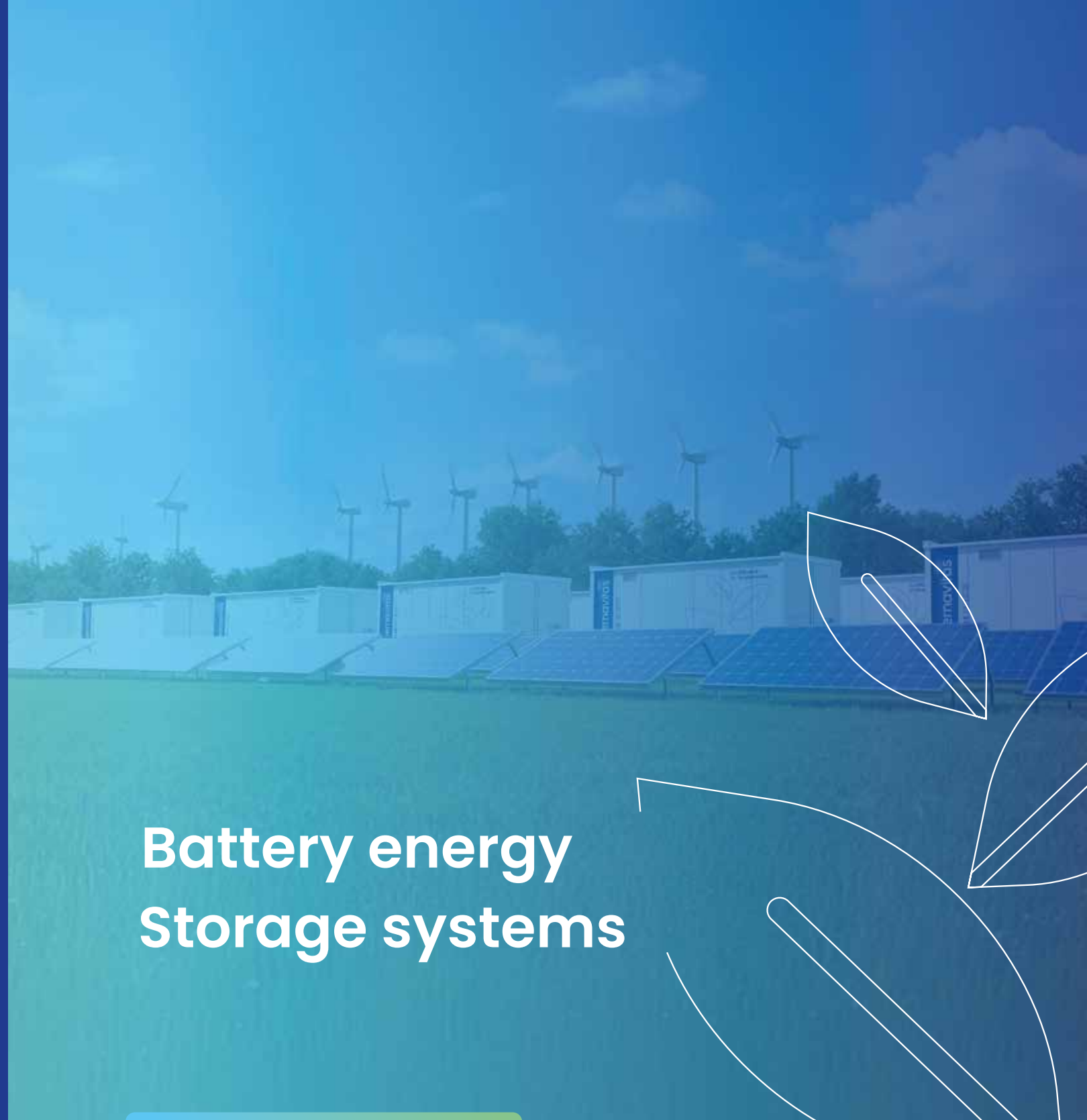




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Battery energy Storage systems



About us

We are TDG Ibernavitas, a global brand dedicated to designing premium energy efficiency solutions for clients committed to leading the transition toward a more sustainable future for all.



