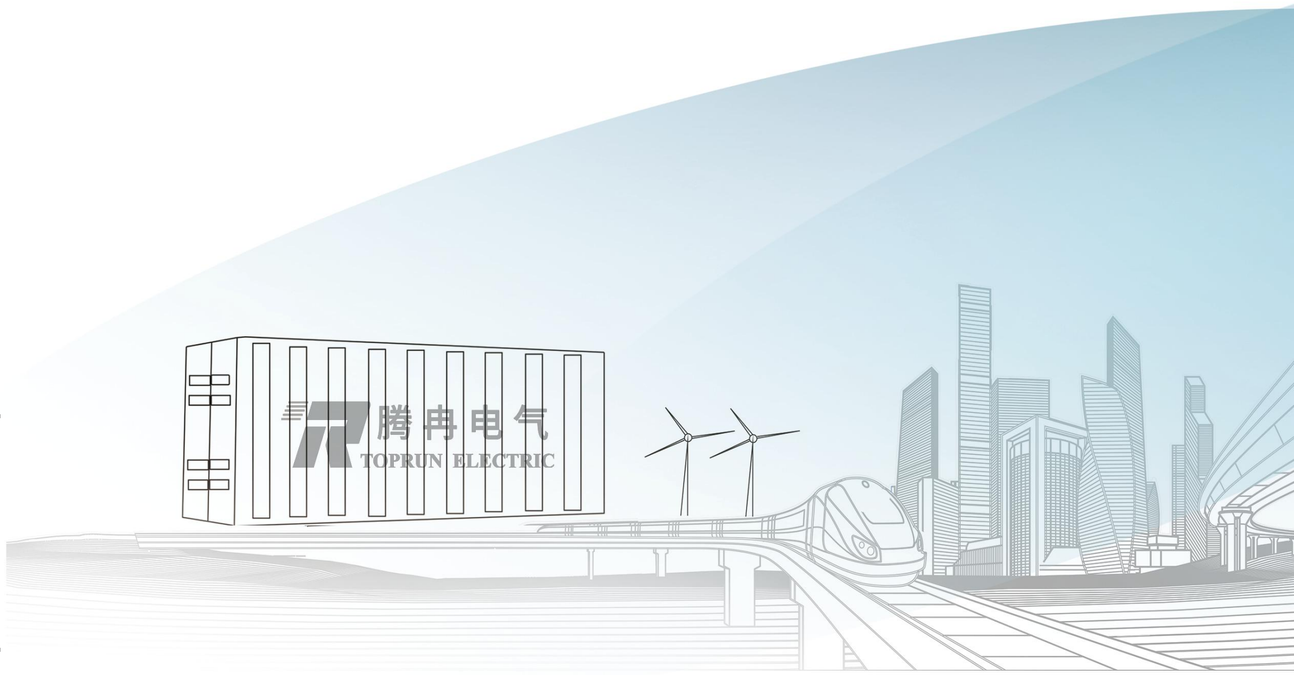
腾冉电气
TOPRUN ELECTRIC



TOPRUN Energy Storage System Solutions And Product Manuals

腾冉储能系统解决方案及产品手册

Suzhou TOPRUN Electric Equipment Co., Ltd.

苏州腾冉电气设备股份有限公司
Suzhou TOPRUN Electric Equipment Co., Ltd.

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Company Profile

DSBJ investment, 5A scenic spot, Suzhou the Taihu Lake side headquarters base.TOPRUN was established in June 2010, holding the business philosophy， "Everything for customers, everything comes from quality". Our main business is smart optical storage systems and magnetic components, committed to achieving efficient, clean, and reliable smart applications of electrical energy.

