

CONNECTION TO FUTURE

STOCK CODE: 300351



JS Yonggui New Energy Technology

Excellent rail transit lithium battery system service provider



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Our Company

Yonggui Company (“YGC”) is a **high-tech enterprise** with 50+ years expertise focused on the research and development, manufacturing, sales and technical support of connectors, connector systems and smart precision products. It was listed on **Shenzhen Stock Exchange** in September 2012. The products are distributed in the three major fields of **new energy and vehicle (56.56%)**, **railway and industrial (37.45%)**, **special market (5.99%)**.

Yonggui has **837 national patents**, and has obtained ISO 9001, ISO/TS 22163, CRCC, ETL, UL and IATF16949 certifications.



Market Value

¥7.012B(\$1.031B)



Consolidated sales

¥ 2,242M (\$329.7M)



Employee

~3171 (30.4% engineers)

Our Customers Around Global

China



Rest of APAC



Europe



America



Products – Railway Connectors

Electric coupler, integrated vehicle end connector



Control, high-low voltage, signal vehicle end connector



Control, network, division console connector



Control, network, AC connector



Integrated cabinet & Jumpers

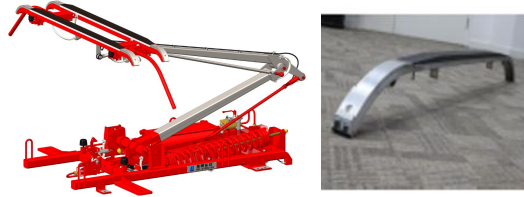


Products – Railway Connection Systems

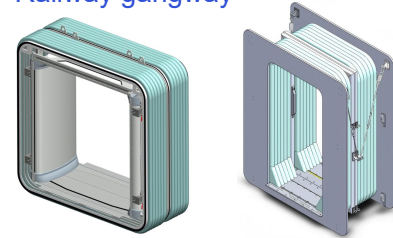
Axle counter



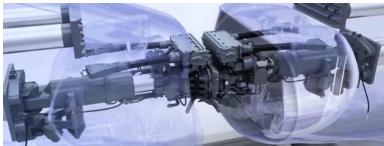
Pantograph & carbon slide



Railway gangway



Automatic Coupler System



Door system



Battery System





Jiangsu Yonggui



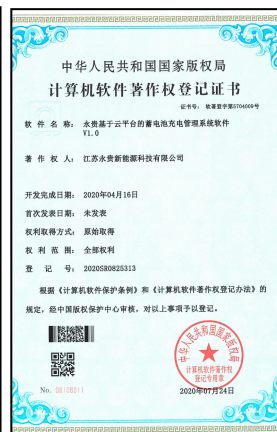
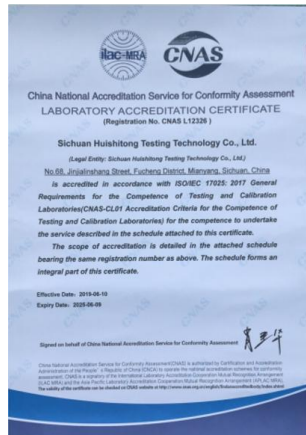
➤ Jiangsu Yonggui focuses on the application and development of rail transit lithium -ion battery system.

- 20 years of battery management system (BMS) development and application experience.
- 10 years of lithium battery system and charging product development and application experience.
- More than 100,000 units in service products.

➤ Qualification certification

- ISO/TS 22163
- ISO 9001
- ISO 14001
- ISO 45001

➤ intellectual property right 24 patents



Manufacturing Capacity

- **Manufacturing field:** Plant area 53000m²
More than 50 sets of advanced production equipment.



Sheet Metal Processing



Precision Machining



Injection Molding



Welding Processing



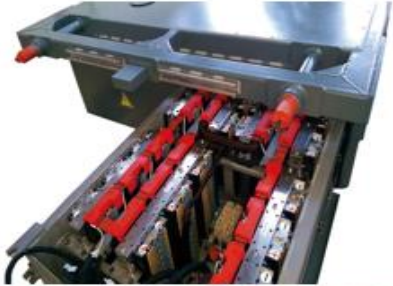


Part1 Battery System

Rail Transit Application Introduction

Technical Innovation Ability

- R & D team: 26 battery system design experts, including 3 Phd
- Products: Auxiliary power, emergency traction power, power battery supply
- Applications: EMUs, Municipal EMUs, Metro Trains, Magnetic Suspending Trains, Trams
Trams, locomotives, etc.