We make it easy



Together we go further



Make a difference



We think global,
act local

At TDG Ibernavitas, our mission is to enhance the renewable energy ecosystem. We provide innovative solutions in energy storage systems, microinverters, equipment, and integrated energy process management. Backed by the extensive expertise of our founders, **who have been pioneers in this industry, we are committed to driving progress and sustainability.**



Founders and Experience

TDG

Founded in 1984, TDG Holding Co.Ltd (Stock Code: 600330), is the **first publicly listed company in China** controlled by individual shareholders. The company owns holdings and invests in numerous businesses.

TDG is **dedicated to R&D**, manufacturing, and sales of electronic materials, digital devices, and smart equipment, with commercial operations spanning the entire electronic information resource supply chain.

TDG | YUNET

TDG YUNET Technology Co.Ltd is a high- tech subsidiary of TDG Holding Co. Ltd. specializing in **renewable energy services**. That stands out in the electronic materials supply chain, being one of the largest manufacturers of soft magnetic materials in China. Known for its innovation, it holds over 75 invention patents, many of which are globally leading.

TDG YUNET focuses on energy storage solutions, offering advanced products such as **intelligent energy storage systems (EMS) and integrated services that cover residential, industrial, and utility-scale energy storage**.

zeumat

Founded in 2003, Zeumat is an international company specializing commercial and institutional relationships between **China and Spain** with logistics warehouses in Free Trade Zone in China and expertise in cross-border operations.

It offers comprehensive support to Chinese companies looking to establish themselves in the Spanish market, facilitating their entry with services such as **strategic planning, business consulting, legal advice, and market access strategies**.

Additionally, Zeumat plays a key role in attracting Chinese investment to Spain, with offices in Zaragoza (Spain) and Taizhou, Jiangsu (China), Zeumat serves as a **strategic bridge**, promoting closer ties between the two countries.

APsystems

A leading company in the solar industry, APsystems (stock code: 688348.SH) specializes in the **development and supply of advanced microinverters** for photovoltaic systems. Founded in 2010 in Silicon Valley, APsystems has rapidly grown to become one of the largest microinverter manufacturers worldwide.

The company stands out for its focus on **technological innovation**, continuously developing products that enhance the efficiency and reliability of solar systems. APsystems offers cutting-edge solutions for both residential and commercial applications. With a strong global presence, the company operates offices and distribution centers in **North America, Europe, Asia, and Australia**. APsystems has earned a distinguished reputation for its commitment to quality, customer service, and sustainability.

Its global leadership in providing innovative microinverter solutions for the solar PV industry. APsystems is known for its advanced, reliable, and cost-effective technology, which makes solar arrays more efficient and safer. **With over 2 GW of installations worldwide**, APsystems has demonstrated its commitment to innovation and excellence in solar power conversion.

Their microinverters optimize the performance of each solar panel individually, ensuring maximum energy yield, even in challenging conditions. Additionally, their **integrated monitoring and energy management systems provide clients with real-time data, enhancing system reliability and simplifying maintenance**. This combination of cutting-edge technology, scalability, and proven success makes APsystems a trusted partner in renewable energy projects.

Collaborative Partner
for the Ecosystem



Founded in 2013, VG Solar is headquartered in Songjiang Xinqiao. Operating within the new energy sector, it is a **high-tech enterprise** that specializes in mounting structures for solar photovoltaic systems. Its primary activities encompass research and **development, design, production, and marketing**.

VG products have been distributed to over 50 countries and regions, including China and Japan. Thailand, Australia, Germany, Malaysia, the Philippines, Mexico, the Netherlands, Belgium, and others.



Customized technical guidance

We offer our clients a specialised consulting service in:

- ✓ Selecting the optimal equipment for their projects.
- ✓ Feasibility studies using our own system to guarantee the success of the investment.
- ✓ Training in the implementation and commissioning of systems.
- ✓ Sizing recommendations tailored to actual needs.



