TIANNENG

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Tianneng Group Official
Tianneng Group Official (@GroupTianneng)
Tianneng Group

Website

Electronic brochure

TIANNENG

ENERGY STORAGE SYSTEM SOLUTIONS

PRODUCT BROCHURE



ABOUT US

Tianneng is a Global Leading New Energy Company committed to providing environmentally-friendly battery solutions for various industries worldwide since 1986.

Tianneng now has nearly 30,000 employees and more than 160 subsidiaries around the world. There are 18 production bases in 7 provinces in China and 2 oversea manufacturing center in Vietnam. Tianneng set up 7 R&D centers to constantly develop technology and keep innovation in the area of lead acid batteries, lithium batteries, hydrogen Fuel Cells, and Sodium-ion batteries.



Honor:

- Global Top 500 New Energy Enterprises — Rank 2
- China Top 500 Private Enterprises — Rank 27
- China Top 500 Enterprises — Rank 127
- China Top 100 Light Industry Enterprises — Rank 4

Main Business areas:

- Battery and system Solutions (Motive, SLI, Energy Storage)
- Battery Recycling Solutions (Lead Acid battery recycling, Lithium-ion battery recycling)

$7.5 billion
2025 Annual Sales

A+H Listed
688819.SH/00819.HK

8000+
Patents

No.2
Global Top 500 New Energy Enterprises

MILESTONE

MILESTONE OF TIANNENG GROUP

1986
Since 1986

1998
VRLA Battery Developed for E-bike

2004
Lithium Battery Developed

2007
Tianneng Group Listed on HONGKONG

2009
TN Circular Economy Base Estabilised

2010
National Honors for 18650 Series

2014
National Honors for Pb-C Battery

2018
Photovoltaic Energy Storage Project for the Gambian Presidential Palace

2021
Tianneng Battery Listed on SSE

2022
Launched the world' s first whole industry chain intelligent SLA factory

2023
Tianneng South Tai Lake Lithium Battery Production Base puts into operation

2024
Tianneng Vietnam Factory (phase 1) officially launched

2025
Tianneng Vietnam High-Performance Battery Plant Commissioning Ceremony & Apac Partner Conference

Global Footprint

18

China Production Base

Tianneng has established 18 production bases in eight provinces including Zhejiang, Anhui, Jiangsu, Henan, Guizhou, Shandong, Jiangxi and Gansu.

11

Overseas Offices (Established)

Vietnam, Thailand, Indonesia, India, Germany, Netherlands, Poland, Türkiye, Mexico, Chile, Nigeria

2

Overseas Production Base

Vietnam

7

Overseas Company

Vietnam, Indonesia, Philippines, Nigeria, Poland, Kenya, Singapore

1

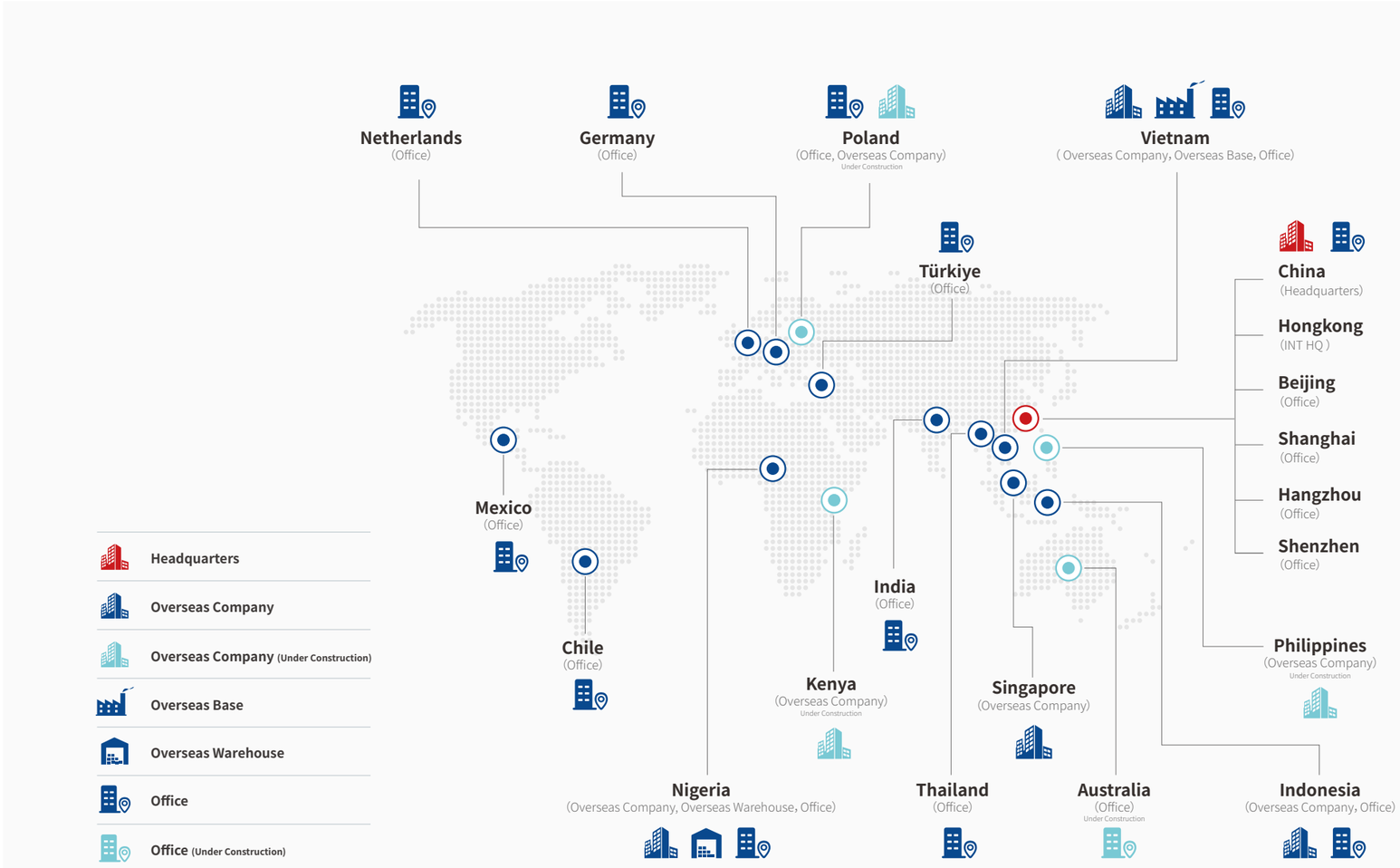
Overseas Warehouse

Nigeria

4

China Office

Beijing, Shanghai, Hangzhou, Shenzhen



TECHNOLOGY ROADMAP

Tianneng has mastered diversified green energy technology solutions encompassing lead-based, lithium-ion, sodium-ion, and hydrogen-based systems. Under its Central Research Institute, it has established research subdivisions dedicated to lead-acid batteries, solid-state batteries, sodium-ion batteries, and fuel cells. Simultaneously, it operates R&D bases in Changxing, South Taihu Lake, and Huzhou for lithium battery development. The company focuses on applied fundamental technologies, cutting-edge product technologies, and industrialization technologies across lead-acid batteries, lithium batteries, sodium-ion batteries, and fuel cells. It also conducts R&D on next-generation batteries such as solid-state lithium batteries and develops diversified energy storage system solutions.

Pb Li Na H

INDUSTRIAL ECOSYSTEM



CORE TECHNOLOGY AND TURNKEY PROJECT

6

CORE TECHNOLOGY

High Safety
Safety Coating: Proprietary advanced nano-coating technology forms a stable and dense solid-state electrolyte interface layer on the electrode surface, significantly reducing the reactivity between materials and electrolyte, and markedly improving the thermodynamic stability of the battery cell.