Technology Advantage

- At present, lithium batteries in rail transit projects mainly use **lithium titanate batteries** ;
- Compared with traditional batteries, lithium titanate batteries have the advantages of **light weight, long life, high rate** , and better safety than other types of lithium batteries.

Performance Indicators	Sodium Battery (Polyanion)	Lithium titanate battery	Lead-acid battery	Nickel-cadmium battery
Applied Reference	(Commercial Vehicles / Energy Storage)	Fuxing Hao / Next-Generation High-Speed Rail / High-Speed Maglev / Regional EMUs / Hydrogen-Powered EMUs / Subway / Trams	Subway / Motorcycle / Locomotives	Fuxing /Urban train / Subway/Tram, etc.
Nominal Voltage V	3.1	2.3	2	1.2
Energy Density Wh/Kg	80~106	80~106	35 to 40	50 ~ 60
Working Temperature °C	-40~55	-40 ~ 55	-30 ~ 40	-40 ~ 55
Charge And Discharge Rate C	5C (peak 10C)	5C (peak 10C)	0.25C (peak 1C)	0.5C (peak 2C)
Cycle Life (cycles)	10000	20000	800	2000
Self-discharge Rate (%/ Month)	1~2	1 to 2	4 to 6	15 to 20
Memory Effect	None	None	None	Have
Security	High	High	High	High
Environmental Protection	Green and environmentally friendly 100% recycled	Green and environmentally friendly 100% recycled	Not environmentally friendly recyclable	Not environmentally friendly not recyclable
Maintenance Requirements	Maintenance-free	Maintenance-free	Regular charging and maintenance is required	Regular charging and refilling maintenance is required

Battery System Rail Transit Application Advantages

- ◆ High Safety: Titanate batteries and sodium batteries avoid internal short circuits with excellent safety performance.
- ◆ Energy Saving & Emission Reduction: Vehicle weight is reduced by 1–2 tons, cutting train energy consumption, and saving RMB 200,000 in electricity costs throughout the full life cycle.
- ◆ Cost Reduction & Efficiency Improvement: Cut battery maintenance costs by 80% and battery replacement costs by 90%.
- ◆ Intelligent Operation & Maintenance: Real-time system status monitoring enables condition-based maintenance, effectively reducing expenses from excessive maintenance.
- ◆ Low-temperature Adaptability: Normal operation at -40°C to fully guarantee stable train operation.
- ◆ Power Traction Capability: Supports mainline rescue and depot shunting, lowering the operation cost of shunting locomotive scheduling.
- ◆ Eco-friendly & Green: Zero pollution and 100% recyclable.

Titanate lithium battery / sodium battery systems are applicable to the new manufacture and overhaul of metro trains. They fully embody the characteristics of new quality productive forces, highly conform to high-quality development requirements, and deliver outstanding economic and social benefits.

Rail Transit Application Achievements of Battery System

- ◆ High-speed & EMU Trains: Over 300 Fuxing EMU trains have been in safe operation for more than eight years.
- ◆ Suburban EMU Trains: Covering more than 10 routes in Chongqing, Ningbo, Chengdu, Guiyang and other cities, with over 100 suburban trains in service.
- ◆ Metro Passenger Trains: Serving over 20 routes in Beijing, Tianjin, Qingdao, Chongqing and other cities, with more than 300 metro trains deployed.
- ◆ Metro Engineering Vehicles: Operating on over 10 routes in Xi'an, Ningbo, Jinan and other cities, including more than 30 engineering and technical operation vehicles.
- ◆ Other Applications: Hybrid shunting locomotives, freight EMUs, inspection vehicles, maglev trains (high/medium/low-speed), and trams.
- ◆ Overseas Applications: More than 100 sets of Tokyo Metro 2000 series trains and over 800 sets of Japan Shinkansen N700/N700S trains; Projects and services delivered to Germany, Romania, Malaysia and Serbia.