Local customer service

- ✓ We have our own **engineering team in Spain** that accompanies you throughout the entire project cycle.
- ✓ Customisation of the **EMS** (Energy Management System) to adapt it to the specific needs of the customer.
- ✓ We offer a cloud service that allows real-time monitoring of the status of your equipment, with a supervision system that operates **24/7**.



Warehouse in Europe for product replenishment

- ✓ We provide fast and efficient service from Spain, with direct **product replenishment** to ensure operational continuity.



Local after-sales service

- ✓ We manage the entire **after-sales service** from Zaragoza (Spain), offering corrective maintenance with urgent assistance in less than 6 hours.
- ✓ We have technical expertise and **local support** to maximise the reliability and continuity of our customers' operations.

Factory in Zaragoza

Our 10,000 m² facilities in Zaragoza:



We assist you throughout all stages of your project, from analysis to ongoing operation.

HELIOS UE-L232 C&I Distributed Liquid Cooling Outdoor Cabinet



Extreme safety

- The selection of lithium iron phosphate battery cells with high thermal stability.
- Pack level fire protection, explosion-proof design.
- Equipped with advanced battery management system (BMS), you can real-time monitor the working state of the battery, to ensure the safe operation of the battery, to extend battery life.

High reliability

- PACK Protection Rating **IP67**: Waterproof, dustproof, and resistant to spray and condensation; effectively isolates external environmental impact and enhances the safety and reliability of the energy storage system's operation.

Intelligent operation and control

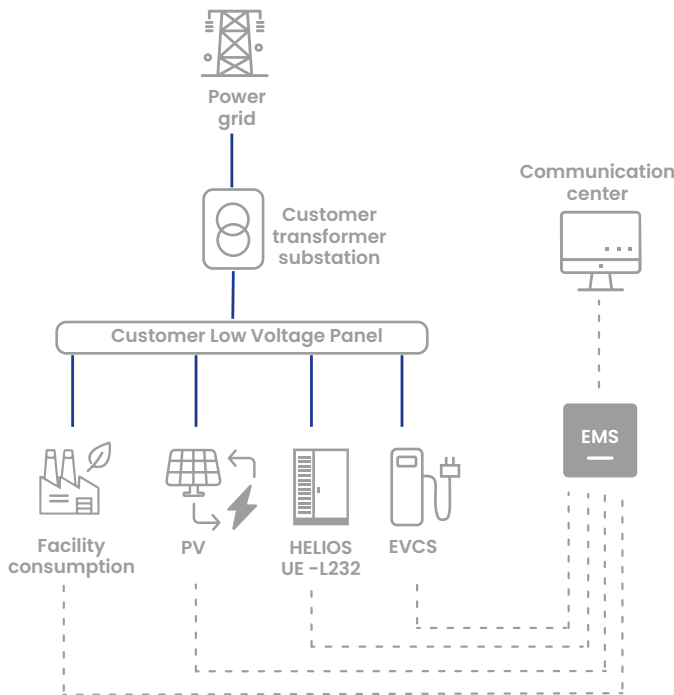
- Remote management: support online intelligent monitoring, reducing the number of manual inspections.
- Support local energy management function, with dynamic tracking and control of demand, peak shaving and valley levelling and other automated operations.

Liquid cooling

- The main advantage of liquid cooling is its high thermal dissipation capacity, maintaining a temperature difference of only $\pm 3^{\circ}\text{C}$. This thermal stability optimizes the efficiency of charging and discharging processes, leading to a longer battery life.

All-in-one AC/DC design

- Compact structure, simplified foundation, optimized construction, and fast installation. Easy connection to the **400 Vac** power grid.
- Modular design enables easy parallel installation, adaptable to various scenarios and scalable according to energy demand.



