi-inverter parallel connection. The input terminal supports 1.5 times component expansion. The PV string is 16A, which supports 182 / 210 high-power photovoltaic module access.
- Support 5-30 kWh battery, using PACK installation, free combination, to meet the individual requirement;
- Zero-time switching between on-grid/off-grid of grid and battery, to guarantee the power consumption.

3-6kW HTDESS S 3.0K-6.0K G2
Single-phase mixed inverter

6-15kW HTDESS T6.0K -15k G1
3-phase mixed inverter

Main advantages

Friendly and flexible
- Support parallel connection of multiple machines;
- Compatible with multiple batteries, such as lead acid and lithium ion batteries;

Safe and reliable
- Compatible with anti-reverse flow function;
- Protection against battery reverse connection;

Intelligent Management
- Household smart energy management terminal ;
- Power dispatching and response management node at demand side;
- Management node of distributed virtual power station;

Economical and efficient
- Max. efficiency ≥97. 5%;
- Small volume, wide applications, save the installation space;

Technical Parameters of Household Single-phase Energy Storage Inverter

Model parameters	HTDESS S3.0K G2	HTDESS S4.0K G2	HTDESS S5.0K G2	HTDESS S6.0K G2
DC input				
Max. input power (kW)	4.5	6	7.5	9
Starting voltage (V)	100			
Max. PV voltage (V)	550			
MPPT voltage range/rated voltage (V)	80~500/360			
Max. input current (A)	16			
Number of MPPT circuits	2			
Parallel output				
Rated power (kW)	3	4	5	6
Max. output power (kVA)	3.3	4.4	5	6.6
Rated voltage/range (V)	230 /176~270			
Frequency (Hz)	50 /60			
Power factor	1 (0.8 lead ~ 0.8 lag)			
Harmonic current	<3%			
Grid connection type	L+N+PE			

Technical Parameters of Household Single-phase Energy Storage Inverter

Model parameters	HTDESS S3.0K G2	HTDESS S4.0K G2	HTDESS S5.0K G2	HTDESS S6.0K G2
Cell				
Rated voltage/range (V)	51.2/40~58			
Max. charging voltage (V)	58			
Max. charging/discharging current (A)	60/60	80/80	100/100	120/120
Communication Method	CAN/RS485			
Battery type	Lithium battery/lead acid battery			
Off-grid output				
Rated power (kW)	3	4	5	6
Rated voltage (V)	220/230V			
Max. current (A)	14.3	19.1	21.7	28.7
Rated frequency (Hz)	50/60			
Switching time (ms)	<10ms			
Harmonic voltage	<2%			
Overload capacity	110%,60S/120%,30S/150%,10S			

Technical Parameters of Household Single-phase Energy Storage Inverter

Model parameters	HTDESS S3.0K G2	HTDESS S4.0K G2	HTDESS S5.0K G2	HTDESS S6.0K G2
General data				
Charge/discharge efficiency	96%			
Max. efficiency	98%			
European efficiency	97%			
MPPT efficiency	99.90%			
Protection grade	IP65			
Noise (dB)	<35			
Operating temperature (℃)	-25~60			
Cooling method	Natural cooling			
RA Temp.	0 ~95% (no condensation)			
Altitude	4,000m(>2,000 derating)			
Dimensions W × D × H(mm)	451×200×474			
Weight (kg)	18			
Isolation mode	No isolation transformer			
Self-consuming (W)	<3			
Display and communication				
Display	LCD LED			
Interface:RS485/Wifi/4G/CAN/DRM	RS485/Wifi/4G/CAN/DRM Opt			

Technical Parameters of Household 3-phase Energy Storage Inverter

Model parameters	HTDESS T6.0K G1	HTDESS T8.0K G1	HTDESS S10K G1	HTDESS T12K G1	HTDESS T15K G1
DC input					
Max. input power (kW)	9	12	15	18	22.5
Starting voltage (V)	200				
Max. PV voltage (V)	1000				
MPPT voltage range/rated voltage (V)	180~850/600				
Max. input current (A)	16				25
Number of MPPT circuits	2				
Parallel output					
Rated power (kW)	6	8	10	12	15
Max. output power (kVA)	6.6	8.8	11	13.2	16.5
Rated voltage/range (V)	380 、400 / 340~460				
Frequency (Hz)	50 /60				
Power factor	1 (0.8 lead ~ 0.8 lag)				
Harmonic current	<3%				
Grid connection type	3W+N+PE				

