
# Intelligent warehousing system solution

**Efficient and flexible  Reliable and stable**

Automation Trust Partner

XINJE Wechat

XINJE

WUXI XINJE ELECTRIC CO.,LTD.

Address: No.816,Jianzhu West Road,Binhu District,Wuxi City,Jiangsu Province,China

TEL: 86-0510-85134136  Fax: 86-0510-85111290

Website: www.xinje.com  Email: sales@xinje.com

Technical Service Hotline

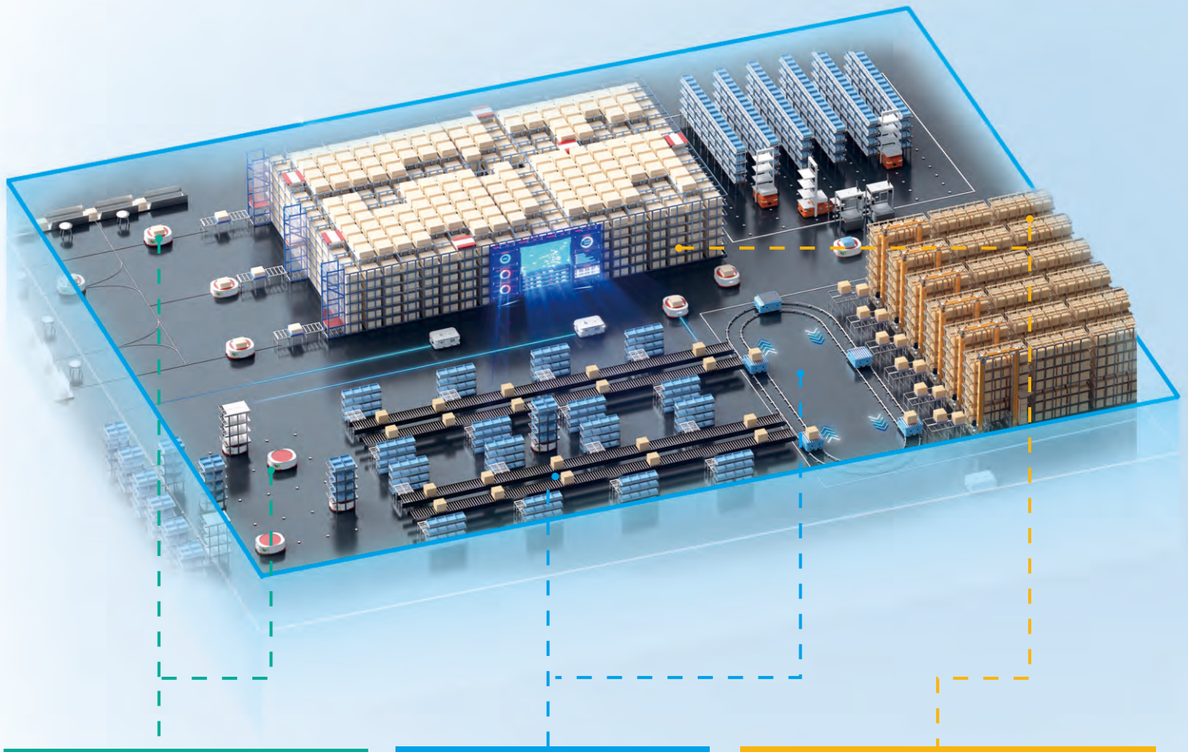
400-885-0136

# Overview

SUMMARY

With the popularization of information big data applications, traditional warehousing and logistics operations are no longer able to meet the rapidly growing business needs. It is necessary to accelerate the automation and intelligent construction of warehousing and logistics. Introducing intelligent warehousing can efficiently connect production and logistics, improving the production efficiency of enterprises.

For different links, XINJE takes solving industry pain points as the starting point. After extensive on-site testing, it has accumulated rich on-site debugging experience and developed different solutions, which can achieve rapid landing and long-term stable operation of the system.



## AGV handling section

Magnetic stripe navigation AGV solution

Simple path, stable operation, and convenient construction

QR code navigation AGV solution

Flexible path, precise positioning, stable and efficient

## Transmission part

RGV solution

Solve the transportation of goods in multi-station, high-frequency production lines

Conveyor line solution

Solve the transportation of goods after leaving the warehouse

## Stereoscopic storage part

Bidirectional and four-way shuttle solutions

Efficient operation method to improve the efficiency of goods storage and space utilization

Elevator solution

Solve the automatic and precise layer changing and transportation of materials in multi-layer warehouses

Stacker solution

High flexibility, improving work efficiency and warehouse utilization



# Catalog

CONTENTS

# Magnetic stripe navigation differential AGV

Magnetic stripe navigation differential AGV is mainly designed for handling goods with a load of less than 1 ton. It can automatically dock goods through a lifting or roller transfer mechanism. It has the characteristics of fixed task paths, high walking accuracy, and stable operation, greatly improving work efficiency in applications. It has a wide range of applications in production line handling in automobiles, 3C, and manufacturing.