MODEL 110 kW/232 kWh

DC	
Cell type	280 Ah (LFP)
PACK Capacity	46.6 kWh (1P52S)
System Capacity	232 kWh (1P5S)
Voltage range	728-936 Vdc
Discharge range	0.5 C
Maximum continuous charge/discharge current	168 A

AC	
Rated Power	110 kW
Maximum Operating Current	Nominal: 160 A Max: 192 A
Nominal mains voltage	400 Vac
Nominal Frequency of the Mains	50 Hz/60 Hz
Total Current Distortion Rate	< 3%
Power Factor	> 0.99
Maximum power	132kW, 1 min
Maximum PCS efficiency	98.9%

GENERAL	
Protection level	IP54
Life cycles	$\geq 8,000$
Relative humidity	5-95%
Maximum working height	2,000 m
Anti-corrosion grade	C4-H/C5-H Optional
Fire safety equipment	PERFLUORO
Operating temperature range	-20°C ~ 50°C
Cooling method	Liquid cooling (PACKs), Air cooling (Inverter)
Dimensions (W x D x H)	980*1,300*2,325 mm
Weight	3 t

COMMUNICATIONS	
Interface	Ethernet/4G
Protocol	Modbus-RTU/TCP, IEC104

REGULATIONS	
IEC 62040-1:2017, IEC 62040-1:2017/AMD1:2021, IEC 62040-1:2017/AMD2:2022	
EN 62477-1:2012 + A11:2014 + A1:2017 + A12:2021	
EN 62477-1:2012 + A11:2014 + A1:2017 + A12:2021	
EN 50549-1:2019, EN 50549-10:2022, IEC 62477-1:2012+A1, EN 62477-1:2012+A11+A1+A12	
UNE 217002:2020, UNE 217001:2020-10, IEC 62116:2014	

All in one design: PCS, BATTERY, EMS,
BMS & firefighting equipment &
liquid coolers & power distribution.

ORION UE-L261 C&I Distributed Liquid Cooling Outdoor Cabinet

Extreme safety

- The selection of lithium iron phosphate battery cells with high thermal stability.
- Pack level fire protection, explosion-proof design.
- Equipped with advanced battery management system (BMS), you can real-time monitor the working state of the battery, to ensure the safe operation of the battery, to extend battery life.

High reliability

- PACK Protection Rating IP67: Waterproof, dustproof, and resistant to spray and condensation; effectively isolates external environmental impact and enhances the safety and reliability of the energy storage system's operation.

Intelligent operation and control

- Remote management: support online intelligent monitoring, reducing the number of manual inspections.
- Support local energy management function, with dynamic tracking and control of demand, peak shaving and valley levelling and other automated operations.

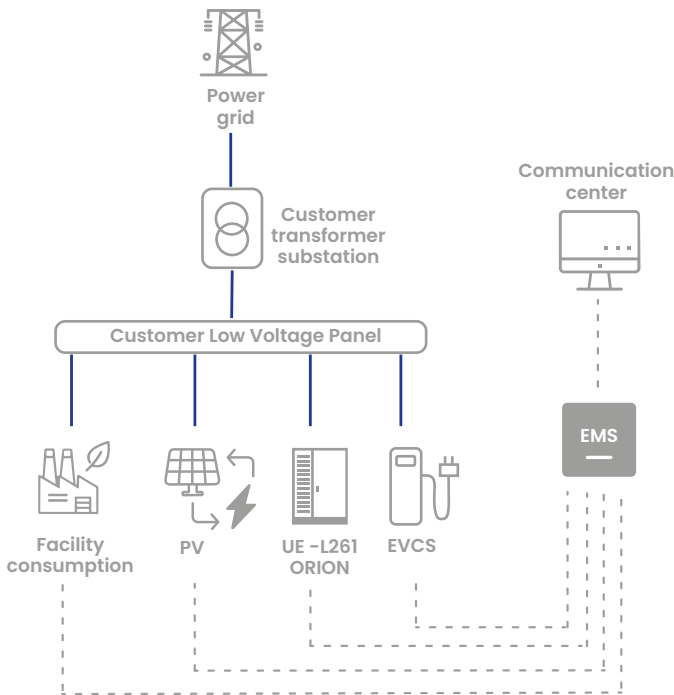


Liquid cooling

- The main advantage of liquid cooling is its high thermal dissipation capacity, maintaining a temperature difference of only $\leq 3^{\circ}\text{C}$. This thermal stability optimizes the efficiency of charging and discharging processes, leading to a longer battery life.