Yonggui Honor List — Participated in 6 Major National Key Projects Simultaneously

CRH400BF – Fuxing EMU

Over 300 units in safe operation for more than 8 years, with zero cell failures recorded. Auxiliary power supply: Emergency power for lighting, fresh air systems, and on-board equipment.

600 km/h High-Speed Maglev Train

Auxiliary power supply: Emergency power for lighting, fresh air systems, and other devices.

160 km/h Hydrogen-Powered EMU

Auxiliary power supply: Emergency power for lighting, fresh air systems, and on-board equipment.
Traction power supply: Peak power assistance during vehicle startup, and regenerative braking energy recovery.

CR450 Next-Generation High-Speed Train

Auxiliary power supply: Emergency power for lighting, fresh air systems, and other devices.

Sichuan-Tibet Railway EMU (Tunnel ratio: 80%)

Auxiliary power supply: Emergency power for lighting, fresh air systems, and other devices.
Traction power supply: Emergency traction for up to 30 km to facilitate passenger evacuation.

250 km/h Hydrogen-Powered EMU

Auxiliary power supply: Emergency power for lighting, fresh air systems, and on-board equipment.
Traction power supply: Peak power assistance during vehicle startup, and regenerative braking energy recovery.



Part 2

Yonggui Core Technical Advantages

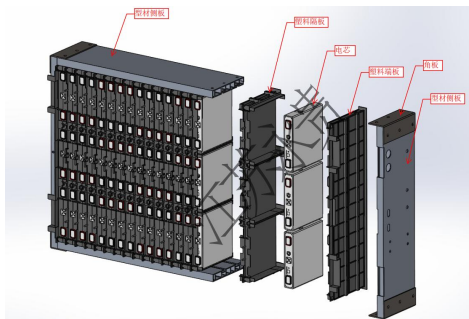
Yonggui Technical Advantages

It boasts comprehensive technical advantages in mechanical structure, electrical systems, electromagnetic compatibility, materials, thermal management, processing technology, inspection and other fields, and is committed to manufacturing high-quality products.

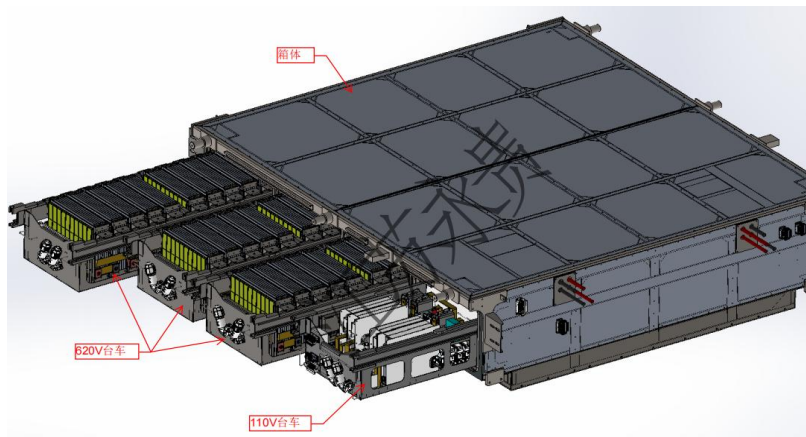
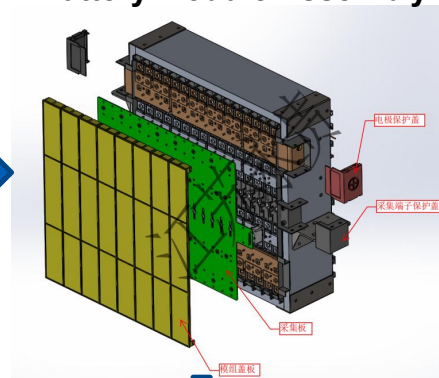
Cell



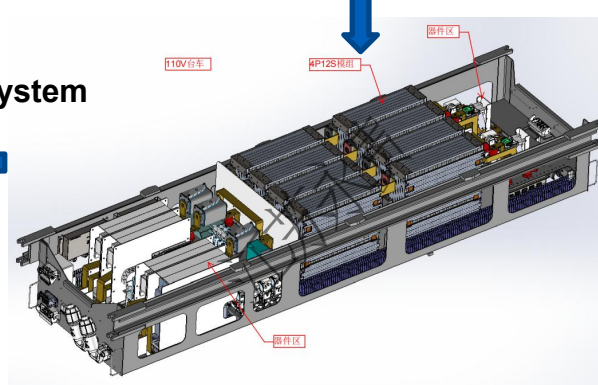
Battery Module



Battery Module Assembly



Battery System



Battery Bogie

Testing Center Advantages

A strong support for product design and product quality.