## Solution

The control system collects signals from magnetic navigation sensors, RFID sensors, laser obstacle avoidance, safety contacts, etc., and walks according to the set task path trajectory. The differential control of the driving wheel is achieved through the data of the magnetic conductivity sensor, achieving control such as deviation correction and steering, ensuring that the AGV can stably walk along the magnetic strip. When the RFID sensor detects the function label card arranged on the AGV's walking path, the AGV begins to perform functions such as turning off, rotating in place, and stop, achieving navigation control, functional control, and safety protection of the AGV.

## Advantages

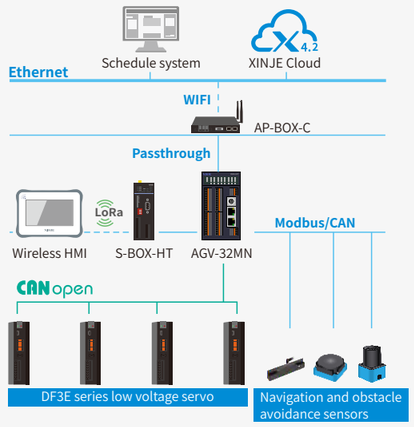
- Standardized vehicle control procedures to ensure rapid project implementation.
- Equipped with standardized motion control interface, supporting logic layer secondary development.
- Support single differential and double differential motion model.
- Integrated with various transplanting mechanism controls such as rollers and jacks, providing a wide range of functional options.
- Support visual path editing, standalone autonomous path planning, and online system scheduling.
- Wireless HMI communication, visual parameters, and convenient modification.
- Provide customized services to meet customer needs.

## Technical parameters

| Item | Parameter |
|---|---|
| Navigation method | Magnetic stripe navigation |
| Control mode | Differential control |
| Running direction | Bidirectional walking |
| Walking function | Forward, backward and rotate in place |
| Positioning accuracy | ±10mm |
| Walking accuracy | ±10mm |

| Item | Parameter |
|---|---|
| Running speed | 0-60m/min |
| Load capacity | 0-1000Kg |
| Stop method | Slow stop, emergency stop |
| Protection method | Laser obstacle avoidance and safety contact |
| Protection range | 3 meters adjustable |
| Drive unit | Single drive unit, dual drive unit |

## System topology




## Field application



# Magnetic stripe navigation wheel AGV

Magnetic stripe navigation wheel AGV is mainly used for handling goods with a load of more than 1 ton. The use of a wheel structure allows for more flexible multi-directional movement. Through lifting and cooperation with the platform, it improves handling efficiency, reduces labor and time costs, and improves factory production automation.

## Solution

The control system adopts a servo motor (drive+rotation) for driving control. The steering angle of the servo motor's rotating shaft is controlled through the data detected by the magnetic conductivity sensor, and the calculated driving shaft speed is used to achieve deviation correction and steering during the movement process, ensuring that the AGV can stably walk along the set task path. When the RFID sensor detects the function label card arranged on the AGV's walking path, the AGV begins to perform functions such as fork selection, in-place rotation, and stop, achieving navigation control, functional control, and safety protection of the AGV.

## Advantages

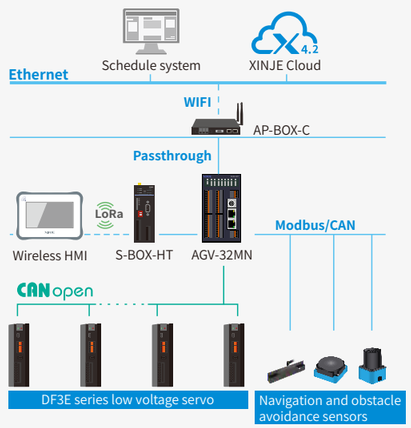
- Standardized vehicle control procedures for rapid project implementation.
- Equipped with standardized motion control interface, supporting logic layer for secondary development.
- Equipped with motion control algorithms for various vehicle models (single steering wheel, double steering wheel, four steering wheel, etc.) to meet different on-site needs of customers.
- Support visual path editing, standalone autonomous path planning, and online system scheduling.
- Wireless HMI communication, visual parameters, and convenient modification.
- Provide customized services to meet customer needs.

## Technical parameters

| Item | Parameter |
|---|---|
| Navigation method | Magnetic stripe navigation |
| Control mode | Wheel control |
| Running direction | Bidirectional walking |
| Walking function | Forward, backward rotate in place, translation |
| Positioning accuracy | ±10mm |
| Walking accuracy | ±10mm |

| Item | Parameter |
|---|---|
| Running speed | 0-40m/min |
| Load capacity | 0-4000Kg |
| Stop method | Slow stop, emergency stop |
| Protection method | Laser obstacle avoidance and safety contact |
| Protection range | 3 meters adjustable |
| Chassis model | Single wheel, double wheel, four wheel |

## System topology




## Field application

# QR code navigation AGV

The QR code navigation AGV is mainly designed for the handling of light load goods, mainly using rotating, lifting, and multi-layer material box models. Its flexible operation path, high positioning accuracy, and fast operation speed are widely used in online edge warehouses, production line workstations, and material box to person application scenarios.