All-in-one AC/DC design

- Compact structure, simplified foundation, optimized construction, and fast installation. Easy connection to the 400 Vac power grid.
- Modular design enables easy parallel installation, adaptable to various scenarios and scalable according to energy demand.



MODEL 125 kW/261 kWh

DC

Cell type	314 Ah (LFP)
PACK Capacity	52.24 kWh (1P52S)
System Capacity	261.24 kWh (1P5S)
Voltage range	728-936 Vdc
Discharge range	0.5 C
Maximum continuous charge/discharge current	188.4 A

AC

Rated Power	125 kW
Maximum Operating Current	Nominal: 182 A Max: 217 A
Nominal mains voltage	400 Vac
Nominal Frequency of the Mains	50 Hz/60 Hz
Total Current Distortion Rate	< 3%
Power Factor	> 0.99
Maximum power	150 kW, 1 min
Maximum PCS efficiency	98.9%

GENERAL

Protection level	IP54
Life cycles	$\geq 8,000$
Relative humidity	25 ~ 85%
Maximum working height	2,000 m
Anti-corrosion grade	C4-H/C5-H Optional
Fire safety equipment	Aerosol
Operating temperature range	-20°C ~ 50°C
Cooling method	Liquid cooling (PACKs), Air cooling (Inverter)
Dimensions (W x D x H)	980*1300*2325mm
Weight	2.7 t

COMMUNICATIONS

Interface	Ethernet/4G
Protocol	Modbus-RTU/TCP, IEC104

REGULATIONS

CE-LVD, CE-EMC, CB 62619, CB 62040, Rohs, WEEE, UN38.3,NTS Type A B C D,RD 647-2020 RD 413-2014 RD 1699-2011, UNE 217002-2020,P.O.12.2-SENP,UNE 217001

All in one design: PCS, BATTERY, EMS, BMS & firefighting equipment & liquid coolers & power distribution.



Environmentally friendly

The fire-fighting system contains **cabin-level** protection and PACK-level protection. And it uses **aerosol** fire extinguishing devices to extinguish fires, with a wide range of fire-fighting objects, applicable to all types of places. At the same time, the fire extinguishing efficiency and speed is fast and it's all-round inhibitory fire extinguishing.

Ultra-long life

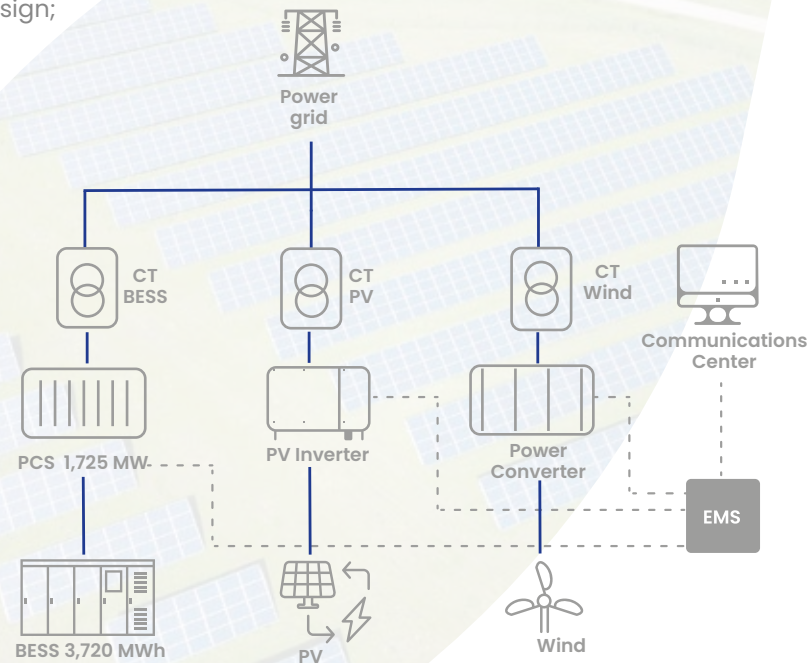
Adaptive expansion force design; **IP67** Pack design; liquid cooling temperature control and cell temperature difference is **less than 3°C**.

