



Connect future with technology

# Yonggui Electric Equipment

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Connection and Interconnection Technology Solution



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## Introduction/



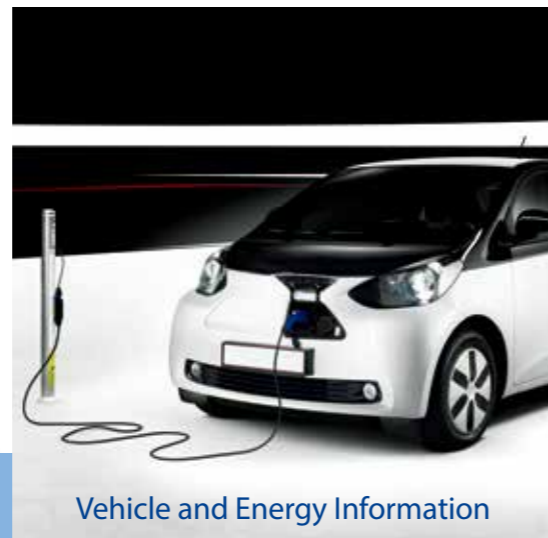
Zhejiang Yonggui Electric Equipment Co., Ltd.( short name “Yonggui Electric Equipment”, stock code“300351”) is a National High-Tech Enterprise established in 1973 which covers Rail Transportation and Industry, Vehicle and Energy Information, Special Equipment, etc.; it has a complete system of Independent research and development, mass manufacture, and high quality service. It has gone public in Shenzhen Stock Exchange on September 20th 2012. Yonggui has 7 wholly-owned and 10 holding subsidiaries, more than 2,000 employees, access more than 300 items of national patents. Headquartered in Tiantai,Zhejiang .

Yonggui insists on independent innovation, open innovation and collaborative

innovation and continuously technology innovation system to form a strong technology innovation capability. The company owns the professional and large-scale manufacture base with excellent equipments and advanced crafts, which forms eight product platforms of connector, door system, gangway, pantograph, damper, axle counting system, storage battery system of rail transit, and carbide sliding strip, and the manufacture level lies in the leading position of the industry.

In the future, Yonggui will continue to carry out its mission that connects the future with technology. Yonggui will continuously create value for the clients and the society by committing itself to being first-class in China, internationally well-known, multi-field, multi-industry, high end equipment system solution manufacturer.

# Application/



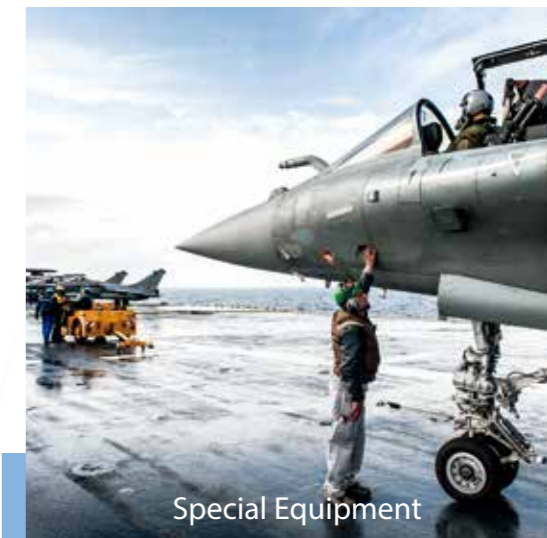
Vehicle and Energy Information

Vehicle and energy information sector products mainly include: high-voltage connectors and wiring harness assemblies, PDU/BDU, charging/exchanging interfaces and wiring harnesses, AC/DC charging guns, high-current liquid-cooled DC charging guns, waterproof connectors, power supply/signal/ Energy storage/charging connectors, 5G equipment connectors, etc., among which in-vehicle products provide overall solutions for high-voltage, high-current interconnection systems for the electric vehicle field;It has entered the supply chain system of domestic first-line brands and joint venture brands such as Geely, Great Wall, BYD, BAIC, SAIC, FAW, and Honda; energy information products are mainly used in communication base stations and various communication network equipment and energy storage equipment, etc., supporting services for Huawei , ZTE, Datang Mobile, Vertiv and other companies.