## Solution

The control system adopts a dual wheel differential method for driving control. It collects signals such as laser obstacle avoidance and safety contact, takes photos of the QR code laid on the site by the camera, and processes and calculates real-time data transmission from the inertial navigation sensor. The discrete QR code is formed into a continuous path to achieve deviation correction control and ensure that the AGV can walk stably in the site. And controlling AGV can achieve functions such as forward, backward, in place rotation, and stop, meeting the navigation control, functional control, and safety protection requirements in practical use.

## Advantages

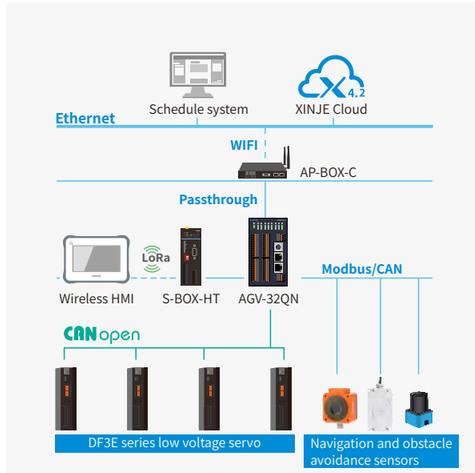
- Standardized vehicle control procedures to ensure rapid project implementation.
- Equipped with standardized motion control interface, supporting logic layer secondary development at the logic layer.
- Integrating algorithm processing with Haikang and Dahua cameras, with strong versatility.
- Integrated with various transplanting mechanism controls such as roller and lifting (following), providing a rich selection of functions.
- Support standalone autonomous path planning and online system scheduling.
- Wireless HMI communication, visual parameters, and convenient modification.
- Provide customized services to meet customer needs.

## Technical parameters

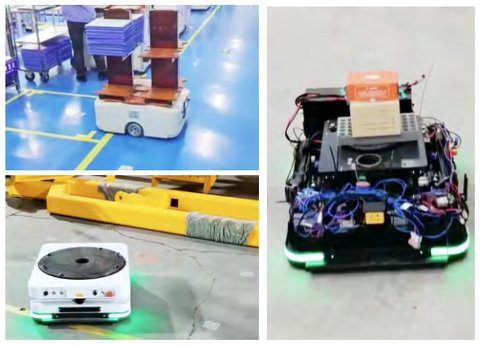
| Item | Parameter |
|---|---|
| Navigation method | QR code+inertial navigation |
| Control mode | Differential control |
| Running direction | Bidirectional walking |
| Walking function | Forward, backward and rotate in place |
| Positioning accuracy | ±5mm |
| Walking accuracy | ±10mm |

| Item | Parameter |
|---|---|
| Running speed | 0-2.2m/s |
| Load capacity | 0-500Kg |
| Transfer method | Jacking+rotation, drum |
| Rotation method | Follow |
| Stop method | Slow stop, emergency stop |
| Protection method | Laser obstacle avoidance and safety contact |
| Protection range | 3 meters adjustable |

## System topology




## Field aplication



# AGV scheduling system

The AGV scheduling system is a system that can simultaneously implement central supervision, control, and scheduling for multiple AGVs. It is mainly used in application scenarios with a large number of AGVs, multiple operating routes, and frequent and complex transportation. It can be used in conjunction with the material ordering system to make material transportation more humane, automated, and unmanned.

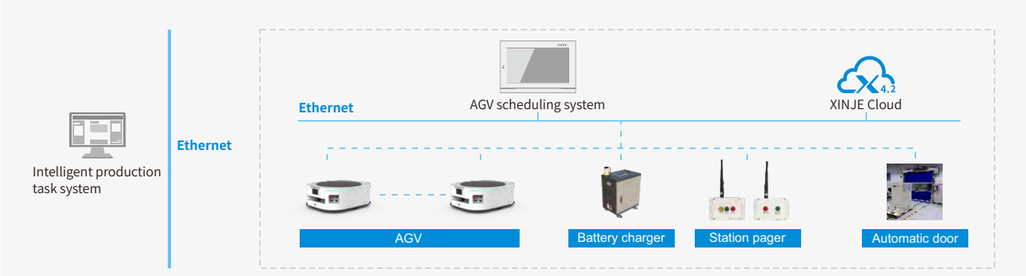
## Solution

The system is mainly designed to deploy the system as a master station and slave stations such as AGVs, chargers, and station pagers to the same local area network when multiple AGVs are running in the same application scenario. Based on task data, vehicles are automatically assigned, and path planning, traffic control, command issuance, automatic charging, and other functions are performed on multiple AGVs. At the same time, real-time monitoring of vehicle status information, alarm information, current location, etc. is also required to meet the requirements of multiple operating routes, frequent and complex transportation application scenarios.

