



山东锐鼎智能装备有限公司

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1 企业简介

COMPANY PROFILE

山东锐鼎智能装备有限公司植根于历史悠久的齐鲁大地，坐落在交通便利、举世闻名的五岳之首泰山脚下、羊祜故里起重之乡的羊流镇，公司主要从事物料搬运装备的研发、运营、生产、销售和服务，为客户提供集装箱转运解决方案、储能设备转运解决方案、散料系统解决方案、货场 / 堆场工厂物流系统解决方案、散改集工程解决方案、非标吊装整体解决方案。整合物料搬运装备领域技术研发优势和品牌优势，推出具有自主知识产权的行走式起重跨运车、自动翻箱机、全自动卸煤系统等产品与解决方案，全面对接港口、码头、工厂对物料搬运设备的非标定制化需求。公司研发团队积极挑战新场景、新高度，先后成功落地行业首台套项目近 30 项，综合实力已获得比亚迪汽车、宁德时代，山东港口集团、国家电网、南方电网、振华重工、金大地化工等行业知名公司的高度认可，公司一直秉承“追求卓越、品质先行”的经营理念，为客户提供最具竞争力的系统解决方案和优质的售后服务。

Shandong Ruidin Intelligent Equipment Co., Ltd. is rooted in the historic Qilu region, strategically located at the foot of Mount Tai—the foremost of China’s Five Great Mountains—in Yangliu Town, the renowned "Hometown of Hoisting Machinery" and birthplace of the ancient scholar Yang Hu. The company specializes in the R&D, operation, production, sales, and service of material handling equipment, delivering comprehensive solutions for:

- Energy storage equipment transport
- Bulk material handling systems
- Yard/factory logistics systems
- Bulk-to-container engineering
- Customized lifting projects

Leveraging technological expertise and brand strength in the material handling sector, Ruidin has developed proprietary products and solutions, including walking lifting transfer vehicles, automatic container tippers, and fully automated coal unloading systems. These innovations address customized demands across ports, terminals, and industrial facilities.

The R&D team continuously pioneers applications in new scenarios and scales, having successfully implemented nearly 30 first-of-its-kind projects. Ruidin’s capabilities have earned recognition from industry leaders such as BYD Auto, CATL, Shandong Port Group, State Grid, China Southern Power Grid, ZPMC (Shanghai Zhenhua Heavy Industries), and Jindadi Chemical.

Upholding the philosophy of "Pursuing Excellence with Quality First," Ruidin delivers highly competitive system solutions and premium after-sales service to its global clientele.

2 10 倍提高搬运能效

10 TIMES HIGHER ENERGY EFFICIENCY

智能代替人工

Intelligence instead of manual

AGV(Automated Guided Vehicle) 自动导引运输车，装备有电磁或光学引导装置，能够沿既定的路径行驶，具有安全 保护及各种移载功能，通过微电脑来控制其行进路线及行为动作，复杂的操作由自动程序代替无需驾驶员驾驶的运输设备。

AGV(Automated Guided Vehicle)automatic guided vehicle,equipped with electromagnetic or optical guiding device, capable of traveling along the established path, right protection and various transfer functions, by using the microcomputer to control the route and action, transport equipment and complicated operation is replaced by the automatic procedure without driver.

重载持久灵活

Heavy load and durable, flexibility

AGV 自动导引运输车常以可充电蓄电池为其动力来源，重载动力持久、行动快捷灵活不受场地限制，继而实现生产过程中最高工作效率的物资转运。

AGV automatic guided vehicle often use rechargeable battery as its power source, heavy load, long lasting power, quick and flexible action, and no site restrictions, so as to achieve the highest efficiency in the production process.