Rail Transportation and Industry

Rail transit and industrial products mainly include: connectors, dampers, door systems, Axle Counter System, gangways, pantographs, battery system, etc., which are mainly used in railway locomotives, passenger cars, high-speed trains, subways, maglev, etc. On vehicles and rail lines; supporting supply to CRRC Group, China National Railway Group Co., Ltd. and urban subway operating companies with rail transit. In the field of wind power, it can provide overall electrical interconnection solutions and products within and between the converter system, the slurry system, the main control system, and the slip ring system.



Special Equipment

Special equipment segment products include partially mounted circular electrical connectors, partially mounted micro-rectangular electrical connectors, cabinet connectors, nuclear connectors, partially mounted circular multi-core optical fiber connectors, partially mounted network port connectors, glass sintered connections Connectors, internal deep-water connectors, internal radio frequency connectors, and other special custom-developed special internal connectors and related cable assemblies, etc., are mainly used in various special equipment.

# Connector/



Connector Integration Solution



Connector Customization Solution



As a connector professional with years of professional experience, Yonggui concentrates on the R&D and manufacturer. Adhering to the concept of development, The company provides innovative, sustainable and efficient solutions to meet different customers' needs.

In order to provide competitive advantage to the clients, Yonggui holds the principles of market and innovation, participates the early design and basic research of client's project, develops the product and system for specific applications, offers different connectors and system integration solutions according to the specific client requirements delivers new product faster while enhances the production efficiency.

High performance connecting technology is the foundation of industrial application and product technology. The product series and solutions of Yonggui include connectors, equipment connection technology, network components, electrical cabinet and integration. According to the specific requirements of customers, combined with the development of rail transit technology and reliable connection technology experience, research and design the best solution for customers with the highest standards of products and technical services.

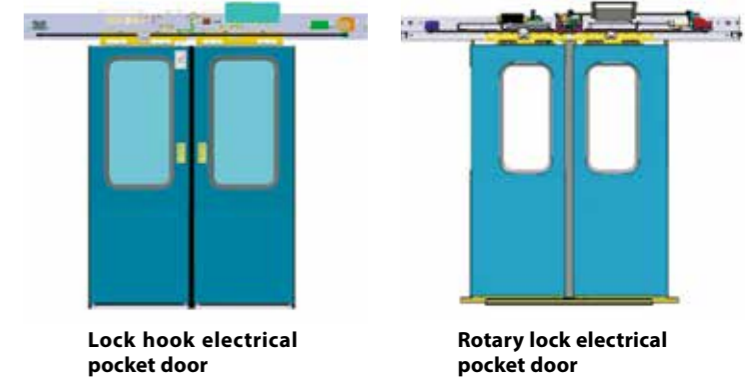
Through the connector product custom design, Yonggui provide customers with personalized solutions to meet market development Yonggui has a wealth of experience and reliable professional knowledge, to provide personalized solutions to meet the different needs of customers, the fact that these programs are more cost-effective. Whether it's a connector or a complex integrated system, our design is dedicated to providing reliable, cost-effective system solutions.

# Door System/



Yonggui Bode, the real "BODE", as it is the sole owner of Germany Bode technology in China. The company has a core technology research and development group and a team of professional and technical workers trained in Germany. It has the mature and reliable proprietary technology of Germany Bode sliding pocket door, sliding plug door and double-panel airtight sliding plug door. In the production process and manufacturing management practice, it uses the assembly, bonding and other technologies and processes of Germany Bode door to carry out the general assembly, test and inspection of the door.

Since its establishment in 2017, the company has been equipped with independent research and development technology, whose products have been 100% localized, and has achieved more than 30 urban rail transit lines. The products have been successively served in many metro cities such as Taizhou, Shaoxing, Jinhua, Chengdu, Xi'an, Tianjin, Changchun, Shenyang and so on. Its existing product technology is at the leading level in the same industry. It also interacts with Germany Bode research and development department in real time to jointly develop a new generation of product categories to meet the diversified needs of the development of domestic rail transit.