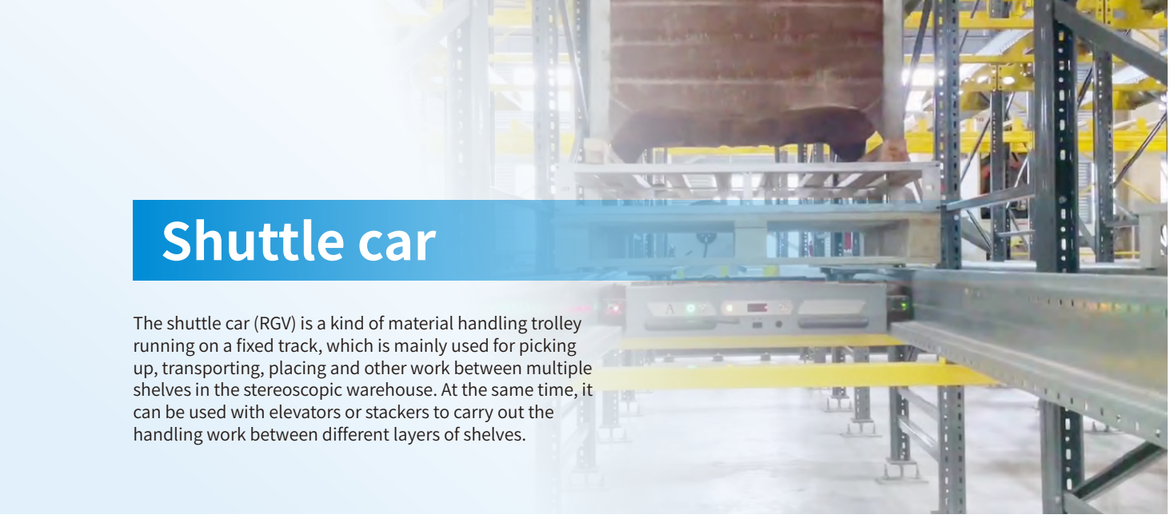
## Advantages

- Data interaction: the main control screen and the vehicle transmit data through wireless network, with low delay and stable transmission.
- Real time monitoring: display vehicle status information, alarm information, current position, etc.
- Intelligent charging: monitoring the AGV battery status and automatically charging to ensure battery life.
- Intelligent allocation: automatically generate tasks based on agreed data and assign vehicles to execute tasks.
- Path planning: planning the optimal path for AGV operation and automatic adjustment.
- Intelligent control: real time traffic control of vehicles to avoid traffic congestion.

## System topology




## Field application



# Shuttle car

The shuttle car (RGV) is a kind of material handling trolley running on a fixed track, which is mainly used for picking up, transporting, placing and other work between multiple shelves in the stereoscopic warehouse. At the same time, it can be used with elevators or stackers to carry out the handling work between different layers of shelves.

## Solution

Using an ultra-thin controller and a CANopen bus with a low-voltage servo drive system to achieve motion control, the task path is analyzed and received by the upper computer system. At the same time, by collecting and processing data from sensors, scanning cameras, and other devices on the device, functions such as inventory and pickup in the three-dimensional warehouse can be achieved, ensuring stable and efficient operation, and improving on-site storage efficiency.

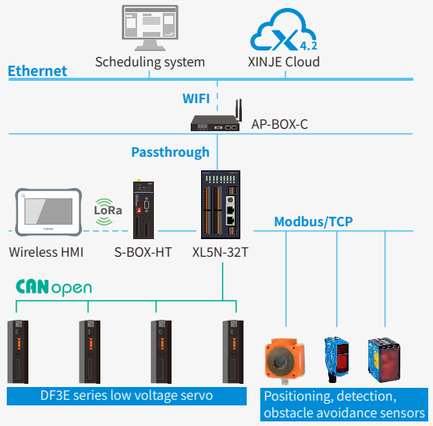
## Advantages

- Equipped with customized high inertia motors, flexible high-speed start and stop, improving operational efficiency and reducing frequent start and stop losses.
- There are three control schemes: pulse control, analog control, and CANopen.
- Equipped with low-temperature low-voltage servo for cold storage scenarios, meeting the needs of multiple scenarios.
- Adopting wireless HMI scheme for single machine scheduling and fault handling of long-distance wireless shuttle vehicle operation.
- Four directions driving, able to quickly change direction in place, suitable for various complex scenarios.
- Using a scanning camera for processing, compensating for the position impact caused by slipping, and achieving high positioning accuracy.