Smart operation

- Support automated operation and customised strategy operation.
- Support convenient installation of cables, fast **plug-in, plug-and-play**.
- Support centralised/distributed programme, with wide range of usage scenarios.

Off-grid Mode

The system allows operation in off-grid mode, ensuring energy autonomy even in the absence of the power grid.



MODEL 1725 kW/3720 kWh

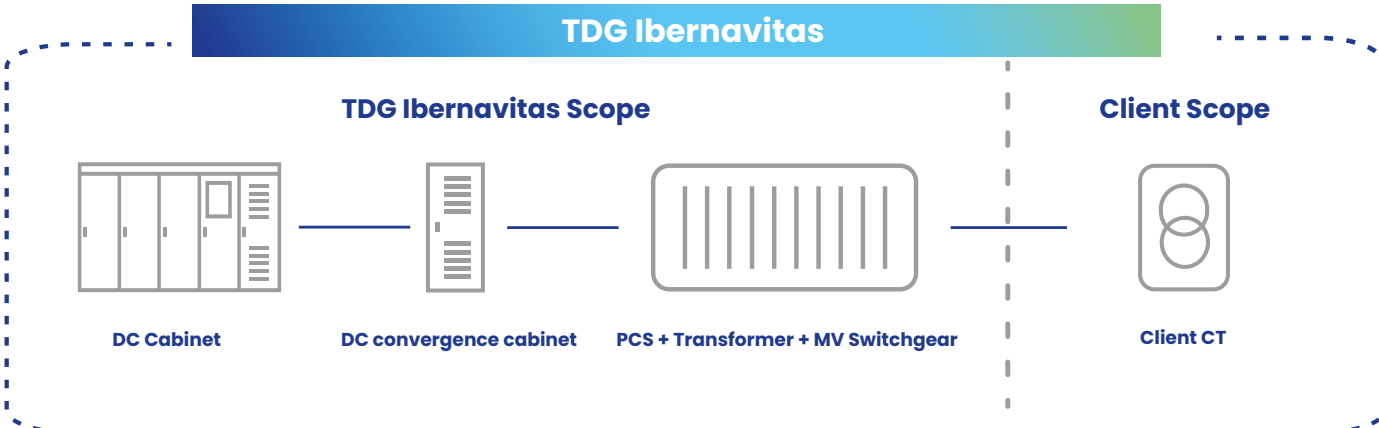
DC	
Cell type	280 Ah (LFP)
PACK Capacity	46,6 kWh (1P52S)
System Capacity	3,720 kWh (10P8S)
Voltage range	1.164,8 – 1.497,6 Vdc
Discharge range	0,5 C
Maximum continuous charge/discharge current	1,664 A
Dimensions (W x D x H)	6058*2438*2896 mm
Weight	35 t

AC	
Rated Power	1,725 kW
Maximum Operating Current	Nominal: 1443A Max: 1588A
Nominal mains voltage	690 Vac
LV/MV Transformer	0,69 / (6-35) kV
Nominal Frequency of the Mains	50 Hz / 60 Hz
Total current distortion rate	< 3 %
Power factor	>0,99
Power factor adjustable range	-1 (inductive) to 1 (capacitive)
Maximum power	1898kW (2min)
Maximum PCS efficiency	98,5%
Dimensions (W x D x H)	6058*2438*2896 mm
Weight	15 t