Long Lifespan:
Adopting SEI membrane active targeted repair electrolyte technology, which significantly enhances cell cycle and storage performance. Achieves 10,000 standard cycles, continuous operation for 20 years, delivering ultra-long lifespan.

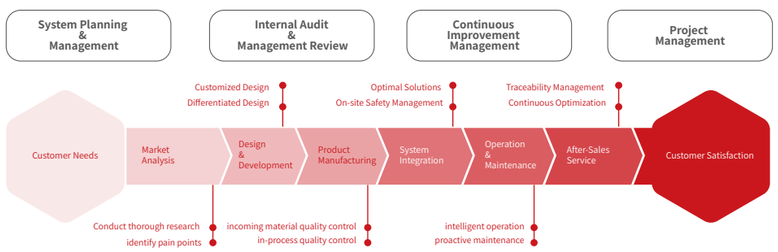
Intelligent Monitoring:
Cell Health Monitoring: Integrates fiber Bragg grating (FBG) cell differential detection technology with a cell failure mechanism model to enable real-time monitoring of all cells' full lifecycle data, including each charge/discharge cycle. This system analyzes cell health status and proactively identifies abnormal cells before failures occur.

High Efficiency:
By adopting a simplified module structure, the battery pack achieves a 15%~20% increase in volume utilization, a 40% reduction in component count, and system efficiency exceeding 88%.

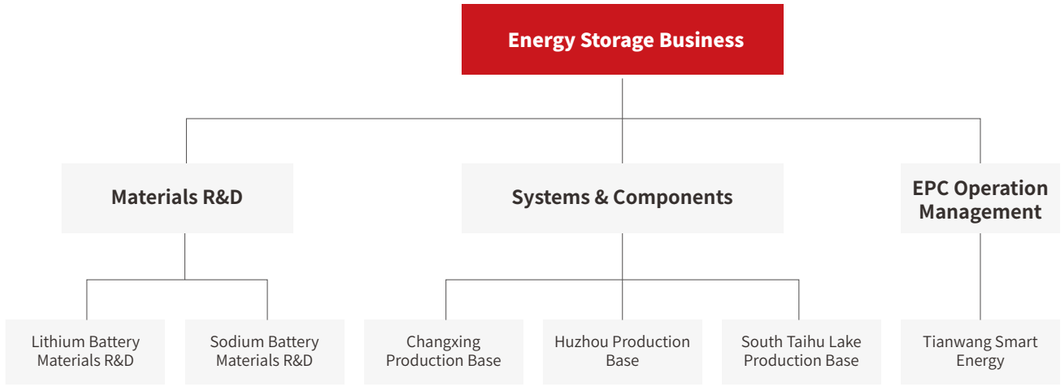
High Environmental:
Performance:Eco-friendly lithium-ion battery processing equipment recycles waste lithium-ion batteries, maximizing economic returns. This system enhances recycling efficiency and enables automated sorting of various waste lithium-ion batteries, including pouch-type, plastic-cased hard-shell, steel-cased, and aluminum-cased lithium-ion batteries.

High Energy Density:
Achieved through coating modification of cathode/anode materials, element doping modification technology, and pre-lithiation technology, combined with a proprietary electrolyte formulation featuring a low-viscosity solvent system and low-impedance novel additives. This integrated approach enhances charge/discharge efficiency and significantly boosts product energy density.

TURNKEY PROJECT



ENERGY STORAGE BUSINESS OVERVIEW



Semi-solid-state battery Material R&D

Tianneng Energy Storage provides energy storage cells, modules, clusters, EMS, system integration, EPC and O&M services. With strengths in solution design, product integration, delivery and operation, we serve power, grid and user-side scenarios, offering multi-technology solutions including lead-acid, lithium-ion, sodium-ion, semi-solid-state and hydrogen energy.

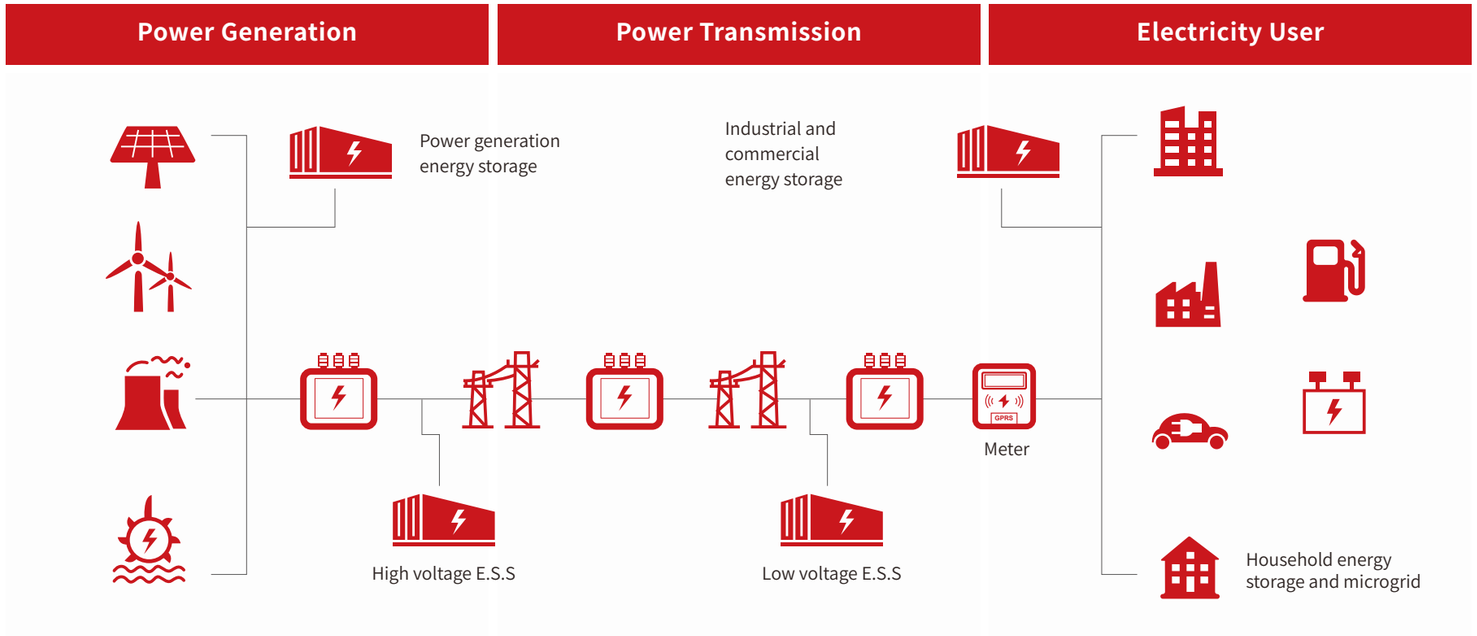


Cell | Battery Module | Battery Cluster | EMS | Energy Storage System | EPC | Energy Management | Power Station

PREMIUM SAFETY AND PERFORMANCE

Intelligent Protection

- Over-discharge Protection
- Over-charge Protection
- Cell-balance Mechanism
- Short-circuit Prevention
- Over-current Protection
- Instant-impact Protection
- Cut-off Monitoring
- GPS Function Available



UN38.3 UL IEC CB CE BIS PSE VDE REACH NPS

EMS ENERGY STORAGE MANAGEMENT SYSTEM

- Tianneng TianShu Cloud EMS
- Tianneng TianJi Embedded EMS
- Tianneng TianXuan Local EMS
- Tianneng TianHeng Large Storage EMS
- Tianneng TianXuan Microgrid EMS



Tianneng EMS Energy Management System Series Solution

Core Advantages: Full Scenarios + Rapid Deployment + Intelligent O&M + AI Analysis