## Technical parameters

| Item | Parameter | Item | Parameter |
|---|---|---|---|
| Running speed | 0-1.5m/s | Transfer method | Jacking |
| Load capacity | 1500kg | Operating environment | -20°-50° |
| Running direction | Two or four directions | Charging method | Automatic charging |
| Operation mode | Manual/scheduling | Mode function 1 | Pickup/Inventory |
| Positioning method | Sensor/QR code | Mode function 2 | Inventory of goods |
| Positioning accuracy | ±2mm | Mode function 3 | A/B side operation |

## System topology




## Field application



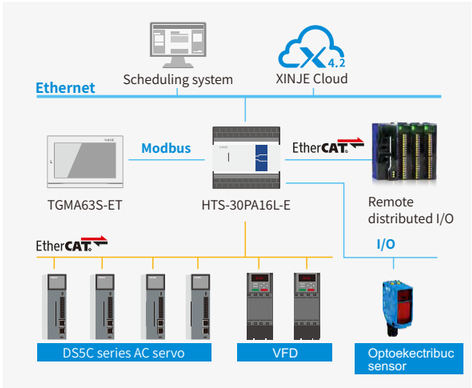
# Elevator

The elevator is an important part of the three-dimensional warehouse, assisting shuttle cars or other equipment to reach the corresponding floor through commands from the upper computer, achieving efficient operation of the warehouse. Ensure the stability and precise positioning of the hoist platform during movement.

## Solution

By receiving task instructions from the upper computer, the four axes are controlled through the EtherCAT motion bus between the XDH series PLC and the servo driver. The four axes are synchronously bound to ensure the synchronization and high positioning accuracy of the four axes, and accurately dock with the four-way shuttle. Simultaneously achieve coordinated control of chain machines, roller machines, and transplanting machines.

## System topology



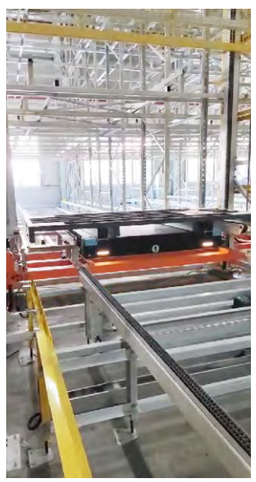

## Technical parameters

| Item | Parameter | Item | Parameter |
|---|---|---|---|
| Rated power | 3.4KW | Maximum synchronous speed | 3000rpm |
| Supply voltage | 380V | Rotor inertia | 36.26 $10^{-4}$Kg.$m^2$ |
| Rated torque | 17N·m | Encoder type | Magnetism |
| Maximum torque | 42.5N·m | Encoder accuracy | 131072 |
| Rated current | 10A | Motor protection IP level | Ip65 |
| Maximum current | 25A | Cooling method | Natural cooling |
| Rated synchronous speed | 2000rpm | | |

## Advantages

- The load capacity is 1.8 tons to 2.2 tons, and the operating speed is 600mm/s, which increases the bearing capacity by 10% compared to other brands of motors.
- PLC and servo adopt EtherCAT bus control scheme, with strong anti-interference ability and simple wiring.
- High performance PLC, bus synchronization cycle of 16 axes/1ms, ensuring high synchronization of the four axes motor operation, and ensuring that the position error of the four axes is within 0.5 revolutions after an alarm occurs.
- Standardized control procedures can achieve precise control of 20 layers according to customer needs.
- Equipped with one click leveling function for four axes in case of special situations, it can quickly handle abnormal situations and ensure efficient operation.
- Equipped with low-temperature AC servo for cold storage scenarios, meeting practical applications in multiple scenarios.

## Field application



# Stacker

The stacker crane is an important lifting and transportation equipment in a three-dimensional warehouse. Its main function is to run back and forth through the channels of the warehouse, storing goods located at the entrance of the alley into the shelves, or taking out goods from the shelves and transporting them to the entrance of the alley. The stacker crane is driven by a walking motor to move horizontally on the ground guide rail, and the lifting motor is driven by a steel wire rope to move the cargo platform vertically up and down, the telescopic movement is carried out by the forks on the cargo platform.

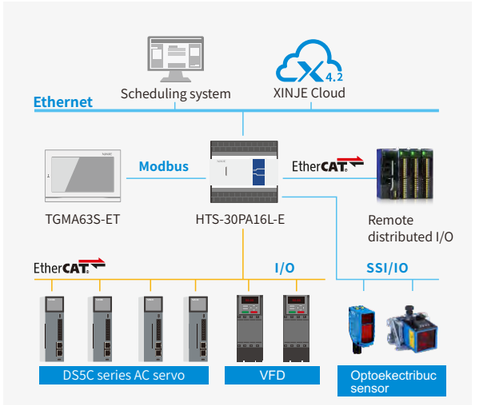
## Solution

The XDH controller, frequency converter, and servo driver are used to control the stretching and retraction of the walking, lifting, and forks through the EtherCAT motion control bus. The laser ranging sensors for walking and lifting are connected to the controller through SSI interface or EtherCAT communication, achieving dual closed-loop control of the position. The optimized speed control method is adopted to reduce the impact of the stacker crane during deceleration and shutdown, greatly reducing the buffering distance for starting and stopping the stacker, and improving the operational efficiency of the stacker.

## Advantages

- Adopting EtherCAT control bus scheme, the bus synchronization cycle is 16 axes/1ms, ensuring control stability and high positioning accuracy.
- The plan adopts an S-shaped acceleration and deceleration curve to ensure flexible start stop during high-speed start and stop processes.
- Implement double closed-loop control with laser ranging SSI interface or EtherCAT interface for walking and lifting control, ensuring positioning accuracy after wheel slipping.
- Equipped with multi-layer security protection and alarm mechanisms to ensure the safety of equipment during operation.