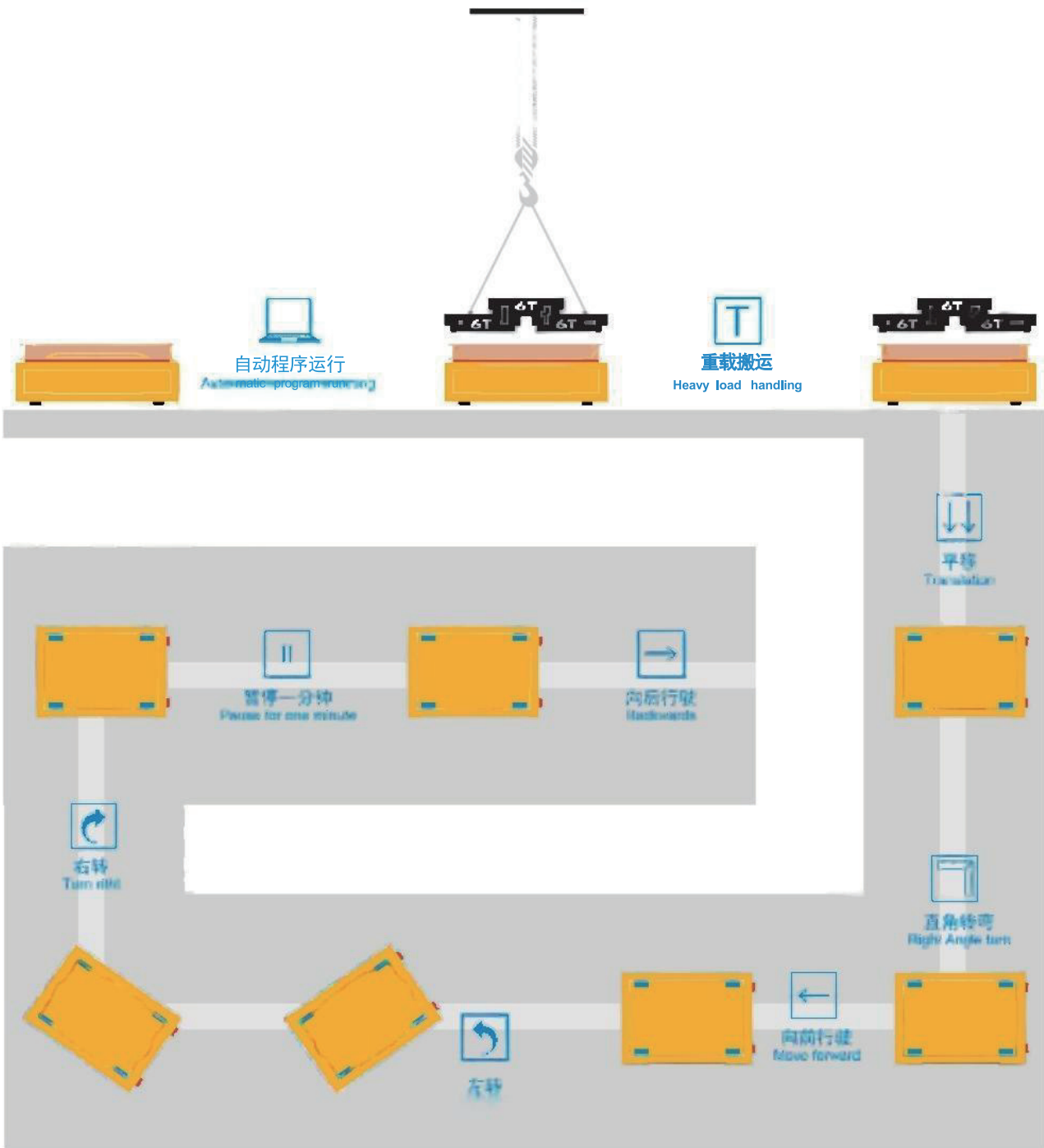
应用范围广泛

Wide range of applications

AGV 自动导引运输车广泛应用在仓储、物流、加工制造业、医疗化工、机场码头、危险场所及特种场所中。

AGV automatic guided vehicles are widely used in warehousing, logistics, processing and manufacturing industry, medical industry, airport terminals, dangerous places and special places.