GENERAL	
Protection level	IP54
Life cycles	≥ 8,000
Relative humidity	5-95 %
Maximum working height	3,000 m
Anti-corrosion grade	C5-H
Fire Safety Equipment	AEROSOL
Operating temperature range	-20°C ~ 50°C
Cooling method	Liquid cooling (PACKs) Air cooling (Inverter)

COMMUNICATIONS	
Interface	RS485/Ethernet/4G
Protocol	Modbus-RTU/TCP, IEC104

REGULATIONS	
IEC 62619, IEC 62477-1:2012/AMD:2016,EN IEC61000-6-2, EN IEC61000-6-4,IEC 62040-1,UN38.3, EN 50549-1, NTS 631 V2.1 (Type B/C/D)	





High safety

- UL9540A test successfully passed with excellence, including forced thermal propagation evaluation without affecting adjacent containers. The system integrates pressure relief and explosion protection in compliance with NFPA68 and NFPA69, ensuring maximum operational safety under critical conditions.

Environmental protection

- Enclosure with IP54 rating, C4/C5 corrosion resistance, and high-voltage modules certified to IP66. Ensures long-lasting resistance against dust, water, and corrosive industrial environments, maintaining reliability throughout the entire lifecycle.

Reinforced and stable design

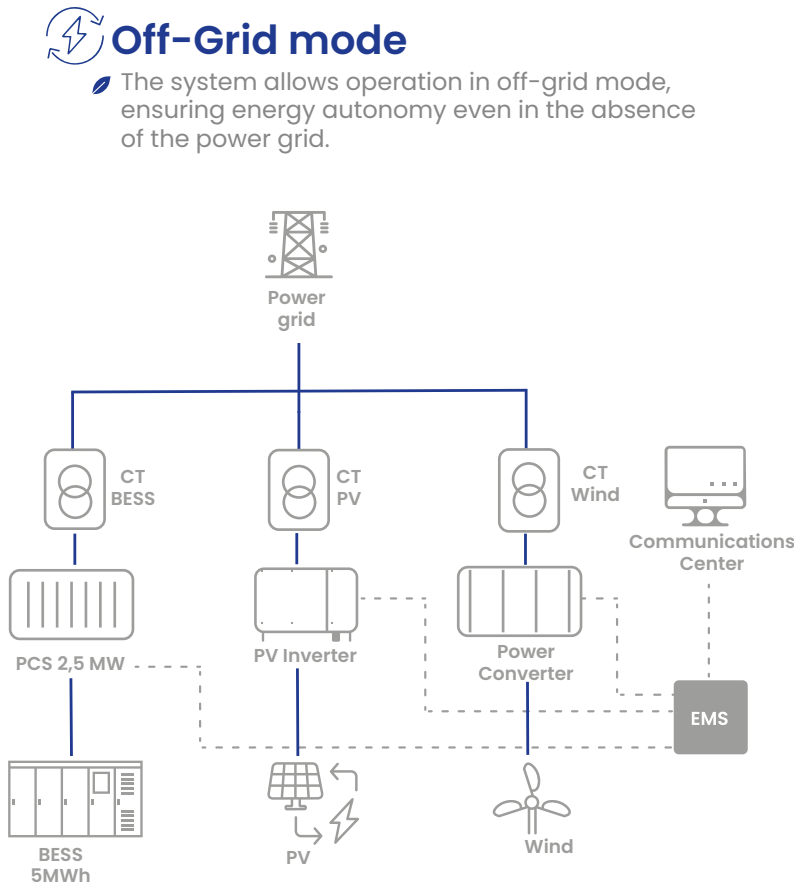
- High-strength steel structural design compliant with IEEE693 seismic standards

Prevention and control

- Design with multiple configurations of modular suppression and protection systems at the container level.
- The DC circuit is equipped with multi-level disconnections, offering different configuration options.
- The insulation strength of the system is sufficient, with no breakdown or flashover during the 5 kV DC withstand test.