## System topology




## Field application





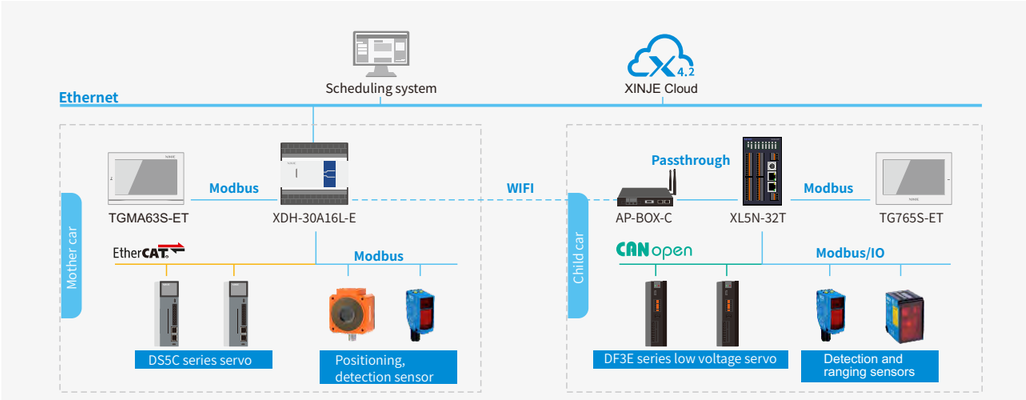
# RGV

The main application scenario of the RGV is in the storage of dense goods, mainly composed of bidirectional sub shuttle car and mother shuttle car, which achieve the storage and retrieval of goods in dense storage locations and improve work efficiency.

## Solution

Using XL5N series PLC, combined with AC servo and low-voltage servo for EtherCAT and CANopen bus control, receiving tasks from the upper computer system, using a mother car with multiple child cars to carry from the warehouse to the production line, including inventory, picking up, handling and other functions. The mother car and child car use WIFI or 433 frequency band to achieve wireless communication, ensuring stable operation.

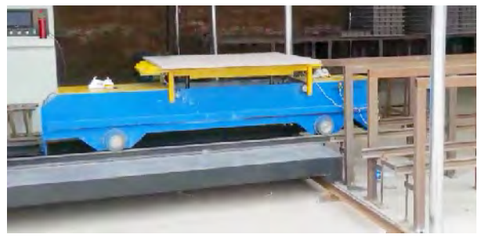
## System topology




## Advantages

- Wireless communication between the mother vehicle and the child vehicle is achieved through WIFI local area network or 433 frequency, ensuring safe and reliable communication.
- One mother vehicle supports multiple child vehicles for conversion and transportation, and can perform task allocation and control waiting.
- Adopting EtherCAT and CANopen motion bus to ensure control stability and high positioning accuracy.
- Support the expansion of warehouse positions, which can be flexibly and conveniently set according to actual situations.

## Field application



## Product introduction

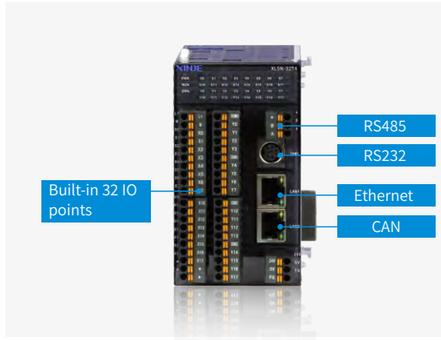


# XL5N-32T

- High performance, up to 1Mbps communication rate
- Multiple communication nodes, simple CAN node structure
- Short frame structure, good real-time performance, and extremely low probability of interference
- Stable, reliable, and powerful error detection mechanism
- One click scanning of slave devices makes it easy to get started


## Rich hardware interfaces

- DC24V power supply
- 16X (NPN input), 16Y (transistor)
- Supports 3-channel single-phase (up to 80KHz) or AB phase (up to 50KHz) high-speed counting
- Supports 2-channel 100KHz high-speed pulse output
- The main body is equipped with 1 RS232 port, 1 RS485 port, and 2 RJ45 ports (ENET: Ethernet communication, CAN: CAN communication)
- Supports the connection of 16 XL series right expansion modules and 1 left expansion ED module
- Supports Ethernet communication and CAN bus communication
- Supports 32 slave nodes




## Two independent CAN communication channels

Supports CANopen communication protocol, as well as free format communication (CANbus) for CAN2.0A and CAN2.0B protocols. CAN communication can be achieved without the need to connect to the external CANopen communication module, saving data communication interaction time with the external expansion module and greatly improving communication efficiency.