62 items
Research and development technology patents

2 items
Participate in the formulation of national standards

10%
Annual R&D investment proportion

TOPRUN Development Course

2010
TOPRUN founded

2012
Participate in rail transit

2015
Login to the New Third Board

2018
Develop the energy storage industry

2020
New base activation

2023
Embark on the internationalization process

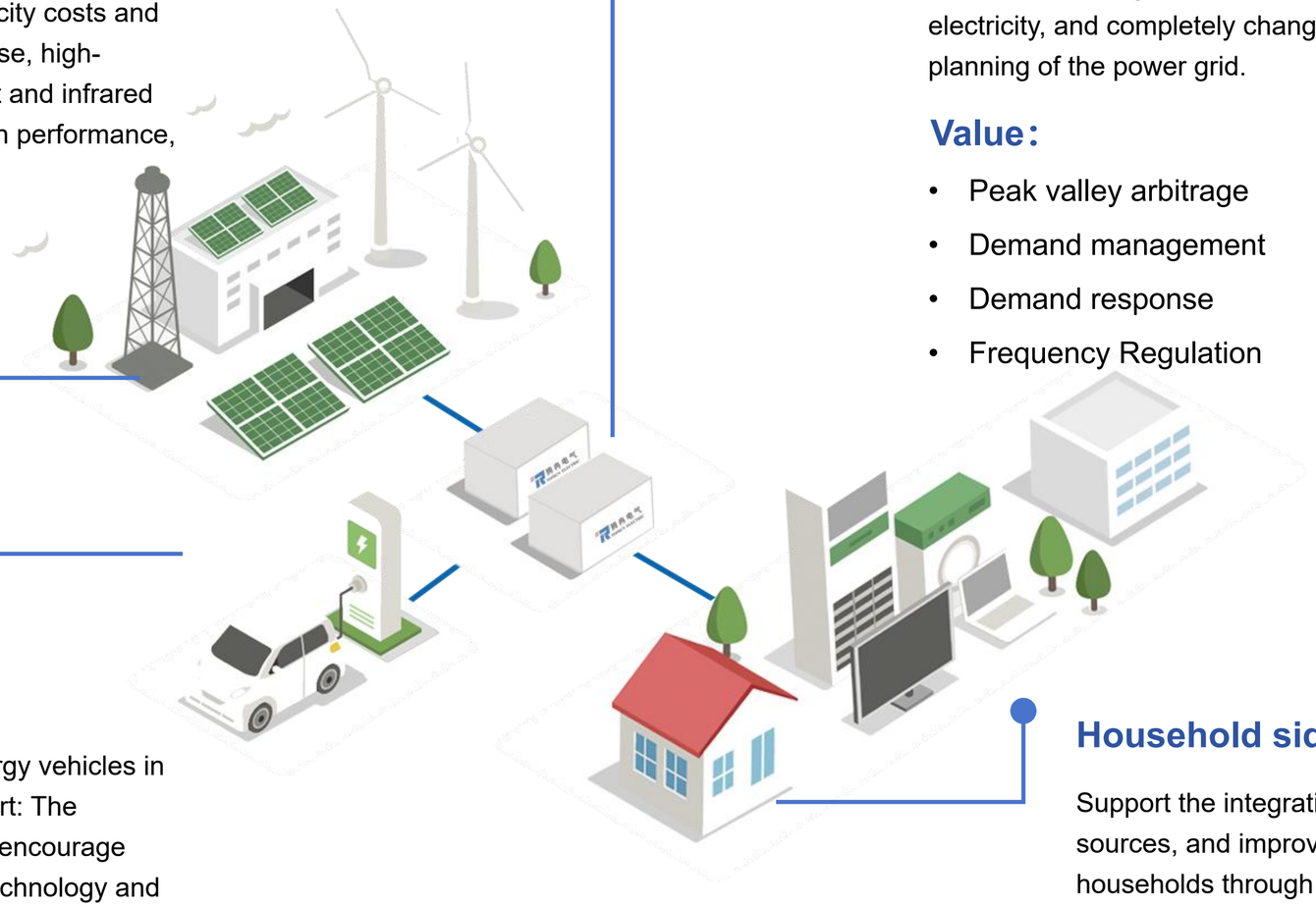
Optical storage and charging solutions

PV side energy storage scheme

Reduce electricity costs and provide abundant solar energy to protect users from the challenges of rising electricity costs and rising fuel prices; Enhancing the value of the house, high-quality glass and solar panels can filter ultraviolet and infrared rays to the maximum extent, have good insulation performance, and effectively regulate indoor temperature.

Value:

- Green energy
- Rich resources
- Low carbon and environmental protection



User side energy storage scheme

Assist in green and low-carbon transformation, and change the consumption dilemma of uneven spatial and temporal distribution of new energy such as wind power/optoelectronics; Solving the contradiction of unequal power generation and consumption time has broken through the problem of whether the power grid can store electricity, and completely changed the scheduling, operation, and planning of the power grid.

Value:

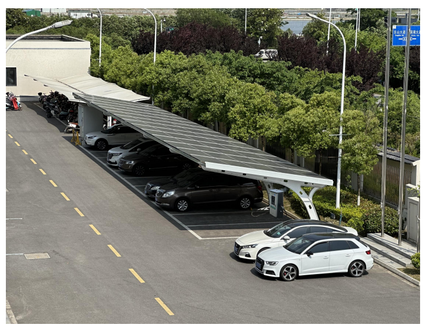
- Peak valley arbitrage
- Demand management
- Demand response
- Frequency Regulation

Charging pile side scheme

The demand is huge, and the number of new energy vehicles in China will exceed 13 million in 2023; Policy support: The government has introduced a series of policies to encourage innovation and development of charging station technology and supporting facilities.