Product Name	Main Functions	Applicable Scale	Product Advantages
Tianneng TianShu Cloud EMS	Remote Monitoring & Management	Suitable for All Scenarios	All-scenario support, full lifecycle digital management, health diagnosis
Tianneng TianJi Embedded EMS	Integrated Control & Optimization	⩽500KWh	Highly integrated, flexible adaptation, intelligent networking
Tianneng TianXuan Local EMS	Commercial & Industrial Energy Optimization	⩽10MWh	Intelligent analysis, rapid deployment, unmanned O&M
Tianneng TianHeng Large Storage EMS	Large-scale Energy Storage Management	⩾10MWh	Power station performance optimization, total revenue calculation, smart O&M, centralized management
Tianneng TianXuan Microgrid EMS	Micro Power System	Suitable for All Scenarios	All-scenario integrated control, efficient & flexible, environmentally friendly

Tianneng Tianxuan EMS -NECO2000 for Microgrid System

Key Features	Function Introduction
Autonomous Operation	Seamless switching, independent power supply, supports grid-connected and islanded operation
High Efficiency & Economy	Optimized dispatch, grid interaction, supports AI-predicted strategic dispatch
Comprehensive Scenarios	Supports new power systems, compatible with energy storage, PV, charging piles, diesel generators, loads, and other hybrid types
Cloud-Edge-Device Collaboration	Advanced "Cloud-Edge-Device" collaborative architecture, global optimization decision-making, local real-time control, full-chain autonomous and controllable



Tianneng Tianxuan EMS -NECO2000 for Large-Scale Energy Storage System

Key Features	Function Introduction
Grid-level Strategy Control Hub	Supports strategies such as AGC/AVC automatic grid-connection regulation, intelligent SOC balancing, and dynamic demand response.
Industrial-grade Entire area Monitoring	Second-level synchronous sampling for all station equipment, dynamic coloring of 2D electrical topology, protection action sequence tracing, fault recording + precise SOE event timing.
Data Intelligence Hub	Covers second-level real-time equipment analysis, multi-dimensional historical curve tracing, intelligent custom reports, and full-system digital replay.
Multi-dimensional Intelligent Diagnosis	Implements cell-level health diagnosis and system efficiency diagnosis based on the "Dual-drive Diagnosis Engine" of equipment mechanism + AI models.



Tianneng Tianshu EMS Cloud - NECO2000

Key Features	Function Introduction
Cloud-Native Architecture	No local deployment required, global multi-node access, elastic scaling
AI-Driven Decision Making	Predictive scheduling, adaptive strategies, intelligent daily output curves
Open Ecosystem Interfaces	Provides OPC UA, REST API, Kafka data streams, seamless integration with group cloud platforms, power trading systems, carbon management platforms
Digital Twin Visualization	3D visualization of power station models + real-time data mapping + fault simulation and deduction, supporting remote immersive O&M



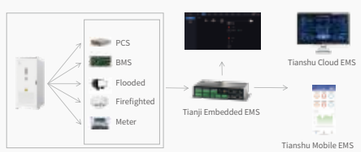
Tianneng Tianxuan Local EMS - NECO2000

Key Features	Function Introduction
Cloud-Edge Synergy	Cloud strategy issuance + millisecond-level edge execution, supporting offline autonomy, remote OTA, and cross-station linkage
Multi-protocol Writing	Built-in 20+ industrial protocols such as Modbus TCP/RTU, IEC 61850, CAN, DL/T645, MQTT, etc., supporting "zero-code access" for mainstream PCS, BMS, meters, and PV inverters
Lightweight Rapid Deployment	Provides "One-click Configuration Wizard", new station access speed is 60% faster than traditional EMS, reducing engineering implementation barriers and costs
Edge Data Pre-processing & Compression	Completes cell-level data aggregation and compression locally before u ploading, with a compression ratio of 98:1, saving 90%+ uplink bandwidth, and reducing cloud storage and computing pressure



Tianneng Tianji Embedded EMS - NECO2000

Core Products



Tianneng Tianji EMS Comprehensive solution



Energy Storage Intelligent Monitoring Manage

Supports plug-and-play, dynamic networking, local autonomy, and cloud-linkage. Equipped with intelligent charge/discharge strategies, millisecond-level fault protection, remote OTA upgrades, and multi-protocol access capabilities. Adaptable to industrial and commercial scenarios, it realizes "control upon unboxing, unattended operation, and visible revenue," creating a lightweight, high-reliability, full-stack energy storage edge intelligence unit.。

ENERGY STORAGE CELLS



Product Model	TNS79148120B150
Cell material system	LFP
Nominal voltage	3.2V
Rated capacity	150Ah
Mass energy density	⩾175Wh/kg
Volumetric energy density	⩾363Wh/L
Operating voltage range	2.5～3.65V
Operating temperature range	- 35°C～65°C
Rated charge/rated discharge	0.5P/0.5P
Cycle Life (@25°C)	⩾4000cycle (@80%SOH) 100%DOD/25°C@0.5P/0.5P
Weight	2.93±0.15kg
Dimensions (including poles)	79.2×148.5×120.3mm
Product certificates	UN38.3, UL1973, UL9540A, ROHS,CB
Rve.	A5



TNSA71173207B314
LFP
3.2V
314Ah
⩾185Wh/kg
⩾420Wh/L
2.5～3.65V
- 35°C～65°C
0.5P/0.5P
⩾10000cycle (@70%SOH) 100%DOD/25°C@0.5P/0.5P
5.75±0.15kg
71.7×173.8×207.2mm
GBT36276, GBT31484, GBT31486, GB38031, UL1973, UL9540A, CB, ROHS, UN38.3, BIS



TNS72288216B588
LFP
3.2V
588Ah
⩾185Wh/kg
⩾420Wh/L
2.5~3.65V
- 30°C～55°C
0.5P/0.5P
⩾10000cycle (@70%SOH) 100%DOD/25°C@0.5P/0.5P
10.25±0.15kg
72.5×288×216.3mm
GBT36276,GB44240,IEC62619,UL1973,UL9540A, CB,ROHS,UN38.3,BIS

HESS

HOUSEHOLD ENERGY STORAGE SYSTEM



Product Advantages

Saving Electricity Bill

Charging during off-peak hours and discharge during peak hours, save the bill by avoiding peak hours.

Self-consumption

Balance the solar generation with evening demand, and realize your own grid independence.

Back-up Power

Guarantee your electricity is available when you encounter with a black-out or emergency.

LUMINA

RESIDENTIAL ENERGY STORAGE SYSTEM (LFP SERIES)

- The 51.2V low - voltage LiFePO4 battery module has a voltage of 51.2V, and the capacity can be selected as 100Ah, 200Ah or 314Ah.
- Parallel operation is supported, and it is recommended to use no more than 4 units in parallel. It is suitable for 48V single - phase or three - phase off - grid, hybrid on/off - grid solar inverters.
- It has high - power emergency backup and off - grid functions.
- The self - consumption has been optimized for residential and commercial applications.
- The modular design simplifies the transportation and installation process.