3 AGV/RGV AUTOMATIC TRANSFER CART

Automated Guided Vehicle, 简称 AGV, 指装备有电磁或光学等自动导引装置, 能够沿设定的导引路径行驶, 具有安全保护以及各种移载功能的运输车。在使用中不需驾驶员, 由充电蓄电池 / 锂电池为其提供动力来源。一般可通过程序来控制其行进路线以及行为, 利用电磁轨道 (electromagnetic path-following System) 来设立其行进路线, 电磁轨道安装在地板上, AGV 车则依靠电磁轨道所带来的讯息进行移动与动作。RGV 是指利用轨道作为导引路径的 AGV。

Automated guided vehicle (AGV) is a type of transfer cart equipped with electromagnetic or optical automatic guidance devices, which can travel along the set guidance path, with safety protection and various load shifting functions. The driver is not required, and the power source is rechargeable battery / lithium battery. Generally, its route and behavior can be controlled by program, and route set up using electromagnetic path following system. The electromagnetic track is installed on the floor, and the AGV moves and acts on the information it receives from the electromagnetic track. RGV refers to an AGV that uses an orbit as its guidance path.



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AGV/RGV 控制结构图

CONTROL STRUCTURE DIAGRAM

AGV 的控制系统由三部分组成。

第一部分是 AGV 本身的控制系统，此系统有行走电机，电机驱动器，以及台车本身所带 PLC。此控制系统主要控制 AGV 本身的运行，同时可以接受与发出信号。

第二部分是网络信号传输，该部分有分布于运行路线上不同位置的无线 AP 组成，此部分负责信号传输。

第三部分是上位 PLC 系统，此系统负责处理各个 AGV 所发出的信号，并根据上级指令与 AGV 的状态进行调度。此系统可以与上位机进行通讯，同时对 AGV 进行控制。

The control system of AGV consists of three parts

The first part is the control system of AGV, which includes the track motor, motor driver and PLC of trolley. This control system mainly controls the operation of AGV itself, and can receive and send signals at the same time.

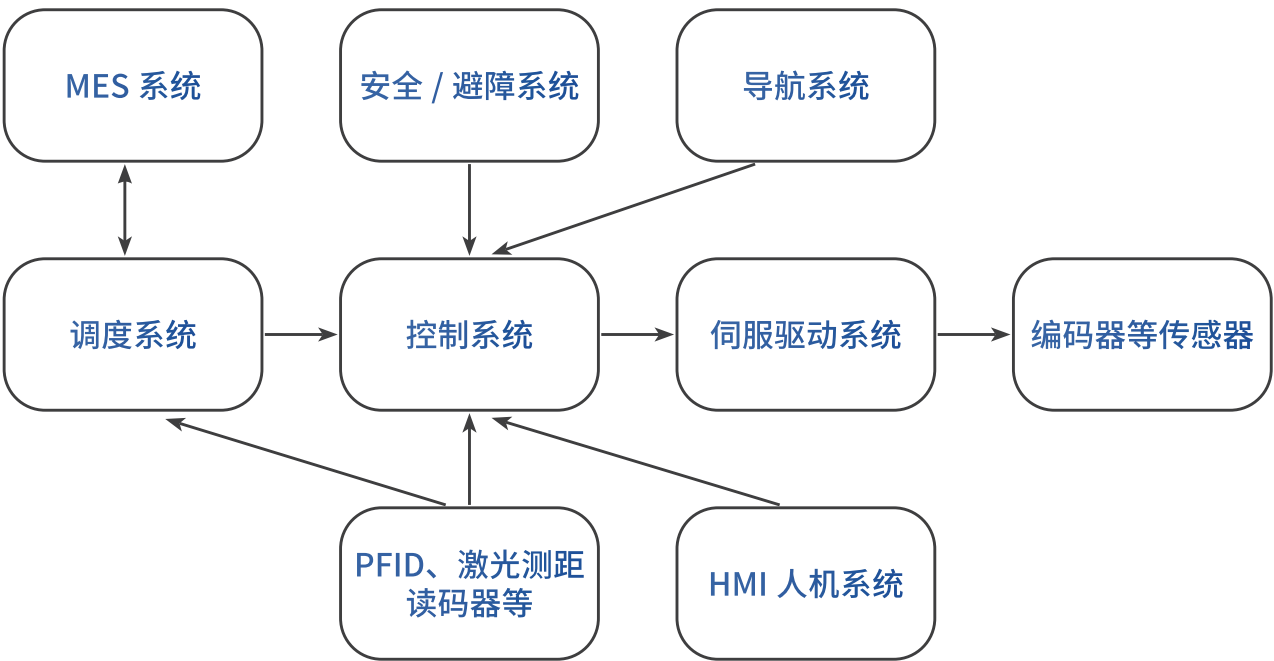
The second part is network signal transmission, which is composed of wireless AP distributed in different positions on the running route, and is responsible for signal transmission.