Value:

- New infrastructure
- Promote consumption of new energy vehicles
- Leading a new round of technological and industrial transformation



Household side energy storage scheme

Support the integration and output of multiple energy sources, and improve the energy efficiency and reliability of households through the integration of multiple energy sources for energy supply; Mobile internet meets the growing demand for personalized energy use in households.

Value:

- Third level protection, safe and reliable
- Modular design, flexible and controllable
- Open cloud platform, supporting mobile device access

Examples

Promote the development of new energy around the world

Pre-sale service

- Design and evaluation of customer on-site survey plan
- Project proposal review and technical exchange
- Technical consulting and design of optical storage and charging solutions

After-sale service

- Provide 1-2 inspections and equipment maintenance per year
- Provide training on energy storage operation and maintenance
- Enjoy free upgrades and maintenance services on the EMS cloud platform for life

Service commitment

- 7X24 hour technical support service
- Free technical guidance on equipment installation process
- Adequate spare parts warehouse guarantee

Development and construction process of energy storage power stations

01 Pre project investigation

02 Preliminary materials and approval documents for project construction

03 Project construction drawing design

04 Implementation and construction of the project site

One-degree Outdoor Energy Storage

(1kW/1080Wh)

Product Features

- **Small Size**:Easy to carry, suitable for camping, picnic, RV and other outdoor activities
- **Rich Interfaces**:Rich interface, electricity freedom. 3 types of input modes, 6 types of output ports.
- **Safe and Portable:**Small size, light weight, easy to carry and use, improve the convenience of outdoor operations.
- **Charging Fast**:New double fast charge, 1 hour full power, with solar panels, refuse power anxiety.

Scale \ Type	System Parameter
Battery Capacity	1080Wh
Type	Ternary lithium battery
Charging Time	1.0-1.5Hour（AC only）
Net Weight	9.5±0.2kg
Size (W*D*H)	300mm*215mm*195mm

Smart Household Energy Storage

(5kW/5kWh、10kWh)

Product Features

- **Low Carbon:** Energy storage+PV, low-carbon electricity consumption +Photovoltaic, and off grid and parallel operation function.
- **Security:** Triple protection support for LFP battery, top-notch battery cells，triple protection for battery pack and system.
- **Humanization:** Battery "Home Appliance" modular design, plug and play Cloud platform&mobile app access, open API

Scale \ Type	Single-phase System Parameter	Three-phase System Parameter
Type	5KW	10KW
Rated Voltage	220V	380V
Output Current	21.7A	15.9A
Protection Class	IP54	IP54
Quantity of Electricity	5.12kWh~20.48kWh	15.6kWh~20.48kWh

Smart Industrial and Commercial Standard Storage Cabinet

(100kW/200kWh、215kWh)

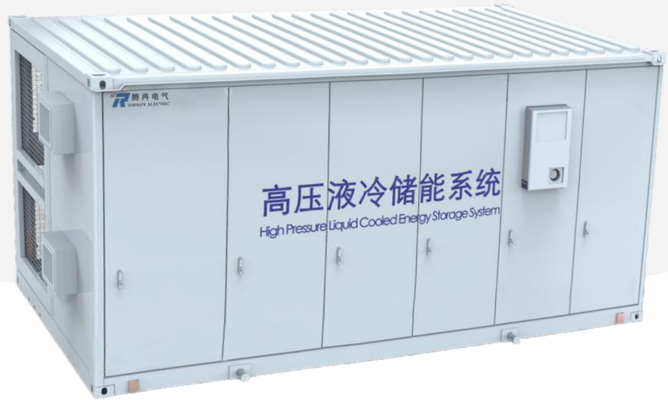
Product Features

- **Intelligent Operation Strategy:**Intelligent operation control algorithm model, adapt to the actual environment, the pursuit of higher revenue.
- **Cloud Integration:**The cloud and station architecture can realize both local deployment of a single station and cloud management of station groups.
- **Multi-service Scenario:**Flexible for various business scenarios such as photovoltaic, energy storage, charging pile, optical storage, and integrated optical storage and charging.
- **Flexible Configuration:**Saas architecture for rapid deployment and easy maintenance.

Type / Scale	200kWh System Parameter	215kWh System Parameter
Rated Capacity	200kWh	215kWh
Rated Output Power	100kW	100kW
Cooling Method	Air cooling (Industrial air conditioning)	Air cooling (Industrial air conditioning)
Protection Class	IP54	IP54
Operation Temperature	- 20℃ ~ + 55℃	- 20℃ ~ + 55℃
Net Weight	2.6T	2.8T
Size(W*D*H)	1800mm*1200mm*2570mm	1900mm*1511mm*2366mm

20-feet Liquid-cooling Storage Standard Container

(1.72MW/3.44MWh)



Product Features

- **High Security:**Select lithium iron phosphate cell with high thermal stability. P54 protection grade for outdoor applications.
- **High Intelligence:**Intelligent EMS system with various functions.Digital system, rapid diagnosis, support for remote monitoring.
- **High Integration:**Standardized interface, flexible access, plug and apply.Modular design, multi-machine parallel, easy to expand.