PRODUCT FEATURES

- ＞6000 Times Super Cycle Life
- IP54 waterproof design
- Premium safety and Long-term reliability
- Money saving & Flexible compatibility
- Low self-consumption maximization
- Affordable and simple installation

APPLICATION

- Household Energy Storage System
- Household Photovoltaic System
- Outdoor portable power station
- Removable power supply system
- Telecommunication UPS system
- Data center
- Wind&Solar power
- Industrial application

CERTIFICATES

UN38.3 IEC CE RoHS ISO 9001

PARAMETER

Model Name	TELiF-48100W2	TELiF-48200W2	TELiF-48314W2
Nominal Characteristics			
Nominal Voltage	51.2V	51.2V	51.2V
Nominal Capacity	100Ah (16S1P)	200Ah (16S2P)	314Ah (16S1P)
Nominal Energy	5120Wh	10240Wh	16076Wh
Internal Resistance	≤30mΩ	≤30mΩ	≤30mΩ
Self Discharge Rate	≤3.5% per month	≤3.5% per month	≤3.5% per month
Cycle Life (@25°C,0.2C,90%DOD)	6000 Cycles	6000 Cycles	8000 Cycles
Parallel Connected Function	Max 16 in parallel	Max 16 in parallel	Max 16 in parallel
Communication	RS485/CAN	RS485/CAN	RS485/CAN
Charging Specifications			
Recommended Charging Voltage	58.4V	54.75Vdc-58.4Vdc	54.75Vdc-58.4Vdc
Max. Charging Current	50A	100A	100A
Discharging Specifications			
Discharging Cut-off Voltage	44V	44V	44V
Max. Discharging Continuous Current	100A	100A	200A
Max. Discharging Pulse Current	120A,≦1 S	120A,≦1 S	210A,≦1 S
Mechanical Characteristics			
Length	650mm	600mm	502mm
Width	500mm	150mm	290mm
Thickness	150mm	780mm	700mm
Thickness with bracket	160mm	800mm	800mm
Weight	Approx. 50Kg	Approx. 90Kg	Approx. 124Kg
Port	RS485/CAN	RS485/CAN	RS485/CAN
Operating Conditions			
Charge Temperature	0°C~45°C (32°F to 113°F)	0°C~55°C	0°C~55°C
Discharge Temperature	-20°C to 60°C (-4°F to 140°F)	-20°C~55°C	-20°C~55°C
Storage Temperature	0°C to 45°C (32°F to 113°F)	-20°C~+45°C	-20°C~+45°C
Safety Standard	UN38.3	UN38.3	UN38.3
Water Dust Resistance	IP21	IP21	IP21

RACK MOUNTED HESS PRODUCTS

LOW VOLTAGE MODEL

Removable LiFePO4 Battery for Energy Storage System

- The 51.2V low - voltage LiFePO4 battery module has a voltage of 51.2V, and the capacity can be selected as 100Ah, 150Ah or 200Ah.
- Parallel operation is supported, and it is recommended to use no more than 8 units in parallel.
- It is suitable for 48V single - phase or three - phase off - grid, hybrid on/off - grid solar inverters.
- It has high - power emergency backup and off - grid functions.
- The self - consumption has been optimized for residential and commercial applications.
- The modular design simplifies the transportation and installation process.





PRODUCT FEATURE

- ＞6000 Times Super Cycle Life
- IP20 waterproof design
- Premium safety and Long-term reliability
- Money saving & Flexible compatibility
- Low self-consumption maximization
- Affordable and simple installation

CERTIFICATES

UN38.3 IEC CE RoHS ISO 9001

APPLICATION

- Household Energy Storage System
- Household Photovoltaic System
- Outdoor portable power station
- Removable power supply system
- Telecommunication UPS system
- Data center
- Wind&Solar power
- Industrial application

LOW VOLTAGE MODEL

Model Name	TELiF-48100S3	TELiF-48150C00	TELiF-48200C00
Nominal Characteristics			
Nominal Voltage	51.2V (16S)	51.2 V (16S)	51.2 V (16S)
Nominal Capacity	100Ah	150Ah	200Ah
Nominal Energy	5120Wh	7680Wh	10240Wh
Internal Resistance	⩽55mΩ	⩽45mΩ	⩽35mΩ
Self Discharge Rate	⩽3.5% per month	⩽3.5% per month	⩽3.5% per month
Cycle Life	⩾6000 cycles	⩾6000 cycles	⩾6000 cycles
Battery Parallel Connection Support	Max16 connected in parallel	Max 16 connected in parallel	Max 16 connected in parallel
Charging Specifications			
Recommended Charging Voltage	57.6Vdc	57.6Vdc	57.6Vdc
Recommended Charging Current	50A	75A	100A
Max. Charging Current	100A	150A	200A
Discharging Specifications			
Discharging Cut-off Voltage	43.2V	43.2V	43.2V
Recommended Discharge Current	50A	75A	100A
Max. Discharging Continuous Current	100A	150A	210A
Mechanical Characteristics			
Width	440mm	440mm	440mm
Depth	550mm	570mm	550mm
Height	133mm	133mm	222mm
Weight	Approx. 46kg	About. 64kg	Approx. 76 kg
Operating Conditions			
Communication Interface	RS485/CAN	RS485/CAN	RS485/CAN
Display	SOC status indicator, LED indicator	SOC status indicator, LED indicator	SOC status indicator, LED indicator
Charge Temperature	0°C to 50°C	0°C to 50°C	0°C to 50°C
Discharge Temperature	-20°C to 55°C	-20°C to 55°C	-20°C to 55°C
Storage Temperature	-30°C to 60°C	-30°C to 60°C	-30°C to 60°C
Water Dust Resistance	IP20	IP20	IP20

TELECOM ESS

TELECOM ENERGY STORAGE SYSTEM



Product Advantages

Longer Lifespan

Flexible Compatibility

Premium Safety

TELECOM ENERGY STORAGE HESS PRODUCTS

LOW VOLTAGE MODEL

Removable LiFePO4 Battery for Energy Storage System

- The 48V low - voltage LiFePO4 battery module has a voltage of 48V, and the capacity can be selected as 100Ah, 150Ah or 200Ah.
- Parallel operation is supported, and it is recommended to use no more than 8 units in parallel.
- It is suitable for 48V single - phase or three - phase off - grid, hybrid on/off - grid solar inverters.
- It has high - power emergency backup and off - grid functions.
- The self - consumption has been optimized for residential and commercial applications.
- The modular design simplifies the transportation and installation process.





PRODUCT FEATURES

- **Prismatic LiFePO4 cell-3.2v, higher reliability**
- **Longer cyclelife 4000 cycles@80%DOD.**
- **Fully replaceable with current batteries (e.g., Lead-acid and Ni-cd)**
- **Built-in BMS management system with interface RS232/RS485/CAN**
- **Maintenance free with standard 19" design easy installation**
- **Optimum adaptation to a variety of applications with parallel expansion support Bluetooth, WIFI function (optional)**

CERTIFICATES

UN38.3 IEC CE RoHS ISO 9001

APPLICATION

- **Communication**
- **Data Center**
- **Industrial Application**
- **Wind Power**
- **Solar Power**
- **Electric Power**

LOW VOLTAGE MODEL

Model Name	TELiF-48100C00	TELiF-48150T00	TELiF-48200C00
Nominal Characteristics			
Nominal Voltage	48V (15S)	48V (15S)	48V (15S)
Nominal Capacity	100Ah	150Ah	200Ah
Nominal Energy	4800Wh	7200Wh	9600Wh
Internal Resistance	⩽55mΩ	⩽45mΩ	⩽35mΩ
Self Discharge Rate	⩽3.5% per month	⩽3.5% per month	⩽3.5% per month
Cycle Life	⩾4000 cycles	⩾4000 cycles	⩾4000 cycles
Battery Parallel Connection Support	Max16 connected in parallel	Max 16 connected in parallel	Max 16 connected in parallel
Charging Specifications			
Recommended Charging Voltage	54V	54V	54Vdc
Recommended Charging Current	50A	75A	75A
Max. Charging Current	100A	100A	100A
Discharging Specifications			
Discharging Cut-off Voltage	40.5V	40.5V	40.5V
Recommended Discharge Current	50A	75A	100A
Max. Discharging Continuous Current	100A	150A, (⩽100ms)	120A, (⩽20ms)
Mechanical Characteristics			
Width	440mm	442mm	440mm
Depth	440mm	572mm	550mm
Height	133mm	131mm	222mm
Total Height	133mm	131mm	222mm
Weight	Approx. 43kg	About. 61kg	Approx. 72kg
Operating Conditions			
Communication Interface	RS232/RS485/CAN/SNMP	RS232/RS485/CAN	RS232/RS485/CAN
Charge Temperature	0°C to 50°C	0°C to 50°C	0°C to 50°C
Discharge Temperature	-20°C to 55°C	-20°C to 55°C	-20°C to 55°C
Storage Temperature	-30°C to 60°C	-30°C to 60°C	-30°C to 60°C
Water Dust Resistance	IP20	IP20	IP20

CESS

COMMERCIAL AND INDUSTRIAL ENERGY STORAGE SOLUTION



Product Advantages

Uninterrupted Power Supply

Less space, longer life and more power than traditional UPS system.