Technical Parameters of Household 3-phase Energy Storage Inverter

Model parameters	HTDESS T6.0K G1	HTDESS T8.0K G1	HTDESS S10K G1	HTDESS T12K G1	HTDESS T15K G1
Cell					
Rated voltage/range (V)	360/125-550				
Max. charging voltage (V)	600				
Max. charging/discharging current (A)	50				
Communication Method	CAN				
Battery type	Lithium battery/lead acid battery				
Off-grid output					
Rated power (kW)	6	8	10	12	15
Rated voltage (V)	380/400V				
Max. current (A)	9.5	12.7	15.9	21.7	28.7
Rated frequency (Hz)	50/60				
Switching time (ms)	<10ms				
Harmonic voltage	<2%				
Overload capacity	110%,60S/120%,30S/150%,10S				

Technical Parameters of Household 3-phase Energy Storage Inverter

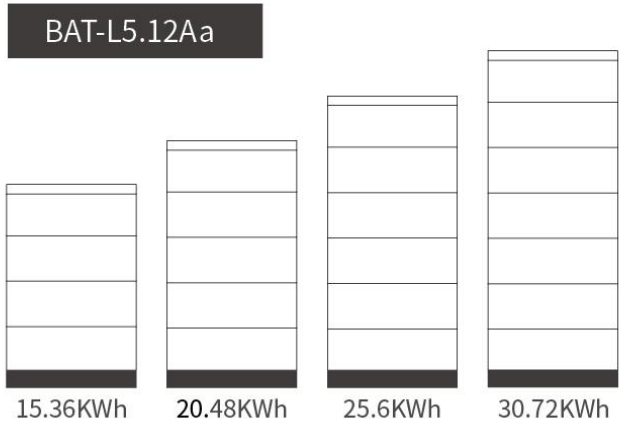
Model parameters	HTDESS T6.0K G1	HTDESS T8.0K G1	HTDESS S10K G1	HTDESS T12K G1	HTDESS T15K G1
General data					
Charge/discharge efficiency	98%	97.50%	97.50%	97.50%	97.80%
Max. efficiency	98%	97.90%	98.20%	98.20%	98.50%
European efficiency	97%	97.50%	97.50%	97.60%	97.80%
MPPT efficiency	99.90%				
Protection grade	IP65				
Noise (dB)	<35				
Operating temperature (℃)	-25~60				
Cooling method	Natural cooling				
RA Temp.	0 ~95% (no condensation)				
Altitude	4,000m(>2,000 derating)				
Dimensions W × D × H(mm)	596×566×220				
Weight (kg)	30	31	31	33	34
Isolation mode	No isolation transformer				
Self-consuming (W)	<3				
Display and communication					
HIMI	LCD/APP				
BMS	CAN				
EMS/Meter	RS485/RS485				
Supported communication interface	WIFI/GPRS				