Experimental Center: 1,600 m²
Equipment Quantity: More than 100 sets
Total Equipment Assets: 10 million yuan

Environmental

Laboratory

Test product resistance to temperature and humidity, and verify high and low temperature performance.

- Electrical Performance Test
- Environmental Test
- Mechanical Performance Test
- Physical & Chemical Test
- Protection Performance Test
- Mechanical Life Test
- Simulation Laboratory



Advantages of the Testing Center

A strong support for product design and product quality.

Electrical Laboratory

Conduct electrical
performance testing on
products.



Test & Analysis Lab

Conduct basic
performance testing
on products.



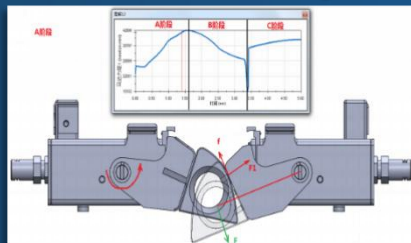
Mechanical Laboratory

Conduct mechanical
performance testing for
products.

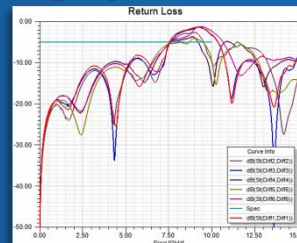
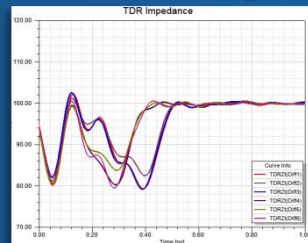


Engineering Simulation & Analysis Capability

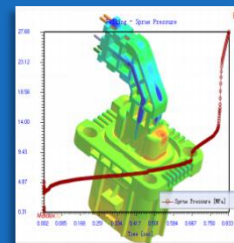
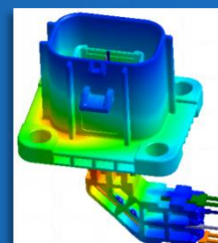
Structure Strength



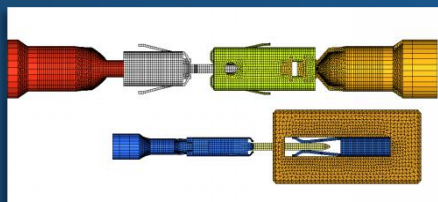
Signal Integrity



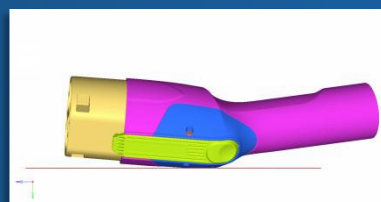
Mold Flow



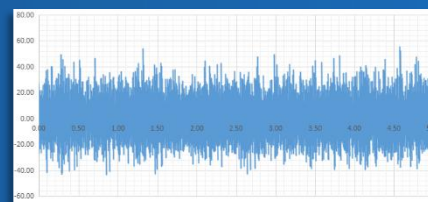
Thermal Analysis



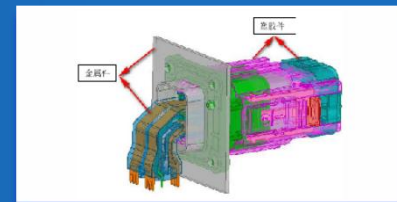
Drop Test



Transient Simulation



EMC



Battery Management System SIL2 Certification Advantages (LR Certification)

Significance of SIL Safety Certification Assessment for Battery Management Systems

The Battery Management System (BMS) serves as the brain of the battery system. It monitors the voltage and temperature of single cells, as well as the current, health status and other data of the battery system. With dedicated control strategies, it delivers multi-layer safety protection for the battery system, maximizing its operational safety. Given the critical role of BMS, the safety assessment of the system itself is of great significance.