High-precision thermal management

- Centralized cooling system with multi-stage bypass, parallel flow, and regulated flow control.
- The temperature difference of cells in the module is 2 °C and that is 3 °C for container level.
- Electrical components are tested at 60 °C to guarantee durability, and the liquid cooling pipeline is checked at 1000 hours of high temperature cycle.



MODEL 2500 kW/5015 kWh

DC	
Cell Type	314 Ah (LFP) 3.2 V
PACK Capacity	104,5 kWh (1P104S)
System Capacity	5015,9 kWh (12P4S)
Voltage range	1040 ~ 1500 V (For cell 2.5V ~ 3.65V)
Discharge/charge range	0,5 C
Maximum continuous charge/discharge current	1880 A
Dimensions (W x D x H)	6058*2438*2896 mm (20HQ)
Weight	44,5 t

AC	
Rated Power	2500 kW
Maximum Operating Current	Nominal: 2.832 A Max: 3.115,2
PCS output voltage	690 Vac
LV/MV Transformer	0,69 / (6-35) kV
Nominal Frequency	50 Hz/60 Hz
Total current distortion rate	≤ 3 %
Power factor	≥ 0,99
Power factor adjustable range	-1 (leading) 1 (lagging)
Maximum power	2750 kW
Maximum PCS efficiency	≥ 98 %
Dimensions (W x D x H)	6058*2438*2896 mm (20HQ)
Weight	15 t

GENERAL	
Protection level	IP54 (PCS IP66)
Lyfe cycles	8000 CYCLES
Relative himidity	0 ~ 100 %
Maximum working height	≤ 3000 m
Anti-corrosion grade	C5-H
Fire Safety Equipment	Smoke, temperature, gas detector Fire suppresion control panel.
Operating Temperature Range	-40 °C ~ 60 °C
Cooling method	Liquid cooling (PACKs) Air cooling (inverter)

COMMUNICATIONS	
Interface	Ethernet
Protocol	CAN, RS485, TCP/IP

REGULATIONS	
GB/T34120-2023, GB/T34133-2023, IEC 62477-1:2022, IEC 61000-6-2:2016, EN IEC 61000-6-2:2019, IEC 61000-6-4:2018, EN IEC 61000-6-4:2019, IEC 62920:2017+A1:2021, EN 62920:2017, IEC 61000-3-11:2017, EN IEC 61000-3-11:2019, IEC 61000-3-12:2021, EN 61000-3-12:2011+A1:2019, EN 55011-2016+A2:2021, CISPR 11:2019, EN 50549-1:2019+A1:2023, EN 50549-2:2019+A1:2023, IEC 62477-1:2022, EN 62477-1:2012 + A12:2021	

CELL MANUFACTURER

REPT
BATTERO

TIER 1
Bloomberg

Energy management system (EMS)

We offer a comprehensive solution to our customers through an advanced **Energy Management System (EMS)** developed by our group. This system allows real-time monitoring of station operation, as well as the visualization of data summaries from multiple stations.

In addition, it facilitates the analysis of electricity and revenue reports and revenue stacking reports, video monitoring of installations, and centralized management of several stations.

The EMS includes a **real-time** load aggregation platform and allows access to historical records, providing comprehensive functions that help optimize station maintenance, reduce costs, increase operational efficiency, ensure safety, and support the **long-term operation** of energy storage facilities..



Our Projects



1 Model: HELIOS UE-L232
Capacity: 1290 kWh
Jiaxing, Zhejiang, China



3 Model: ORION UE-L400
Capacity: 61 MW/123 MWh
Nanjing, Jiangsu, China



2 Model: ORION UE-L400
Capacity: 200 MW/400 MWh
Binhai, Tianjin, China



4 Model: ORION UE-L400
Capacity: 50 MW/100 MWh
Ningxia, China



5 Model: HELIOS UE-L232
Capacity: 860 kWh
Xuzhou, Jiangsu, China



6 Model: HELIOS UE-L232
Capacity: 925 kWh
Haining, Zhejiang, China

Maximise renewable energy potential to ensure your energy stability by improving

BeEfficient.
BeSustainable.