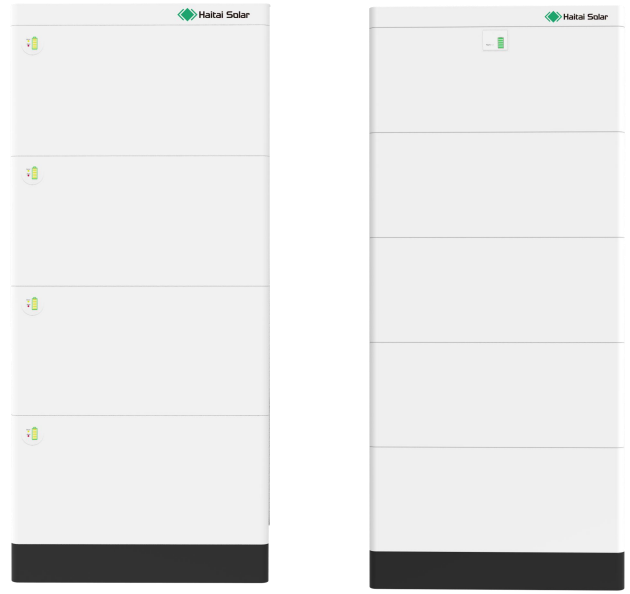
Residential Energy Storage Battery Pack

HTDESS 2.56kWh 51.2V/50AH module
HTDESS 5.12kWh 51.2V100AH module

Product Introduction

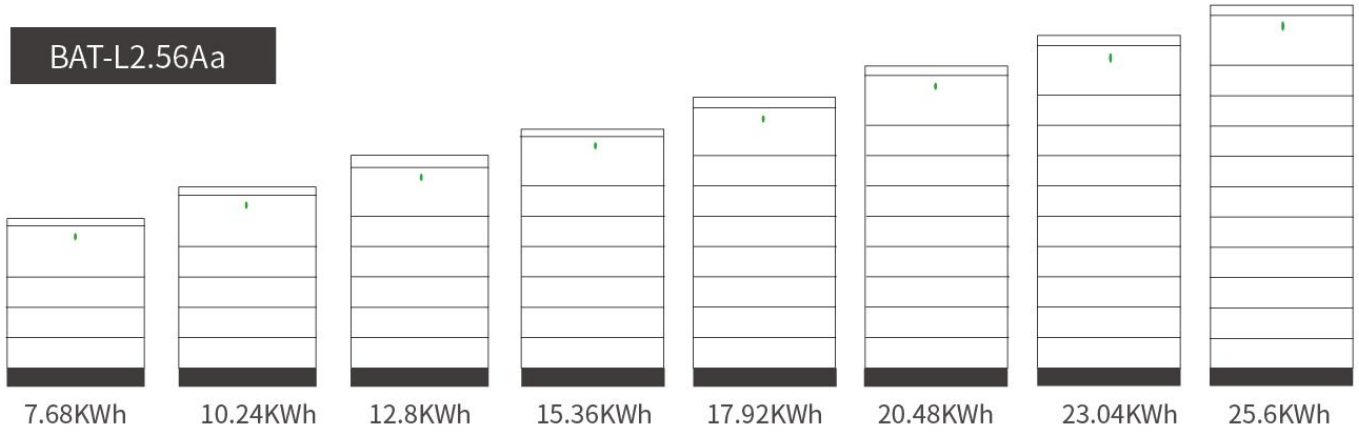
- The two modular batteries of 2.56kWh and 5.12kWh have small and lightweight single modules. The battery combination can be customized easily through simple installation steps, to satisfy your demands of energy storage.
- The entire system can be intelligent and flexible through reliable BMS system and high-performance balancing technology, to provide you a discharging platform of higher stability.





Main advantages

- Higher conversion efficiency
- Reduce reliance on grid
- Better adaption to large-load applications
- Higher flexibility
- Lower cost, larger system
- Faster charging and discharging
- Energy saving



Technical Parameters of Low-voltage Stacked Battery Pack

Model	HTDESS LP 2.56 D1	HTDESS LP 5.12 D1
Rated voltage (Vdc)	51.2	51.2
Rated capacity (Wh)	2560	5120
Working voltage range (Vdc)	44.8-56.16	44.8-56.16
Charging voltage (Vdc)	58.4	58.4
Rated charging/discharging current (A)	25	50
Max. charging/discharging current (A)	50	100
Peak current (A)	100@3sec	200@3sec
Number of units in parallel	<10pcs	<6pcs
Cycle life	6000@80% DOD,25℃/0.5C	
Structure		
Dimensions (mm)	600×210×180	600×210×300
Weight (kg)	29	50.5
Protection grade	IP65	
Type of mounting	Stacking type	
Work environment		
Charging temperature ℃	0~55	
Discharging temperature ℃	-20~60	
Latitude	<2500	
Relative temperature (RH)	5~95% (no condensation)	
Communication		
communication interface	RS485	
Display	LED indicator shows the remaining power	

Technical Parameters of High-voltage Stacked Battery Pack

Model	HTDESS HP 2.56 D1	HTDESS HP 5.12 D1
Rated voltage (Vdc)	51.2	51.2
Rated capacity (Wh)	2560	5120
Working voltage range (Vdc)	129.6-516.6	129.6-350.4
Charging voltage (Vdc)	58.4	58.4
Rated charging/discharging current (A)	25	50
Max. charging/discharging current (A)	50	100
Peak current (A)	100@3sec	200@3sec
Number of units in parallel	<10pcs	<6pcs
Cycle life	6000@80% DOD,25℃/0.5C	
Structure		
High-voltage box dimensions (mm)/weight (kg)	600×210×250/14	610×225×250/15
Battery cabinet dimensions (mm)/weight (kg)	600×210×160/27	610×225×250/52
Pedestal (mm)/weight (kg)	610×225×90/5	610×225×90/5.5
Top cover T (mm)/weight (kg)	600×210×50/2.5	610×225×50/3
Protection grade	IP65	
Type of mounting	Stacking type	
Work environment		
Charging temperature ℃	0~55	
Discharging temperature ℃	-20~60	
Latitude M	<2500	
Relative temperature (RH)	5~95%(W/O condensing)	
Communication		
communication interface	RS485 CAN	
Display	LED indicator shows the remaining power	


Haitai Solar
SATEWAVE
高压危险
High Voltage


海泰新能
Haitai Solar


AKJU 000046 7
25SG
Haitai Solar
LOXAM


AKJU 000045 1
25SG
Haitai Solar
LOXAM


Haitai Solar
FRONT

Thank you

THANK YOU FOR WATCHING

Tangshan Haitai Digital Energy Technology Co., Ltd.