Introduction to SIL Safety Certification Body for Battery Management Systems

Certification Body: LRQA Industrial Services (Shanghai) Co., Ltd.

Originated from Lloyd's Register Group founded in the United Kingdom in 1760, LRQA is one of the world's leading providers of assurance services.

Advantages of BMS SIL2 Certification (LRQA Certification)

From the conceptual design and planning of the Battery Management System (BMS), to risk analysis, requirement analysis, architecture design, detailed design, implementation, development and testing, system integration and system validation, the safety certification authority has comprehensively reviewed and evaluated all design, development, testing, verification and validation activities throughout the entire life cycle of the BMS.

Meanwhile, it conducted an all-round audit on the company's quality management system, quality management activities, reviews, changes and other related processes, and performed on-site witnessing and inspection of testing activities.

Final evaluation conclusion: The Battery Management System designed and developed by Jiangsu Yonggui meets the safety requirements of SIL2 level.



证书

本证书颁发给江苏永贵新能源科技有限公司：

客户名称：	江苏永贵新能源科技有限公司 江苏南京经济技术开发区红枫科技园 D4-1 栋
评估项目：	YGBMS-T 型 电池管理系统；版本 V1.0 (BCU 主控单元 YGBMS101；硬件 V01，软件 00.05， BMU 从控单元 YGBMS201；硬件 V01，软件 00.03)
评估标准：	EN 50126: 2017 EN 50128: 2011 EN 50129: 2018
评估报告：	YGBMS-T 型电池管理系统评估报告 文档编号：NTH2388007-HR-01；版本：Final；日期：2024 年 1 月 31 日
评估结论：	基于对 YGBMS-T 型电池管理系统进行的评估，上述 YGBMS-T 型 电池管理 系统（版本 V1.0）满足/EN 50126/和/EN 50129/定义的针对通用应用产品 开发的 SIL2 安全完整性要求以及/EN 50126/的适用条款要求。
评估日期：	2023 年 8 月至 2024 年 1 月