Peak-shifting

Balance the electricity input and output to provide the most economical power supply.

Energy Integration

Integrated with existing energy facilities, like solar, diesel generators and so on.

TNPOWER

TILIF-AIO-125K-261

The TILiF-AIO-125K-261 energy storage system utilizes an AC 400V voltage platform and is applicable to a variety of energy scenarios. With a rated capacity of 261 kWh, it can satisfactorily address large - scale energy storage requirements. Thanks to the intelligent liquid - cooling technology, it can operate stably in an environment with a temperature range from - 30°C to 50°C. The adjustable depth of discharge from 0 - 100%, the maximum charge - discharge rate of 0.5P / 0.5P, and the 88% cycle efficiency ensure the efficient utilization of energy.



PRODUCT FEATURE

- All-in one integrated design
- LiFePO4 battery
- Support parallel mode
- Support Solar/City Grid
- EMS/Cloud APP

APPLICATION

- Small industrial and commercial
- Industrial parks
- Commercial buildings
- Solar storage and charging stations
- Microgrid power backup

CERTIFICATES

IEC62619 IEC62477
IEC60730 IEC61000
IEC60529 UN38.3
GBT/36276 62933

PARAMETER

Energy Storage System Parameters	
Model Name	**TILiF-AIO-125K-261**
Rated Capacity	261.2 kWh
Maximum Charge - Discharge Rate	0.5P / 0.5P
Maximum Cycle Efficiency	88.00%
Depth of Discharge	0 ~ 100%
Dimensions (W x H x D)	1060×2500×1400 mm
Weight	⩽ 2.8 t
Operating Temperature Range	-30°C ~ 50°C
Storage Temperature Range	-35°C ~ 60°C
Operating Humidity Range (Non - condensing)	0 ~ 95%
Maximum Operating Altitude	4,000 m
Temperature Control Method	Intelligent Liquid Cooling
Communication Protocol	Modbus TCP / CAN
Protection Level	IP54/55（optional）
Corrosion Protection Grade	C 3 C4 C5（optional）
Noise Requirement (Rated Condition*)	72 dB(A)
Lightning Protection Level	Type II (AC Port)
EMC Level Requiremen	Class B
Certification Standards	IEC62619 IEC62477 IEC60730 IEC61000 IEC60529 UN38.3 GBT/36276 62933
Battery - side Parameters (DC - side)	
Cell specifications	LFP 3.2V 314 Ah
System Battery Configuration	260S1P
Number of Battery Packs	5
Nominal Capacity	261.24 kWh
Rated Voltage	832 V
Battery Voltage Range	728 V~936 V
Rated Operating Current	157 A
Battery Pack Protection Level	IP67
PCS - side Parameters (AC - side)	
PCS Model Name	EPCS125-AM-F
Rated Power	125 kW
Rated AC Current	180A
Rated AC Voltage	400 V
AC Voltage Frequency	50 / 60 Hz
Maximum Power Factor	-1~+1
AC Current Harmonic THDi (Rated Condition*)	⩽2 %
AC Connection Method	Three-Phase Four-Wire System(3P+N+PE)

TNPOWER

TCLiF-AIO-215K-418

TCLiF-AIO-215K-418 is suitable for larger scale energy storage scenarios. It adopts a voltage level of 690V, with higher energy density, allowing multiple units to operate in parallel. This product separates the DC side and AC side for centralized management, and adopts multi-level safety protection. The cabinet enclosure is rated IP54, with intelligent liquid cooling and a rated charging and discharging ratio of 0.5P/0.5P.



PRODUCT FEATURE

- High energy density, compact footprint
- 690V output voltage
- Support parallel mode
- High reliability

APPLICATION

- Large scale C&I projects
- Industrial parks
- Hybrid- and microgrid
- Solar and wind energy accommodation

CERTIFICATES

IEC62619
UN38.3
IEC60730
IEC62477
IEC60529
IEC61000
GBT/36276
EN50549-2
62933

PARAMETER

Model	TCLiF-AIO-215K-418
Size	1350*1350*2550
Weight	3.5T
IP Level	54
Fire Protection	PACK ＋PACK level fire protection+perfluorohexane
Communication Interfaces	CAN 485
AC side	
AC rate power output	215KW
AC output voltage	690V
Rated output current	180A
AC access method	three-phase three-wire
Grid frequency range	50Hz/60Hz±2.5Hz
Total harmonic distortion rate of current	⩽3%(fully loaded)
THDU	⩽3%(linear load)
power factor	-0.99~+0.99
DC side	
DC side nominal voltage（V）	1331.2（416S）
Nominal capacity（Ah）	314
rated capacity（kWh）	417.992
Maximum charging current（A）	188
Standard charging cut-off voltage（V）	1497.6
Discharge cut-off voltage（V）	1164.8
life（80%DOD）	＞6000 times
cooling method	liquid cooling
Working temperature range（℃）	-20～60

TNPOWER

TN-1500/836

This product doubles its capacity on the basis of 418 cabinets - their height is the same, but their depth is proportional. We designed it this way to meet the needs of some users: fewer cabinets, fewer installation and wiring processes. The cabinet adopts high-efficiency liquid cooling, with high energy efficiency (⩾ 88%), IP55 and C5 level protection.



PRODUCT FEATURE

- Large single-cabinet-capacity
- High energy efficiency, high reliability
- Support parallel mode

APPLICATION

- Large scale C&I projects
- Energy storage power plants or virtual power plants
- Hybrid- and microgrid
- Solar and wind energy accommodation

CERTIFICATES

IEC62619
UN38.3
IEC60730
IEC62477
IEC60529
IEC61000
GBT/36276
EN50549-2
62933

PARAMETER

Product Specifications	836kWh
Product Model	TN-L836-01
Rated Voltage	1331.2V
System Rated Power	430kW
Cooling Method	Liquid Cooling
System Rated Total Battery Capacity	835.993kWh
System Initial Depth of Discharge (DoD)	90%
System Initial Total Efficiency	⩾88%
Dimensions (W×D×H) ±5mm	1534*2448*2340mm
Weight	About 8t
Ingress Protection (IP) Rating	IP55
Anti-Corrosion Rating	C5
Communication Interface	RS485，Ethernet，CAN

NESTRA

LIQUID COOLED ENERGY
STORAGE SYSTEM

The TN-B series is a containerized battery energy storage system. The container adopts a 20 foot high container for easy transportation and installation. It has a comprehensive safety protection system, including electrical protection, fire protection, detection, etc. The protection level has reached IP55, suitable for various scenarios. Adopting modular design, high integration, and flexible adjustment.



PRODUCT FEATURE

- Advanced Safety Architecture
- Superior Economic Performance
- Exceptional Operational Flexibility

APPLICATION

- Industrial production base
- Grid side energy storage power station
- Energy storage power plants or virtual power plants
- Microgrid power supply

CERTIFICATES

UN 38.3
UN 3480
UN 3536
IEC 62619
IEC 63056
IEC 60730
IEC 62040
...