Type / Scale	20-feet Liquid-cooling Storage Standard Container
Rated Capacity	3.44MW
Rated Output Power	1.72MW
Cooling Method	liquid-cooling
Protection Class	IP54
Energy Cycle Efficiency	≥94%
Net Weight	<34t
Size(W*D*H)	6058mm*2438mm*2896mm

40-feet Storage Standard Container

(3.44MW/6.88MWh)

Product Features

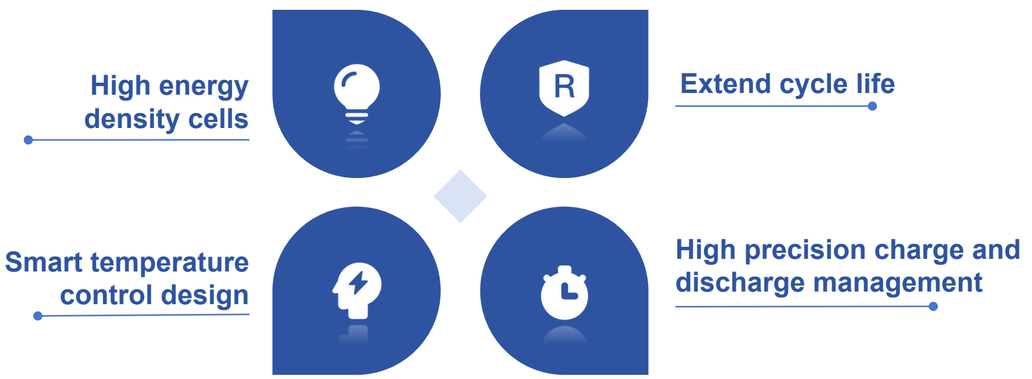
- **High Security**:Lithium iron phosphate cell with high thermal stability is selected.IP54 protection grade for outdoor applications.
- **High Integration**:Standardized interface, flexible access, plug and play.Modular design, multi-machine parallel, easy to expand.
- **High Intelligence**:Intelligent EMS system with various functions.Digital system, rapid diagnosis, support for remote monitoring.

Type / Scale	40-feet Storage Standard Container
Rated Capacity	6.88MWh
Rated Output Power	3.44MW
Cooling Method	liquid-cooling
Protection Class	IP54
Energy Cycle Efficiency	≥94%
Net Weight	<68t
Size (W*D*H)	12116mm*4876mm*2896mm

Smart Energy Cloud Platform

Product Features

- Equipped with comprehensive data collection and monitoring system functions
- Seamlessly access the dispatch center system and receive charge and discharge control commands from the dispatch center.
- Proactively upload BMS and inverter device information to the dispatch center.
- Combining virtual power plants to achieve power consumption control of small microgrids and achieve demand reduction and capacity reduction
- Support local monitoring and cloud monitoring linkage.



Example

Location: South Africa

Configuration: Energy Storage Powe Station

Scale: 300kW/645kWh

Result: Successful acceptance

Location: Suzhou, China

Configuration: Energy Storage Power Station

Scale: 600kW/1.2MWh

Result: Successful acceptance

Location: Burma

Configuration: Energy Storage Power Station

Scale: 3.44W/6.88MWh

Result: Successful acceptance

Location: Kunshan, China

Configuration: Photovoltaic + Energy storage

Project Scale: 400kWp+300kW/600kWh

Project Progress: Successful acceptance

Location: Suzhou, China

Configuration: Energy Storage Power Station

Scale: 0.72MW/1.6MWh

Result: Successful acceptance

Location: Vietnam

Configuration: Energy Storage Power Station

Scale: 400kW/1.6MWh

Result: Successful acceptance

Example

Location: Shanghai, China
Configuration: Distributed PV project
Scale: 2.3MW
Result: Successful acceptance

Location: Shanghai, China
Configuration: Distributed PV project
Scale: 957kW
Result: Successful acceptance

Location: Shanghai, China
Configuration: ESS cabinet+Distributed PV project
Scale: 1MW/2MWh+1.2MW
Result: Successful acceptance

Location: Chuzhou, China
Configuration: Distributed PV project
Scale: 2MW
Result: Successful acceptance

Location: Shanghai, China
Configuration: Distributed PV project
Scale: 1.86MW
Result: Successful acceptance

Location: Ningbo, China
Configuration: Energy Storage Powe Station
Scale: 100kW/215kWh
Result: Successful acceptance