The electric sliding pocket door manufactured by the company is simple, reliable and easy to maintain. The roller pulley electric sliding door has one more locking point than other products of the same category, and is praised as "the safest sliding plug door in the world" by the industry. The double-panel airtight sliding plug door, with the most advanced structural design from Germany, has well filled the development needs of domestic city and intercity train doors.



# Gangway/



Through the development of gangway from year 2010 , it has independently developed metro model A, B, AS, straddle monorail gangway products. Mainly used in municipal intercity railway, urban metro, monorail, air rail, magnetic levitation and other domestic and foreign rail transit vehicles, and exported to Indonesia, India, Saudi Arabia, South Korea, Argentina and other overseas rail projects.

The main gangway products of Yonggui are provided by CRRC Changke, CRRC Sifang, CRRC Puzhen, CRRC Zhuji, CRRC Tangshan, CRRC Dalian, CRRC Bombardier, Beijing Jingche and other vehicle depot.



Suburb railway model D gangway



Metro model AS gangway



Metro model B gangway



Metro model A gangway

# Pantograph/



The unique Pan head design ensures good follow-up performance of the contact lines, the pantograph and contact lines interact well, and the function is more stable. The smaller static contact force reduces the material abrasion of the carbon strip and saves the cost. The segmented carbon strip design further reduces the amount of operation and maintenance, simplifies the workflow, and saves labor costs.



Tram pantograph



City rail train pantograph

Yonggui cooperated with Japan TOYO DENKI established Chengdu Yonggui Toyo in 2017, introduced TOYO DENKI's spring-powered raising technology of the pantograph. Yonggui Toyo has independent research and development technology to form R&D, production, sales and technical services.



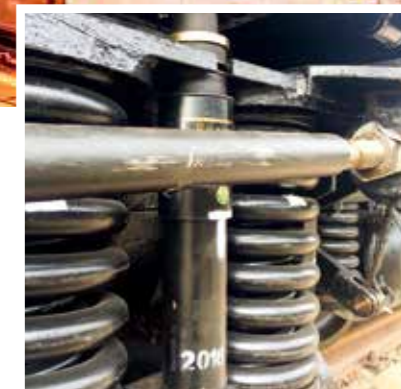
High speed train pantograph



Metro pantograph



# Damper/



Yonggui is capable to manufacture, sell and provide technology service of the damper which has independent R&D technology. Obtained IRIS certification, CRCC certification, and EN15085 welding certification, the company is also capable of damper manufacture and examination.

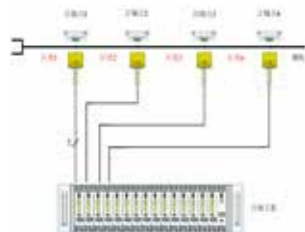
The high performance and reliability of the dampers is the guarantee of the vehicle safe operation, the series of Yonggui damper includes one vertical oil damper, two vertical oil damper, two lateral oil damper, anti-hunting oil damper, pantograph oil damper, motor oil damper, workshop oil damper and car coupler oil damper. Yonggui will combine the rail-transportation and reliable damper technology to design the best solution and provide the highest standard product and technology service according to the customer needs.

# Axle Counter System/



Axle counter system is a standard train detection product for CBTC used in rail transit, which is developed independently and owned intellectual property right. It can replace track circuit to provide "section occupied" or "section free" to interlocking system.

## System Configuration of Axle Counter System



System Composition Diagram

## Indoor Equipment of Axle Counter System



Axle Counter Host

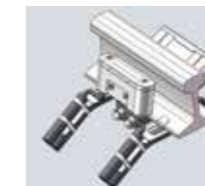
YLJZ-F1/YLJZ-F2 axle counter system is a "fail-safe" system which is used for track section "occupation/free" detection. The operating principle of YLJZ-F1/YLJZ-F2 axle counter system is to count passing train axles via rail detectors installed on rails, and then the axles counted will be computed and compared based on safety logic to determine the status of train occupancy. In the end, the result will be provided to train control system as basic safety information.

The indoor equipment is installed in the equipment room, including evaluator board and diagnosis board. The evaluator board is used for train occupancy detection to interface with interlocking system. The diagnosis board is used for system diagnosis of the axle counter system to interface with the monitoring system.