The third part is the upper PLC system, which is responsible for processing the signals sent by each AGV, and scheduling according to the superior instructions and the status of AGV. This system can communicate with the upper computer and control AGV at the same time.



AGV 控制系统组成

COMPOSITION OF AGV CONTROL SYSTEM



5 AGV 控制系统网络拓扑图

NETWORK TOPOLOGY OF AGV CONTROL SYSTEM



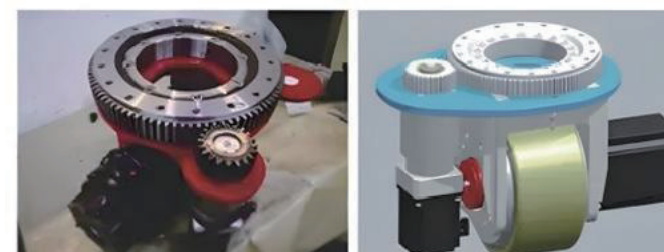
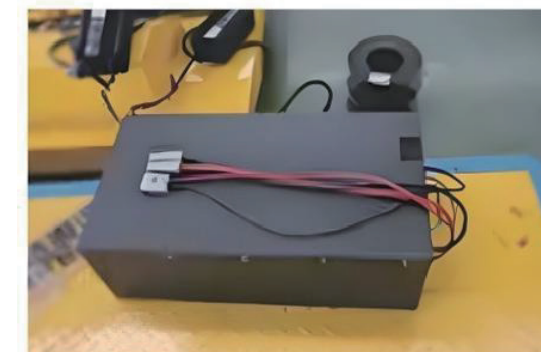
6 AGV/RGV 主要部件介绍

THIS SECTION DESCRIBES THE MAIN COMPONENTS OF AGV/RGV

车轮 Wheel

车轮：使用集成驱动电机，驱动减速器、转向电机及转向减速器于一体的机械结构，该种结构高度集成化，可以实现同步运行，适用于载重较大，定位精度较高的场合。

Wheel: it is a mechanical structure integrating drive motor, drive reducer, steering motor and steering reducer. This structure is highly integrated and can realize synchronous operation. It is suitable for occasions with large load and high positioning accuracy.



锂电池 Lithium battery

锂电池：选用市场上成熟的锂电池，使用安全可靠。

Lithium battery: we use mature lithium battery in the market, which is safe and reliable.

人机交互界面 Human computer interaction interface

人机交互界面：采用工业触摸屏，可以实时查看运输车的状态显示与各种参数，同时也可以进行操作。

Human computer interaction interface: the industrial touch screen is adopted, which can view the status display and various parameters of the transport vehicle in real time, and can also be operated on it.



地面控制柜 Ground control cabinet

地面控制柜：集成有触摸屏、电源指示灯、总电源开关等，并可与上级控制系统进行通讯。

Ground control cabinet integrated with touch screen, power indicator, main power switch, etc. and can communicate with the superior control system.



远程 A/O 站点 Remote A/O station

远程 A/O 站点：通过无线与 AGV/RGV 通讯，并发出指令。

Remote A/O station: communicate with AGV/RGV through wireless and issue instructions.