PARAMETER

Battery compartment parameters		
Product Model	TN-B5MWh-S	TN-B6.26MWh-L
Cell Type	Semi-solid prismatic aluminum-shell cell	LFP prismatic aluminum-shell cell
Cell Specification	3.2V 314Ah	3.2V 588Ah
System Configuration	1P104S*4*12	1P104S*4*8
Rated Capacity	5.016MWh	6.26MWh
Rated Voltage	1331.2V	1331.2V
Voltage Range	1164.8~1497.6V	1164.8~1497.6V
Dimensions (L×W×H)	6058 × 2438 × 2896mm	6058 × 2438 × 2896mm
Battery Cabin Weight	⩽41t	<50t
Protection Rating	IP55	IP55
Fire Protection	Intelligent Aerosol Protection	Intelligent Aerosol Protection
Configuration Scheme	Submerged Water Fire Protection	Submerged Water Fire Protection
Maximum Operating Altitude	3000m (Derated above 2000m)	3000m (Derated above 2000m)
Operating Temperature Range	-30~60°C	-20°C~60°C
Cooling Method	Intelligent liquid cooling	Intelligent liquid cooling
Certification	UN 38.3, UN 3480, UN 3536, IEC 62619, IEC 63056, IEC 60730, IEC 62040, EN 62477-1, EN 61000-6-2/-4, IEC 62933-5-1, IEC 62933-5-2, IEC 62933-2-1,IEC 60529, UL 1973, UL 9540A, UL 9540, NFPA 68, NFPA 69, NFPA 70E, FCC Part 15, FCC Part 18,	UN 38.3, UN 3480, UN 3536, IEC 62619, IEC 63056, IEC 60730, IEC 62040, EN 62477-1, EN 61000-6-2/-4, IEC 62933-5-1, IEC 62933-5-2, IEC 62933-2-1,IEC 60529, UL 1973, UL 9540A, UL 9540, NFPA 68, NFPA 69, NFPA 70E, FCC Part 15, FCC Part 18,
Battery pack parameters		
Battery Cell Model	314Ah semi-solid energy storage battery cell	TNS72288216B588
Size	71*173*207mm	72.5×288×216.3
Standard Capacity	314Ah	588Ah
Nominal voltage	3.2V	3.2V
Energy Density	176Wh/kg	⩾185Wh/kg
Discharge Operating Temperature	-30~60°C	-20°C~60°C
Cycle Life	⩾8000@70%	⩾10000cycle

SES4H-10000-MV-EX

Prefabricated Inverter Substation

SES4H-10000-MV-EX is a conversion, transformer and distribution integrated cabin designed specifically for large-scale energy storage systems. It integrates inverter and booster, improves space efficiency, easier installation. It accepts a wide DC voltage range(1000~1500V), and with modular design, the power is highly configurable. It has high reliability and security, short response time, multiple modes, and intelligent operation.



PRODUCT FEATURE

- Flexible Configuration
- High Efficiency & Stability
- Extensive Use
- Safety & Compatibility

CERTIFICATES

IEC62477

IEC61000

EN50549-2

IEC60076

IEC62271

.....

PARAMETER

AC AND DC PARAMETER	
Rated Power	10000kVA
Overload capacity	1.1times long-term; 1.8 times overload 10s (Consult with Us)
AC Voltage	15kV-34.5kV (Consult with Us for other voltage level)
AC Frequency	50Hz/60Hz
DC Voltage Range	1000~1500V (1040~1500V for full load discharging)
Number of DC branch	2/4/8
Max. DC current per branch	4808A/2404A/1202A
THDi/THDu	<3%
LC AND AUXILIARY EQUIPMENT	
Aux. Transformer	50kVA, 690V\400V, 50Hz, 3P4W (Consult with Us for Customized)
UPS	Up to 1kVA (0.5h standard) (Consult with Us for more capacity)
Meter	Meters for Aux. Power Consumption and PCS
Communication Method	RS485, CAN, TCP/IP (via gateway)
Cooling Method	Temperature controlled forced air cooling
Output Power	400V/50Hz 3P4W (Power supply for internal equipment)
TRANSFORMER	
Capacity	10050kVA @45°C Based on PCS rated power
Transformer Vector	Oil-immersed transformer
Transformer Protection	Protection relay for pressure, temperature (two levels) and gas.
Oil Retention Tank	Galvanized steel. Integrated with hydrocarbon filter. Optional
Winding Type	Dy11y11 (Consult with Us for customized)
MV AC Voltage level	24/36kV (Consult with Us for other voltage level)
LV AC Voltage	690V (Consult with Us for other voltage level)
AC Frequency	50\60Hz
Efficiency	Tier 2 (From EU548)
Transformer Impedance	5.75%~8%
Cooling Type	ONAN (Based on project requirement)
Insulation Level	Class A
Switchgear Configuration	DeV\CV\CCV (Consult with Us for customized)
Switchgear Protection	Medium-voltage vacuum circuit breaker(V)
Internal arc classification medium-voltage control room (according to IEC 62271-202)	20kA 3s
GENERAL PARAMETER	
Size (W*H*D)/Weight	12192*2896*2438 mm / ⩽35T
Enclosure	IP55 for Overall (IP68 for Transformer IP65 for PCS) C5
PCS cooling method	Air Cooling
Operating Temp.	-40 °C to 60 °C (De-rating over 45 °C)
Operating Humidity	0~95% (No condensing)
Max. Elevation	Standard 1000 m (Consult with Us for other elevation)
Inverter Max. Efficiency	98.5%

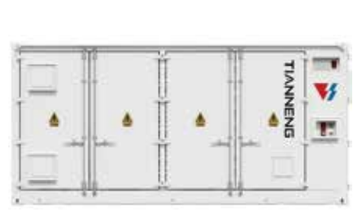
LIQUID COOLED ENERGY STORAGE SYSTEM



PARAMETER

Battery compartment parameters	
Model Name	TN20HC3.0MWH1T1
Rated Voltage of DC Side	1331.2 V
Maximum Voltage of DC Side	1497.6 V
Nominal Energy	3727 kWh
Charge - Discharge Rate Supported	1 P / 1 P
Dimensions (W X H X D)	6,058 x 2,896 x 2,438 mm
Weight of Energy Storage System	⩽ 37 t
Operating Temperature Range	-30°C ~ 50°C
Storage Temperature Range	-40°C ~ 60°C
Operating Humidity Range	0 ~ 95%
Maximum Operating Altitude	4,000 m
Temperature Control Method	Intelligent Liquid Cooling
Communication Protocol	Modbus TCP / CAN
Protection Level	IP55
Corrosion Protection Grade	C 3 C4 C5 (optional)
Product Certifications and Compliance	IEC 62619, IEC 60730-1, IEC 62477, IEC 63056, IEC61000, IEC 62933, IEC60068, UL 1973, UL 9540A, UL9540, NFPA 855, UN 38.3
Battery pack parameters	
Cell Specifications	LFP 3.2V 280 Ah
Number of Cells	104
Nominal Capacity	93.18 kWh
IP Level	IP65
Weight	⩽ 700 kg
Dimensions (Width x Height x Depth)	785 x 249 x 2135 mm





PARAMETER

Battery compartment parameters	Battery compartment parameters
TN20HC5.0MWH2T1	TN20HC5.0MWH4T1
1331.2 V	1331.2 V
1497.6 V	1497.6 V
5016 kWh	5016 kWh
0.5 P / 0.5 P	0.25 P / 0.25 P
6,058 x 2,896 x 2,438 mm	6,058 x 2,896 x 2,438 mm
⩽ 42 t	⩽ 42 t
-30°C ~ 50°C	-30°C ~ 50°C
-40°C ~ 60°C	-40°C ~ 60°C
0 ~ 95%	0 ~ 95%
4,000 m	4,000 m
Intelligent Liquid Cooling	Intelligent Liquid Cooling
Modbus TCP / CAN	Modbus TCP / CAN
IP55	IP55
C 3 C4 C5 (optional)	C 3 C4 C5 (optional)
IEC 62619, IEC 60730-1, IEC 62477, IEC 63056, IEC61000, IEC 62933, IEC60068, UL 1973, UL 9540A, UL9540, NFPA 855, UN 38.3	IEC 62619, IEC 60730-1, IEC 62477, IEC 63056, IEC61000, IEC 62933, IEC60068, UL 1973, UL 9540A, UL9540, NFPA 855, UN 38.3
Battery pack parameters	**Battery pack parameters**
LFP 3.2V 314 Ah	LFP 3.2V 314 Ah
104	104
104.49 kWh	104.49 kWh
IP65	IP65
⩽ 700 kg	⩽ 700 kg
790 x 248 x 2180 mm	790 x 248 x 2180 mm

MOBILE ENERGY STORAGE POWER SUPPLY

Product Overview

The generation of mobile energy storage power supply that helps operators significantly reduce fuel consumption and CO2 emissions while providing excellent performance, low noise and low maintenance costs. It uses high-density lithium-ion batteries and high-efficiency inverter systems to achieve outstanding energy storage and distribution goals.