备注：
本证书基于上述完整的评估报告签发，结合使用方有效，且只能重复使用。

证书编号：NTH2388007-CEH-01
签发日期：2024 年 1 月 31 日
签发号：01



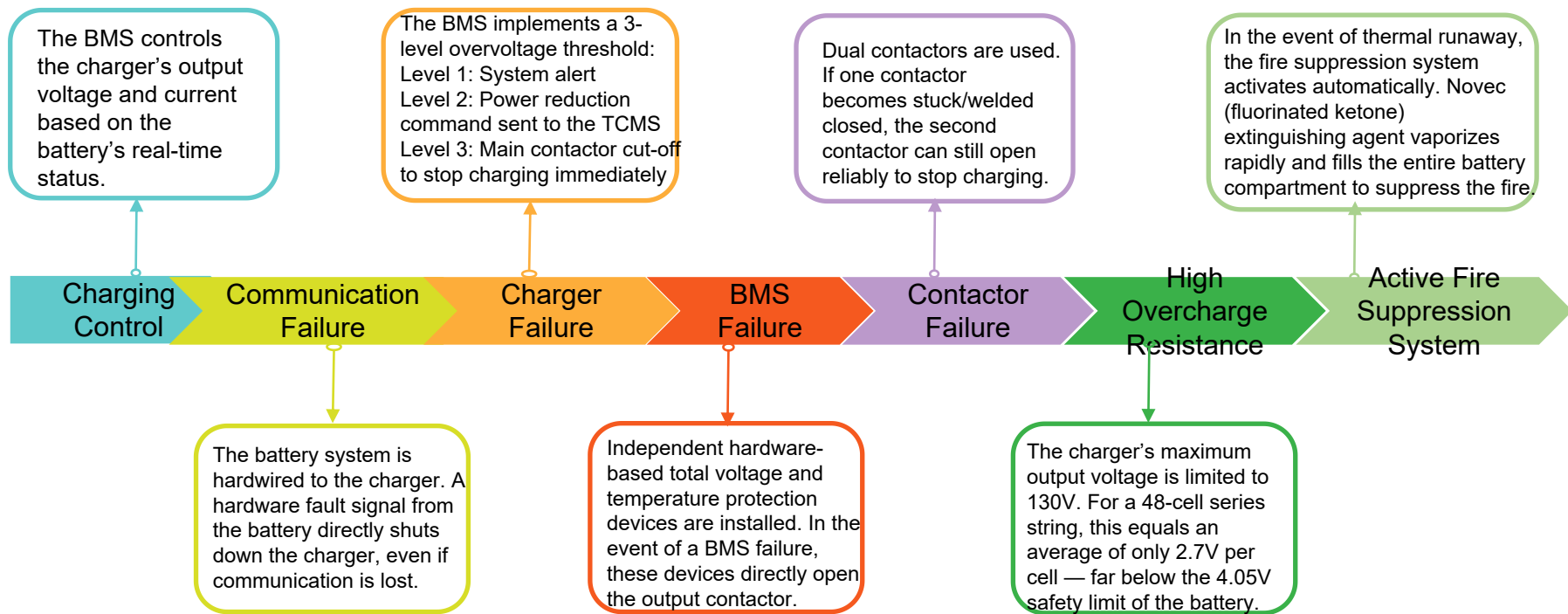
授权签字人

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Page 1 of 1



Seven-tier Safety Protection Strategy — Ensuring Battery System Safety



The system adopts seven layers of safety protection measures to effectively prevent severe overcharging of batteries and ensure the safety of the battery system.



Part 3 Battery System

Rail Transit Performance Statistics

Project Performance – National Advanced R&D Projects

No	Customer	Project	Battery System Functions	Quantity
1	CRRC Changke / Tangshan	Fuxing EMU	Auxiliary power supply	55
2	CRRC Sifang	The 600 km of high-speed maglev suspension	Auxiliary power supply + the suspension	1
3	CRRC Sifang	Hydrogen energy intelligent intercity bullet train	Auxiliary power supply + power supply	1
4	CRRC Sifang	The CR450 Next Generation HSR	Auxiliary power supply	1
5	CRRC Sifang	Sichuan-Tibet line	Auxiliary power supply + emergency traction	1



Project Performance – Metro Lines

No	Customer	Project	Battery System Functions	Quantity	SOP
1	CRRC Changke	Chongqing Line 27	Auxiliary power supply + emergency traction	32	2025-2026
2	CRRC Sifang	Qingdao Metro Line 7	Auxiliary power supply + emergency traction	30	2024-2025
3	CRRC Sifang	Jiaozhou L1	Power supply	25	2023-2024
4	CRRC Puzhen	Shaoxing Metro Line 2	Auxiliary power supply + emergency lead	7	2022
5	CRRC	Tianjin Metro Line 1 for additional purchase	Auxiliary power supply + emergency lead	4	2024
6	CRRC Puzhen	Shenzhen Metro Line 6 branch line	Auxiliary power supply + emergency lead	2	2022
7	CRRC Dalian	Taiyuan Metro Line 2	Auxiliary power supply + emergency traction	2	2020



Project Performance – High Speed Trains

No	Customer	Project	Battery System Functions	Quantity	SOP
1	CRRC Changke	City bullet train	Auxiliary power supply	11	2021
2	CRRC Pu Town	City bullet train	Auxiliary power supply	2	2022
3	CRRC Changke	400 km EMU (high and cold)	Auxiliary power supply	1	2019
4	CRRC Tangshan	Cargo bullet train	Auxiliary power supply	1	2019
5	CRRC Tangshan	High-speed testing vehicle	Auxiliary power supply	1	2019
6	CRRC Dalian	Low speed maglev	Auxiliary power supply + the suspension	1	2010
7	CRRC strain machine	Medium speed magnetic levitation	Auxiliary power supply + the suspension	1	2020