扫描雷达 Scanning radar

扫描雷达：能够选择覆盖运输路径上的区域并持续进行扫描，遇到障碍物或者行人时立即停止，避免碰撞。

Scanning radar: it can choose to cover the area on the transportation path and scan continuously. When encountering obstacles or pedestrians, it will stop immediately to avoid collision.



7 最低成本的搬运方式
MINIMUM COST HANDLING SOLUTION

DPW 无轨转运解决方案
DPW Trackless Transport Solution

成本最低
Lowest cost

相比传统的以起重机和叉车的搬运方式，DPW 无轨转运方案不只是购置成本最低，以蓄电池为动力来源使之运营成本做到最低，并且更加易于维护。

Compared to traditional handling methods with cranes and forklifts, DPW trackless transfer solutions not only have the lowest acquisition costs to store Battery power makes it the least expensive to operate and easier to maintain.

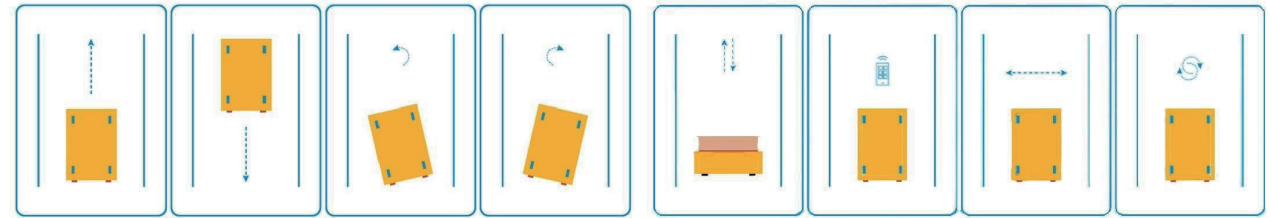
方便灵活
Convenient and flexible

DPW 无轨转运方案可实现 360 度灵活转弯、前进、后退、左右转、调速、急停、安全警示灯一系列功能，操作简单、转弯行驶平稳。并配有无线和有线两种操作方式，操作半径小，不受任何空间环境限制，在各类行业转运作业中广泛应用。

The DPW trackless transport solution can achieve 360 degrees of flexible turning, forward, backward, left and right rotation, speed regulation, emergency stop and safety warning lights. It has simple functions and smooth running. And equipped with two operating modes of wireless and cable the operation is small and is not restricted by any space environment it is widely used in various industries.



目的地不固定 Unfixed destination 空间狭小 Small space 弯道较多 More turns 距离较短 Short distance 环境要求高 High environmental requirements



向前行驶 Forward travel 向后行驶 Drive backwards 左转 Turn left 右转 Turn right 操控升降 Control and move up and down 无线遥控 Wireless remote control 左右横行 Go sideways 360°旋转 360° rotation