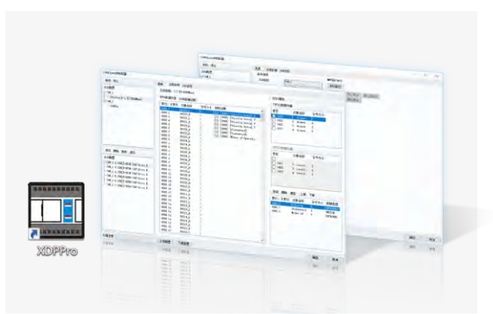
| Rj45 pins | Definition | Rj45 pins | Definition |
|---|---|---|---|
| 1 | CAN1_H | 5 | CAN2_L |
| 2 | CAN1_L | 6 | GND2 |
| 3 | GND1 | 7 | - |
| 4 | CAN2_H | 8 | - |

## Simple wiring and easy maintenance

The XL5N-32T can be used as both the master and slave stations of the CANopen network. It adopts a linear topology structure and can cascade a variety of communication devices.

| Item | Specification |
|---|---|
| Transmission mode | CAN |
| Protocol standards | CAN 2.0A,CAN 2.0B,CANopen |
| Electrical isolation | 500VDC |
| Transmission cable | Two communication cables, one shielding wire, and one grounding wire |
| Information type | PDO,SDO,SYNC,Emergency,NMT |
| Serial transmission speed | 10Kbps~1Mbps |
| Communication distance | 10m~100m (the higher the communication rate, the shorter the distance) |

## Standard CANopen master station configuration






# Low voltage servo system

The low-voltage servo drive system is mainly used on mobile robot platforms. As it is the core component of AGV/RGV cars, its performance is crucial for the walking control of AGV.

The motion axis of the XINJE low-voltage servo system adopts a low-voltage servo motor, and the motor power can be selected from 100W-1.5KW according to the size of the load, achieving fast response, high stability, and high-precision control throughout the entire motion control process. Through the collaborative movement between motors, walking and turning are achieved, providing a solid and reliable solution for achieving intelligent AGV industry automation control.

## DF3 series servo drive

### New appearance

New appearance design with rich interfaces, compact size and lightweight body, meeting the equipment installation requirements of the AGV industry.

### Powerful function

Support multiple control modes, built-in 24V brake output, alarm synchronous braking, and other functions to meet customer usage requirements.

- Position control
- Speed control
- Torque control
- CANopen bus control

### Various communication modes

Support multiple communication protocols such as EtherCAT, CANopen, MODBUS, etc. to meet different communication function requirements of users.

CANopen EtherCAT Modbus

### Convenient debugging

Gain adjustment only requires three steps, greatly reducing equipment debugging time and improving on-site debugging efficiency.

Parameter setting → Inertia presumption → Rigidity level

## Motor technical parameters

| Voltage level | | DC48V | | | |
|---|---|---|---|---|---|
| Motor model MF | | 5H-60<br>CS/CM30B(Z)1<br>502 | 3S-60<br>CS/CM30B(Z)1<br>504 | 3S-80<br>CS/CM30B(Z)2<br>507 | 3S-130<br>130CS/CM30B(Z)2<br>515 |
| Rated power(W) | | 200 | 400 | 750 | 1500 |
| Rated current(A) | | 6 | 10 | 19.2 | 40 |
| Rated speed (prm) | | 3000 | 3000 | 3000 | 3000 |
| Max speed (prm) | | 3500 | 3500 | 3500 | 3500 |
| Rated torque (N·m) | | 0.64 | 1.27 | 2.39 | 4.8 |
| Max torque (N·m) | | 1.92 | 3.81 | 7.17 | 14.4 |
| Rotor inertia ($10^{-7}$kg·m$^2$) | | 290 | 358.4 (374.9) | 980 (1030) | 15018(15275) |
| Static friction torque (N·m) | | ⩾0.7 | ⩾1.3 | ⩾2.5 | ⩾15 |
| Bearing axial force (N) | | 74 | 74 | 147 | 300 |
| Bearing radial force (N) | | 245 | 245 | 392 | 600 |
| Inertia type | | High inertia | Low inertia | Low inertia | Low inertia |
| Polar logarithm | | 5 | 5 | 5 | 5 |
| Encoder bit | | 17 | 17 | 17 | 17 |
| Encoder type | | Magnetism | Magnetism | Magnetism | Magnetism |
| Cooling method | | Natural cooling | | | |
| Insulation class | | ClassF (155°C) | | | |
| Protection level | | IP66 | | | |
| Using environment | Ambient temperature | -15°C~+40°C(Not frozen) | | | |
| | Ambient humidity | Relative humidity <90% (no condensation) | | | |

# Handheld wireless HMI

The handheld wireless HMI (MTG765-HT) has advantages such as good intuition, strong interactivity, and strong anti-interference ability in industrial sites. It integrates wireless device communication modules, mobile power supplies, and cooperates with wireless communication modules such as S-B0X-HT to communicate wirelessly with devices such as PLCs. It can achieve wireless monitoring in various on-site environments and is suitable for situations where the distance is not too far, wiring is complex, or wiring is inconvenient.