Project Performance – Other Trains

No	Customer	Project	Battery System Functions	Quantity	SOP
1	CRRC	Pure electric tram	Power supply	15	2023-2024
2	CRRC Sifang	Lishui hydrogen-powered tram	Power supply	12	2024-2025
3	CRRC	Harbin engineering car	Power supply	2	2019
4	Shanghai Railway Bureau	Dongfeng 7 shunting machine	Power supply	5	2021
5	Shanghai Railway Bureau	machineshop truck	Power supply	1	2020





Part 4

High-Power Energy Storage System

Ultra-high Power Energy Storage System Solution

Advantages of Lithium Titanate Energy Storage:

- **High Safety:** Recognized as the safest lithium battery available on the market.
- **Ultra-high Power:** Supports continuous charge and discharge at 20C, and short-term operation at 40C.
- **Ultra-long Service Life:** A cycle life ranging from 30,000 to 100,000 times.
- **Excellent Low-temperature Performance:** Enables discharge at -40°C with a discharge capacity retention above 70%.
- **Ultra-high Power Density:** Greatly reduces the required capacity and installation space of energy storage systems in peak shaving and frequency regulation scenarios. (5MW/364kWh)
- Core strengths include peak shaving capability, cost reduction & efficiency improvement, and outstanding operational flexibility.

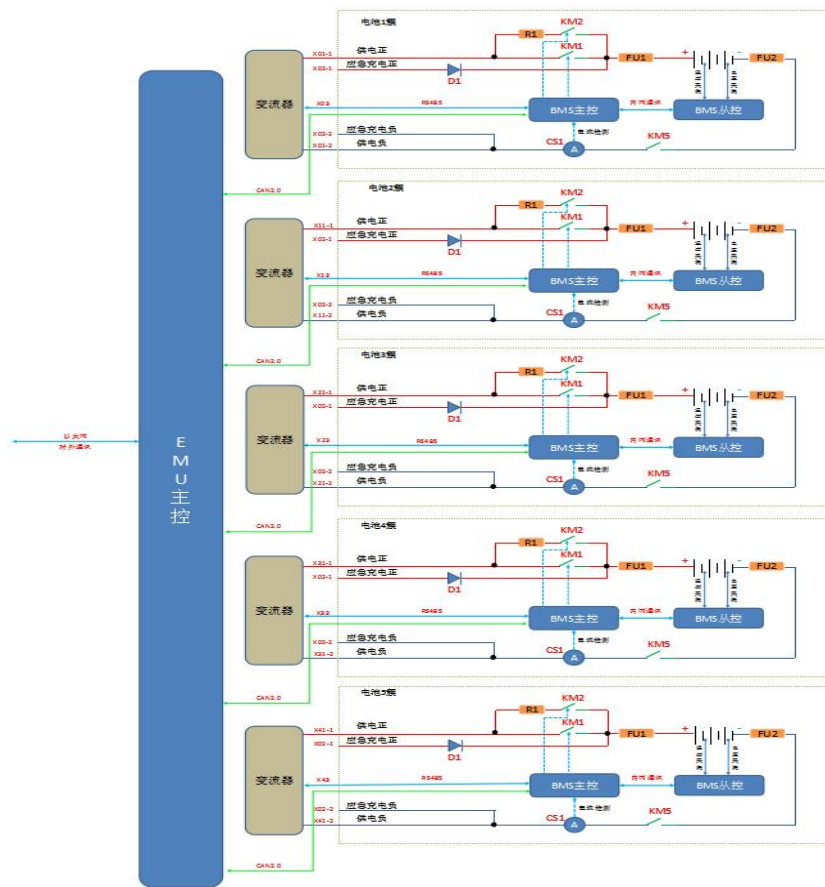
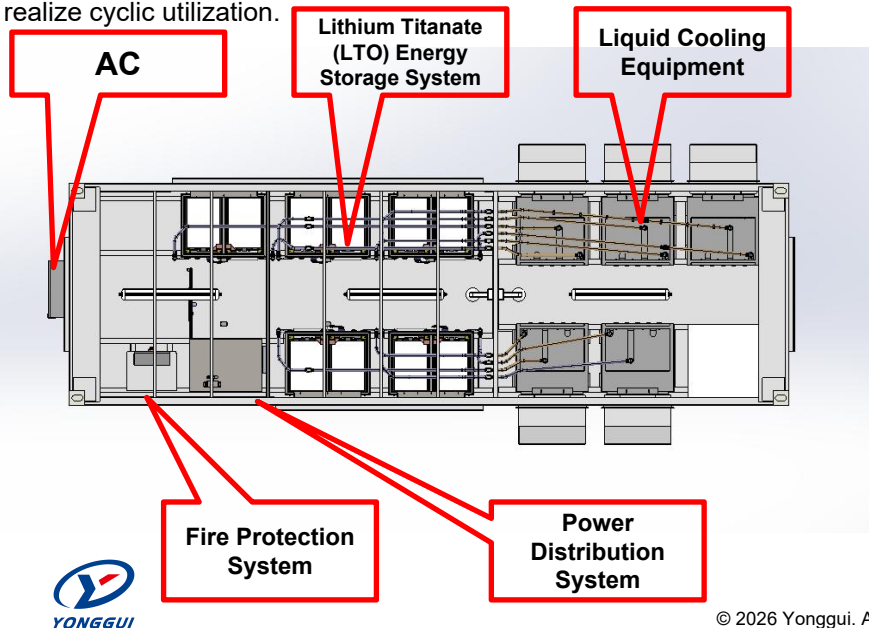