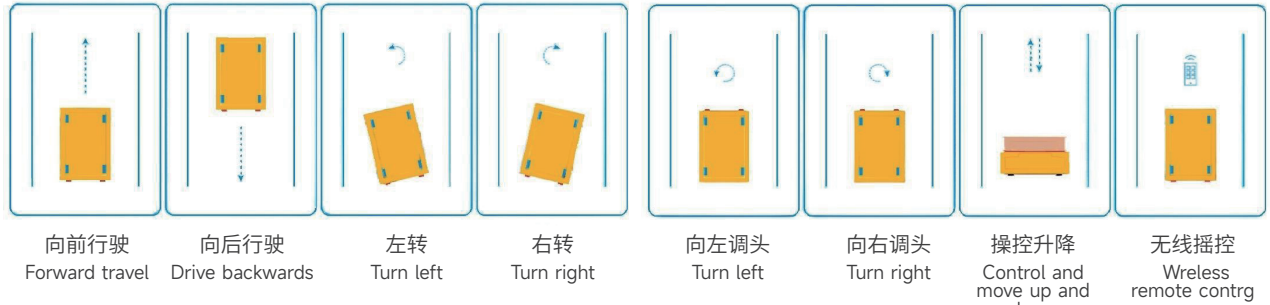


8 KPW 蓄电池供电型

KPW BATTERY POWERED TRANSFER CAR

KPW 系列蓄电池供电转运车，是由蓄电池提供电源的转运车，蓄电池安装在车体内部，电源通过电气控制系统，给直流牵引电机提供电力，使转运车平稳启动、停止、前进、后退、调速等。平车上可以加装液压升降系统；平车直流电机有启动平稳、启动力矩大、对减速机冲击力小、电压低、使用寿命长等优点：相对于 KP 系列转运车，其运行距离不受限制，对地面要求也不高，适用于各种运输场合。但蓄电池需要定期维护。由于蓄电池容量有限，其使用时间受限。

KPW series battery-powered transfer vehicle is a transfer vehicle provided by the battery power supply, the battery is installed in the car body, the power supply through the electrical control system, to provide power to the DC traction motor, so that the transfer vehicle smooth start, stop, forward, backward, speed regulation. Hydraulic lifting system can be installed on the flat car; Flat car DC motor has the advantages of smooth start, large starting torque, small impact on the reducer, low voltage, long service life, etc.: relative to the KP series transfer vehicle, its running distance is not limited, the ground requirements are not high, suitable for a variety of transportation occasions. But batteries need regular maintenance. Due to the limited capacity of the battery, its use time is limited.



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kp 低压轨道供电型

KPD RAIL POWERED TRANSFER CAR

KPD 低压道轨供电型可以分为 KPDS 系列和 KPDZ 系列。

KPDS 系列低压道轨供电转道车，通过降压变压器将三相 380V 交流电降至安全电压 36V, 分别接至三根轨道上，通过转运车上的取电装置将 36V 安全电压引入转运车上，经过车载升压变压器升至 380V, 始牵引电机提供动力，通过控制系统控制转运车的启动、停止、前进、后退等。该系列车可以在 S 形轨道以及弧形轨道上运行，使用时安全性高，灵活性强，但轨道需要进行绝缘处理，对轨道铺设要求较高，当运行距超过 70 米时需要增加变压器以弥补压降。该系列转远车适用于载重量较大，使用频率较高的场所，并能满足全自动化要求。

KPDZ 系列低压通轨供电转运车，是将 380v 交流电源通过变压器降至交流安全电压 36V, 分别接至两根轨道上，转运车上的取电装置将道轨上的交流 36V 电源引入车载电气箱，通过控制系统控制电机的启动、停止、前进、后退、调速等。该系列车能够在 S 轨道、弧形轨道及高 温场合使用，也可加装 PLC 系统实现全自动化控制：该系列转运车有安全性高、机动灵活性强，使用频率高、时间长，使用寿命长，运行距离不受限制等特点：但对轨道铺设要求较高（需要绝缘处理），适用整重量：50T, 如果运行距来超过 80 米，需要增加变压器数量来弥补轨道压降。

KPD low voltage rail power supply can be divided into KPDS series and KPDZ series.KPDS serieslow-voltage rail power supply transfer car,through the step-down transformer to reduce the three-phase 380V AC to the safety voltage 36V,respectively connected to the three tracks,thre into the transfer car,through the on-board boost transformer to 380 and backward of thetransfer vehicle through the control system.The train can run on S-shapedtrack and curved track,which is safe and flexible when used,but the track needs to be insulated and has high requirementsfor track laying.When the running distance exceeds 70 meters,transformers need to be added to make up for the voltage drop.This series of rotary vehicle is suitable for places with large load capacityand high frequency of use,and can meet the requirements of full automation.

KPDZ series low-voltage rail power supply transfer vehicle,380v AC power supply through the transformerto the AC safety voltage 36V,respectively connected to the two tracks,the transfer vehicle's power device to the track on the AC 36V power supply intothe vehicle top,forward,backward,speed regulation.The traincan be used in Suipped with PLC system toachieve fullautomatic control:this series,time long interval long service life,running distance is not limited,reatment),applicable to the whole weight:50T,if the running distance to more than 80 meters,need to increase the number of transformers to make up for the track voltage drop.