## Advantages

- Exquisite appearance, handheld operation, more flexible
- Built-in mobile power supply, convenient charging, long battery life
- Wireless communication with PLC, fast air transmission speed (up to 115200bps), long communication distance, strong stability
- Support C language function blocks, convenient for complex data processing
- Flash disk interface for data import and export

The system interface integrates RF configuration, making operation simple and convenient

## Product performance

| | |
|---|---|
| MTG765-HT | Chip: new generation LoRa spread spectrum communication chip |
| | Distance: maximum measured distance 150 meters |
| | Interface: supports Ethernet port device |
| | Multi-channel: supports up to 84 channels |
| | Anti-interference ability: Stronger anti-interference |

| | |
|---|---|
| S-BOX-HT | Physical connection: supports Rs232 /485/422 multiple physical connection |
| | Methods Distance: maximum measured distance 350 meters |
| | Compatibility: serial port parameters can be freely set |
| | Multi-channel: supports up to 84 channels |
| | Anti-interference ability: Stronger anti-interference |

## Product specification

| MTG765-HT | | Model |
|---|---|---|
| Screen features | Size | 7.0″ |
| | Type | 16.77 million colors |
| | Resolution | 800*480 |
| | Brightness | Adjustable (system register PFW100) |
| | Touch Panel | Four wires resistive touch panel |
| | Service life | Above 50000 hours, environment temperature 25°C, 24 hours operation |
| | Text settings | Chinese,English,Japanese,Russia,German,etc. |
| | Character size | Any font and size |
| Memory | Storage | 128MB |
| Electrical features | Power | 4W |
| | Charging parameters | 5.0V-2.0A 9.0V-2.0A 12.0V-1.5A |
| | Endurance (Normally open) | 8 hours |
| | Charging time | <10hours |

| MTG765-HT | | Model |
|---|---|---|
| Environment | Operating temperature | 0-45°C |
| | Ambient humidity | 10%RH-90%RH (no condensation) |
| | Surrounding air | Non corrosive gas |
| | Protective structure | Front cover complies with Ip65 |
| | Cooling method | Natural air cooling |
| Structure | External dimensions (mm) | 217.1*158.0*36.6 |
| Interface | PLC port (built-in) | Integrated wireless communication module for built-in PLC port |
| | USB-A port | Flash disk port, USB2.0 specification |
| | USB-B port | USB download port, USB2.0 specification |
| | Micro-USB | Micro USB, USB charging interface |
| | Ethernet port | Standard Rj45 |



# AGV series intelligent controller

The AGV IoT industrial controller is designed specifically for AGV guided cars, with onboard WiskeyLake-U series processors. The high-speed CAN port enables rapid information interaction such as torque, resolution, and steering activity with the control unit, ensuring smooth steering action. Multiple input and output interfaces enable high-speed signal transmission, providing customers with integrated and intelligent system solutions.

## Advantages

- On board Intel WiskeyLake-U platform, multi-core and high-performance.
- Rich external interfaces, 4-channel Ethernet, 16 input/output, and multiple communication interfaces.
- Equipped with 2-channel high-speed CAN interface, supporting CAN2.0A and CAN2.0B protocols.
- Low power consumption, reduced power consumption, and strong seismic resistance.
- Equipped with UPS function and built-in supercapacitors, ensuring the safety of data and systems.
- It can be equipped with CODESYS programming platform soft PLC function.

## Product specification

| Features | Parameter |
|---|---|
| CPU | Inte®Celeron®4205U/Intel®Core™i3-8145U/Intel®Core™i5-8265U |
| Chipset | Intel WHL-U |
| BIOS | AMI |
| Memory | DDR4 2400MHz (max 32G) |
| Storage | 1×M.2 2280 (standard 128G), 1×EMMC optional |
| I/O interface | 4x Intel I211-AT (10/100/1000Mbps, Ethernet) |
| | 4x USB3.0 |
| | 1x RS-232, 3x RS-485 |
| | IO: GPIO optocoupler isolation, 16 inputs (NPN/PNP), 16 outputs (NPN) |
| | 4x LED(DG\ standby\SATA\WD) |
| | 1x Reset |
| | 2x CANBus2.0 A/B |
| Expansion | built-in for dongle |
| | 2x SATA, up to 6Gb/s |
| | 1xM.2, 2280 SSD or 3042 4G LTE communication |
| | 1xJ.2, 2230 supports WLAN/WWAN module |
| Display | DVI-I, resolution up to 1920×1200@60Hz |
| Power Supply | 24V DC 4PIN Phoenix, (2PIN for Remote) ACPI management |
| UPS | Built-in supercapacitor (4x300F) |
| Power | 20W (typical) ~ 60W (max) |
| System | Windows 10 IoT LTSC, Linux |
| Size | 236 x 165 x 65.5mm (length×width×height) |
| Weight | 2.0kg |
| Working temperature | 0°C~60°C with 0.7m/s airflow |
| Storage temperature | -40°C ~85°C, 60°C @ 95% (no condensation) |
| Relative humidity | 10~95%@40°C (no condensation) |
| Protection level | Ip30 |
| Certifications | CE, FCC |