## Outdoor Equipment of Axle Counter System



Rail Detector of YLJZ-F1



Trackside Electronic Unit of YLJZ-F1

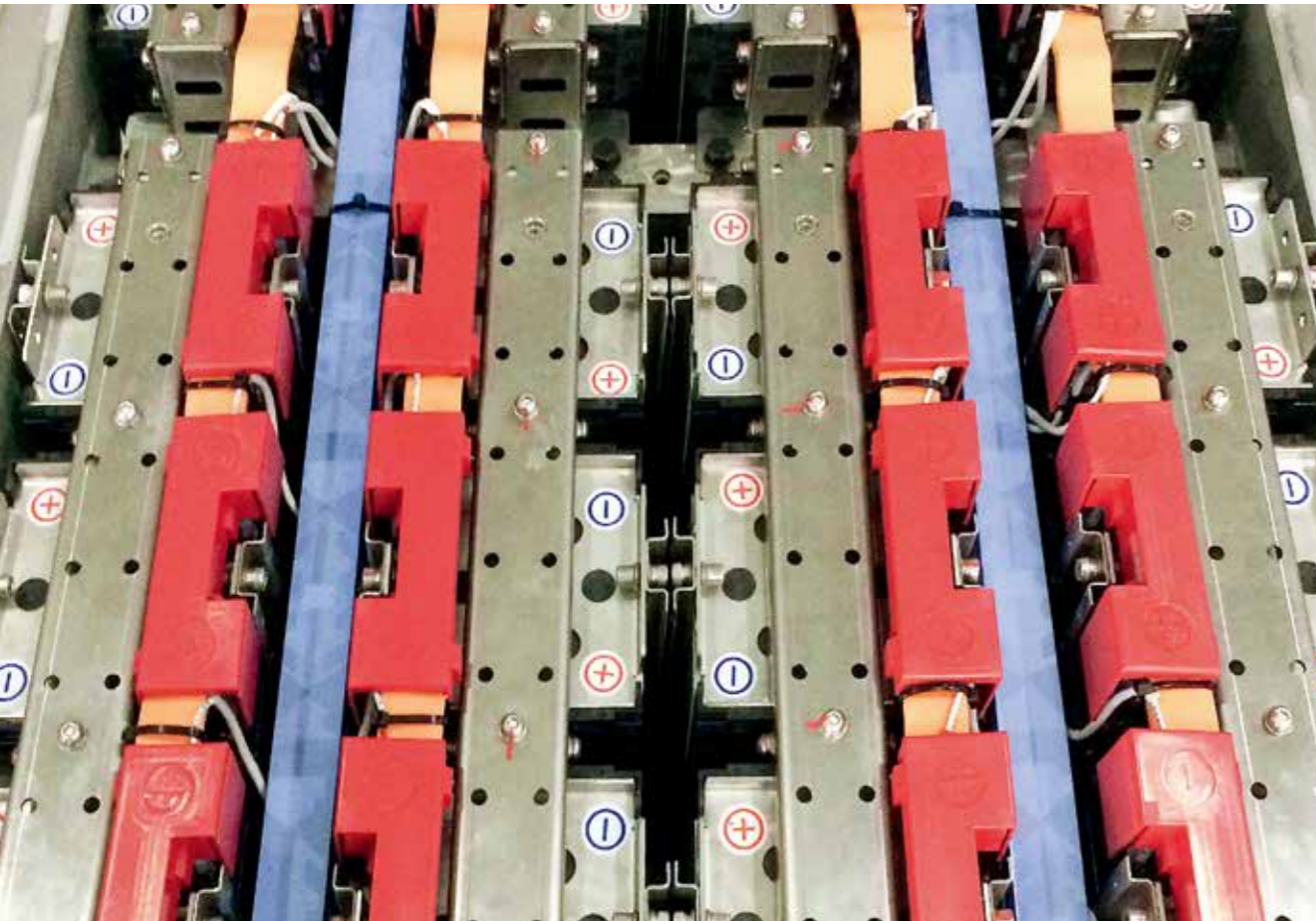


Rail Detector of YLJZ-F2

The outdoor equipment of YLJZ-F1 axle counter system includes rail detector and trackside electronic unit. The rail detector is composed of transmitting detector and receiving detector. The trackside electronic unit is composed of detector board and protecting box. The rail detector and trackside electronic unit realize the train axle detecting and counting together.