Compared with traditional products, it has a more compact structure, lower weight, and standard container size design for easy transportation. They are ideal for noise-sensitive environments such as construction site telecommunications at events or in large cities, or rental applications, or working with generators to solve low load problems.



Integrated, high protection structure design, meet the outdoor environment installation and long-term use.and long-term use;

High-density lithium iron phosphate battery system, supporting multiple sets of parallel use, covering the 20kW~1.2MW power range;

One-piece transportation, easy installation, meet a variety of application scenarios;

Quiet design, ideal for noise-sensitive applications;

Compatible with diesel generators and power grid inputs to easily cope with complex working conditions;

Intelligent human-machine interaction design, cloud-based technology plus, remote maintenance and monitoring.

MOBILE ENERGY STORAGE POWER SUPPLY





PARAMETER		
Rated capacity	**71kWh**	**129kWh**
Battery cell	LFP 3.2V 280Ah	LFP 3.2V 280Ah
Rated power	20kVA	60kVA
AC mode	3W+N+PE	
Input voltage	340~440V	
Allowable input frequency	50/60Hz±5HZ	
Rated input current	29A	90A
Power factor	±0.99	
Overload capacity	110% for long-term; 120% for 1min	
On/off-grid switching	Possess	
Rated output voltage	400V	
Rated output frequency	50/60Hz	
Output voltage deviation	⩽2%	
Output voltage unbalance	⩽1%	
Harmonic (THD)	⩽3% (Pure resistive load)	
Cooling	Intelligent Air Conditioner	
Communication interface	RS485 / CAN / Ethernet	
HMI	Touch screen	
Remote data monitoring	Equipped	
Cloud platform access	Equipped	
Operating temperature	-20°C ~ 50°C (Capacity reduction above 45°C)	
Operating humidity	⩽95% Without condensing	
Altitude	⩽4000m; >2000m derated	
Weight	⩽850kg	⩽1500kg
Dimensions (W×D×H)	1000×1670×1100mm	1100×2300×1730mm
Fire extinguishing system	Aerosol fire extinguishing system	

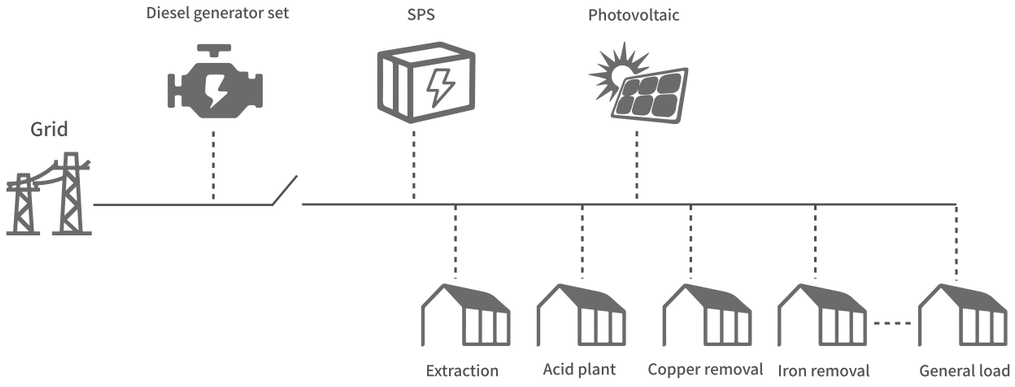




PARAMETER		
602kWh	**645kWh**	**1204kWh / 1290kWh**
LFP 3.2V 280Ah	LFP 3.2V 280Ah	LFP 3.2V 280Ah
300kVA	300kVA	630kVA
	3W+N+PE	
	340~440V	
	50/60Hz±5HZ	
432A	432A	909A
	±0.99	
	110% for long-term; 120% for 1min	
	Possess	
	400V	
	50/60Hz	
	⩽2%	
	⩽1%	
	⩽3% (Pure resistive load)	
	Intelligent Air Conditioner	
	RS485 / CAN / Ethernet	
	Touch screen	
	Equipped	
	Equipped	
	-20°C ~ 50°C (Capacity reduction above 45°C)	
	⩽95% Without condensing	
	⩽4000m; >2000m derated	
⩽11000kg	⩽11000kg	⩽20000kg
2991×2438×2896mm	2991×2438×2896mm	6058×2438×2896mm
	Aerosol fire extinguishing system	

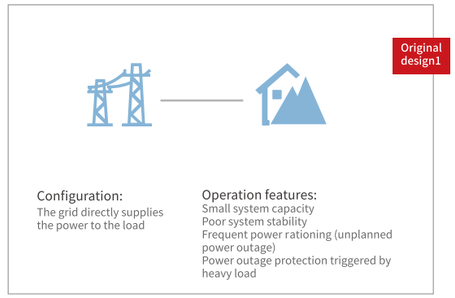
MEDIUM VOLTAGE SPS (SEAMLESS POWER SUPPLY) SYSTEM

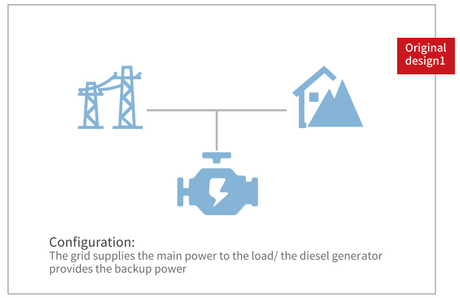
SPS for Mines

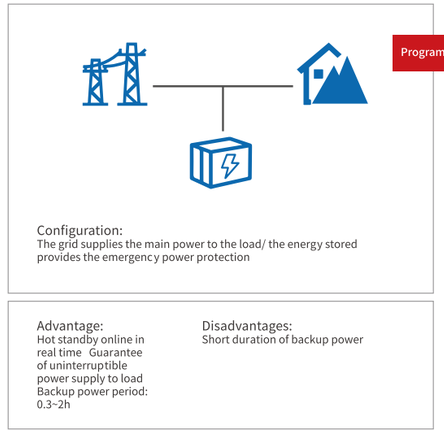


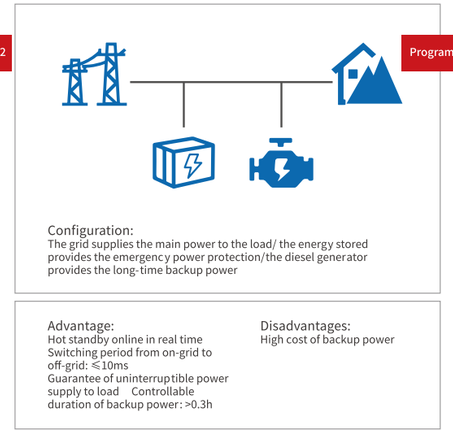
Such weak grid areas exhibit distinguishing features including limited power system capacity, compromised grid stability, supply-demand imbalance, and frequent power rationing (unplanned power outages) or large load throw-cut triggering higher-level relay protection. This condition can result in severe economic losses, such as shutdowns of production lines, equipment damage, and reduced capacity in mining operations.