No.	Item	Parameters
Electrical Parameters	Energy Storage Capacity	364kWh
	Cell Type	High-power lithium titanate battery
	Rated Output Voltage	DC910V
	Output Voltage Range	DC585~DC1010V
	SOC Operating Range	5%~95%
	Max. Continuous Output Current	5500A
	Max. Continuous Input Current	5500A
	Dielectric Strength	Leakage current ≤ 20mA
Electrical Interface	高压输出接口	1000V/1100A
	Power Supply Interface	Input: 3-phase 380V 25A
	Communication Interface with Bidirectional DC/DC	CAN2.0B
	System Monitoring Interface	Ethernet
	Video Interface	Ethernet
Mechanical Parameters	Maximum Overall Dimension	12m standard container
	Weight	15t
	IP Rating	Not less than IP54
	Cabinet Color	7035
	Container Color	7035



Ultra-high Power Energy Storage System Solution

- (1) Discharging: When a train starts traction, the lithium titanate energy storage system discharges electric energy to the converter. The converter then feeds power to the catenary, reducing the peak output power of the substation and effectively cutting users' electricity costs.
- (2) Absorption: Electric energy generated by train traction and braking is fed back to the lithium titanate energy storage system via the converter for energy storage. The stored power can be discharged for subsequent use to realize cyclic utilization.



Our clients

CRRC Zhuzhou Electric Locomotive Co., Ltd.
CRRC Tangshan Locomotive & Rolling Stock Co., Ltd.
CRRC Dalian Locomotive & Rolling Stock Co., Ltd.
CRRC Nanjing Puzhen Rolling Stock Co., Ltd.
CRRC Datong Electric Locomotive Co., Ltd.
CRRC Changchun Railway Vehicles Co., Ltd.
CRRC Qingdao Sifang Locomotive & Rolling Stock Co., Ltd.
China Railway Shanghai Bureau Group Co., Ltd.
China Railway Shenyang Bureau Group Co., Ltd.
China Railway Harbin Bureau Group Co., Ltd.
Shenzhen Metro
Tianjin Metro
Qingdao Metro
Jinan Rail Transit
Shaoxing Rail Transit
Chongqing Railway
Foshan Railway Investment
Chengdu Transport Investment

Service Commitment

Existing Offices

- ◆ Northeast China (Harbin, Changchun)
- ◆ North China (Beijing, Qingdao, Tangshan)
- ◆ South China (Shenzhen)
- ◆ East China (Nanjing, Shanghai, Hangzhou)
- ◆ Central China (Wuhan, Zhuzhou)
- ◆ Western China (Chengdu, Xi'an)

Service Philosophy

We are committed to providing full-process services including pre-sales, in-sales and after-sales support, with a 3-hour response time and on-site arrival nationwide within 24 hours.



Our Culture

» Vision



**World class inter-
connect supplier**

» Mission



**Technology
connection to future**

» Core Value



**Diligence &
cooperation**

Contact us

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