The outdoor equipment of YLJZ-F2 axle counter system only includes rail detector. The rail detector is composed of single part. It realizes the train axle detecting.

# Storage Battery System of Rail Transit/

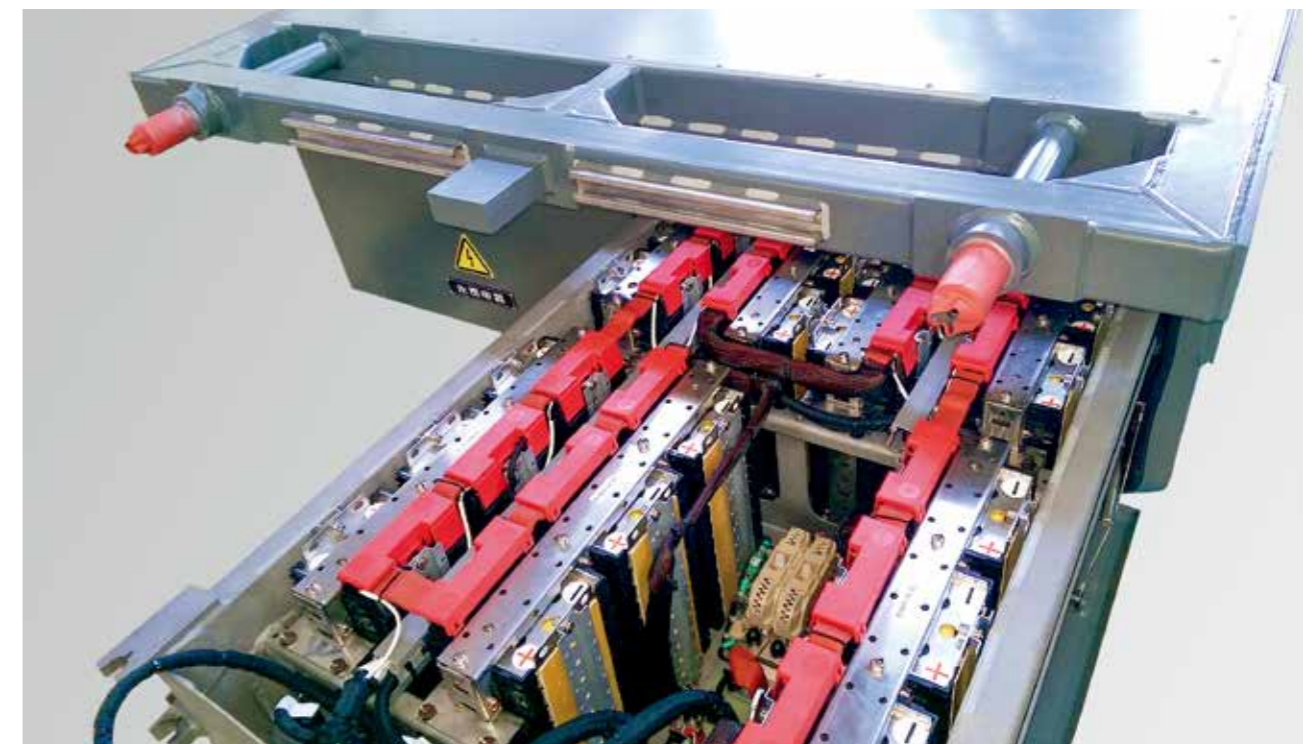


The function of the battery system as an emergency power is to ensure all the load to start such as emergency ventilation and emergency lighting in case of the absence of the contact voltage or the fault of the converter.

The battery system is composed of a box body, lithium batteries, battery management systems, and it has the advantages of light weight, long life, no memory effect compared with the nickel cadmium battery and lead-acid battery.



Based on the leading technical advantages and rich application experiences of battery management, the battery system of the company has certain advantages in security, stability. And the product has achieved the test report of China Academy of Railway Sciences, and also has completed the debugging in CRRC QINGDAO SIFANG ROLLING STOCK RESEARCH INSTITUTE Co.,Ltd.





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