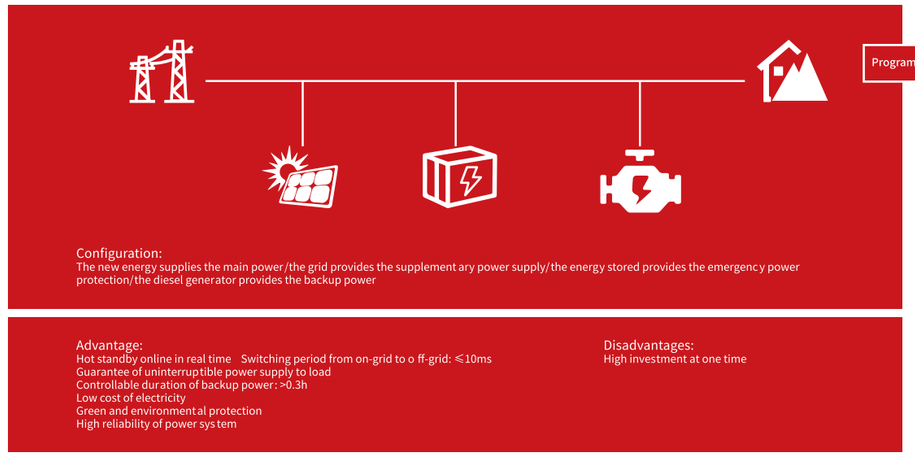
The BESS type terminal voltage regulation device is an innovative solution to the problem of low voltage at the end of weak grid structures. Its operation capabilities are flexible, reducing line power loss and voltage drop through local active support, thereby meeting various application scenarios.











PROJECT CASES

PROJECT CASES



Datang Lubei Energy Storage Project

100MW/200MWh



China Southern Power Grid Chengbei Station Energy Storage Project

15MW/30MWh



Yuanhe Energy Hunan Liyujiang Thermal Power Frequency Modulation Project

12MW/12MWh



Huzhou Changxing Jinling Energy Storage Project

12MW/48MWh



"Heping smart storage" Comprehensive Smart Energy Shared Energy Storage Project

100.8MW/1061.683MWh



Changqiang steel plant energy Storage Project

25.2MW/243.3MWh

PROJECT CASES



MIZUDA Group Energy Storage Project

1MW/2MWh



Jiangsu Shuyang Energy Storage Project

0.6MW/4MWh



Huzhou Production and Investment Energy Storage Project

10MW/20MWh



Tianneng Battery Group Headquarters Energy Storage Project

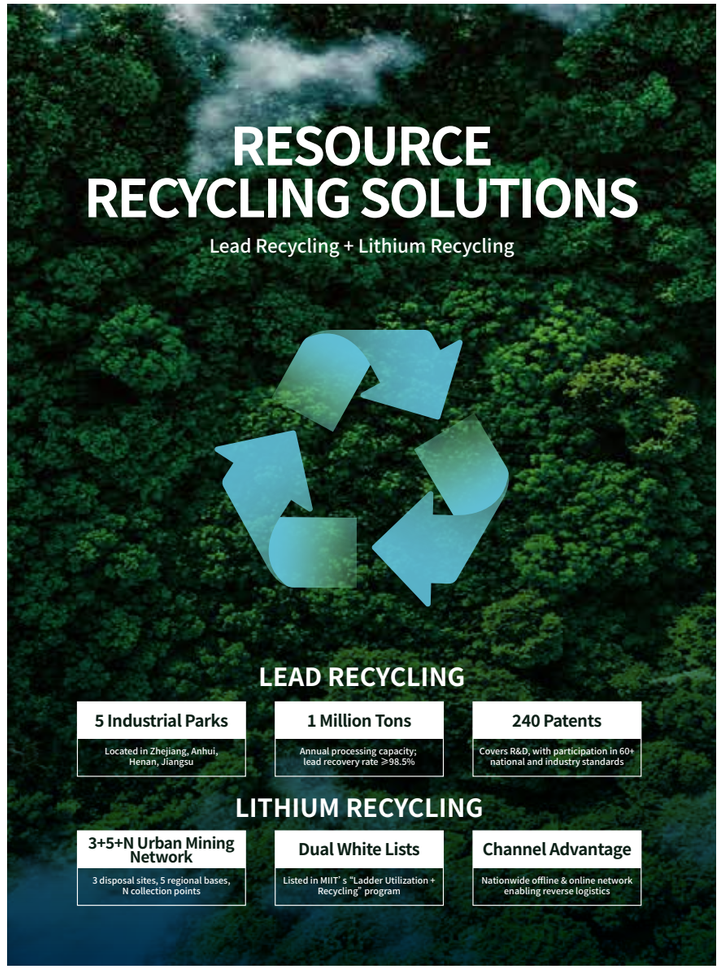
5MW/10MWh

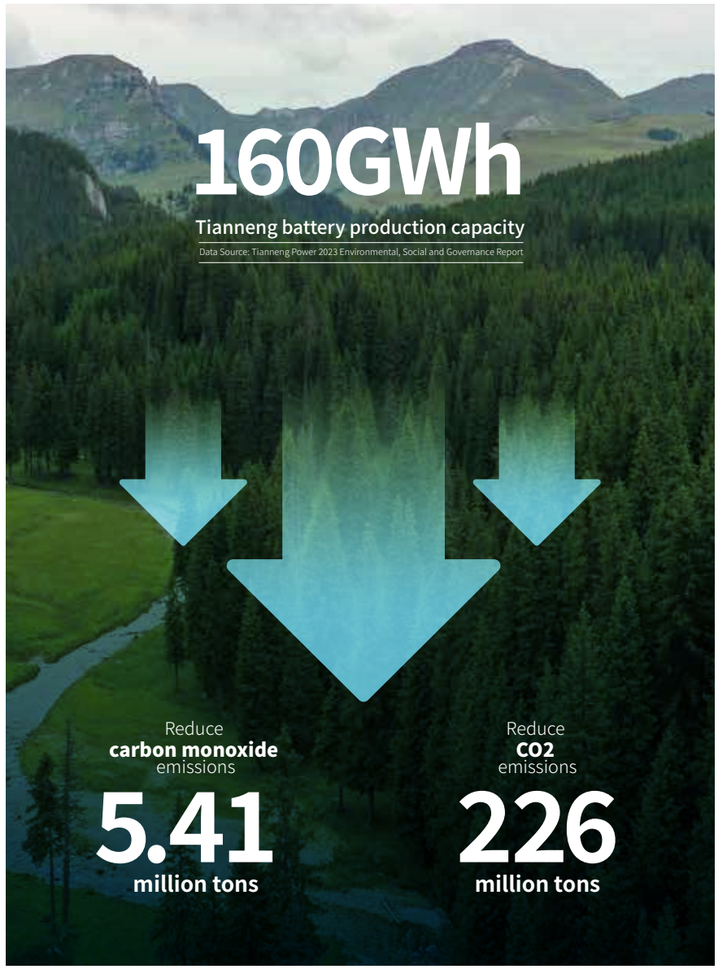
PARTNER

- State Grid Corporation Of China
- Eaton(Us)
- Ethio Telecom (Ethiopia)
- Zte Corporation
- China Southern Power Grid
- China Datang Corporation Ltd.
- China Energy Conservation & Environmental Protection Group
- China Energy Engineering Corporation Limited
- China Three Gorges Renewables (Group) Co., Ltd.
- State Power Investment Corporation Limited
- China Silver Group
- China power construction group co. LTD
- China Huaneng Group Co.,Ltd.
- Zhejiang Energy Group Cp Ltd.
- China Unicom
- Gansu Golden Specialized Fund
- Xi'an Energetic Intelligence Technology Co.
- China Railway Construction Corporation Limited
- JD Energy
- Huzhou Industrial Group
- Philtower Consortium Inc.
- Towngas
- Beijing Yuanhe Energy Co.
- Eternal Aisa
- الراجحي للاتصالات AL RAJHI TELECOM

SOCIAL RESPONSIBILITY

SUSTAINABILITY & BATTERY CIRCULAR ECONOMY







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Tianneng Group

Website

Electronic brochure