GALAXIS TECHNOLOGY

## AMR ROBOT SOLUTIONS

GALAXIS

GALAXIS AMR

Technology Empowers Logistics
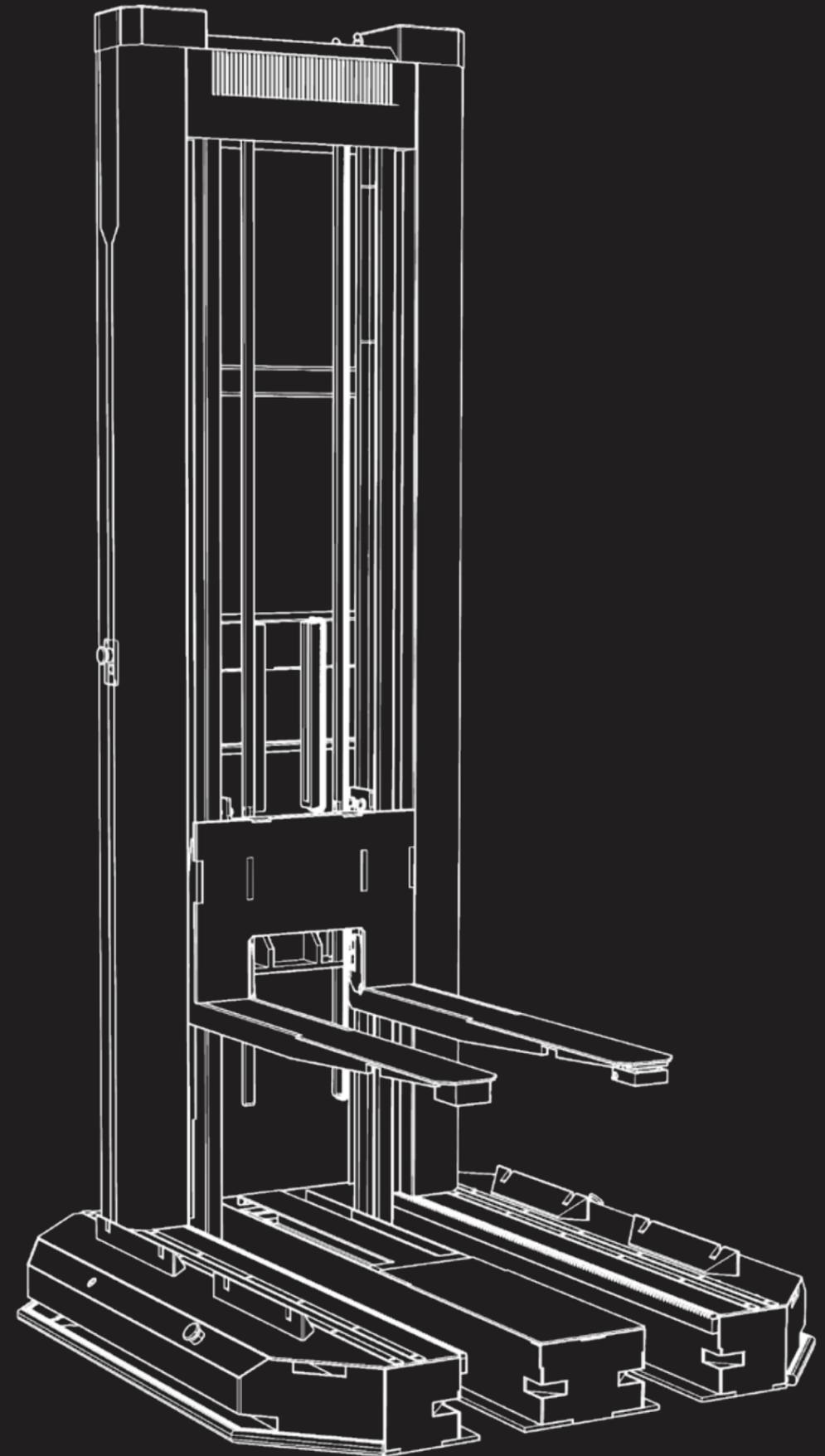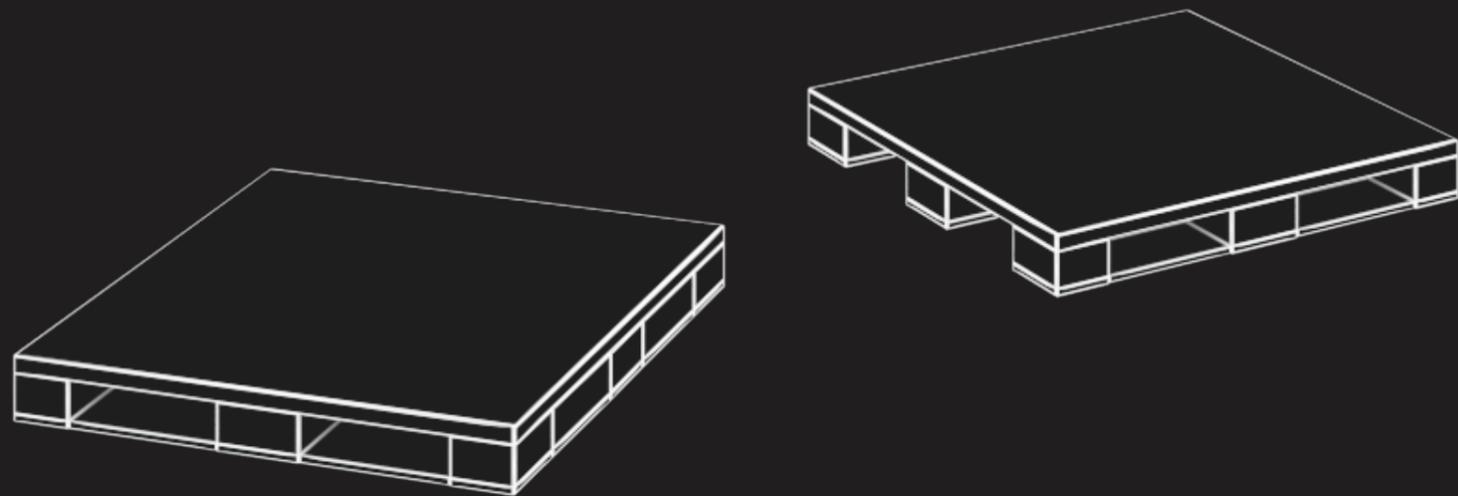
PTR solution

The PTR series is designed for automatic warehousing and unmanned transportation of pallets, which can offer a seamless connection to mainstream logistics information systems (ERP/WCS/WMS) to realize fast, accurate and flexible material transportation. It offers the solution for transporting pallets and large-sized goods with maximum 1000kg payload, catering to the needs of both manufacturing and distribution industries.

Receiving

Storage

Transportation

Shipping
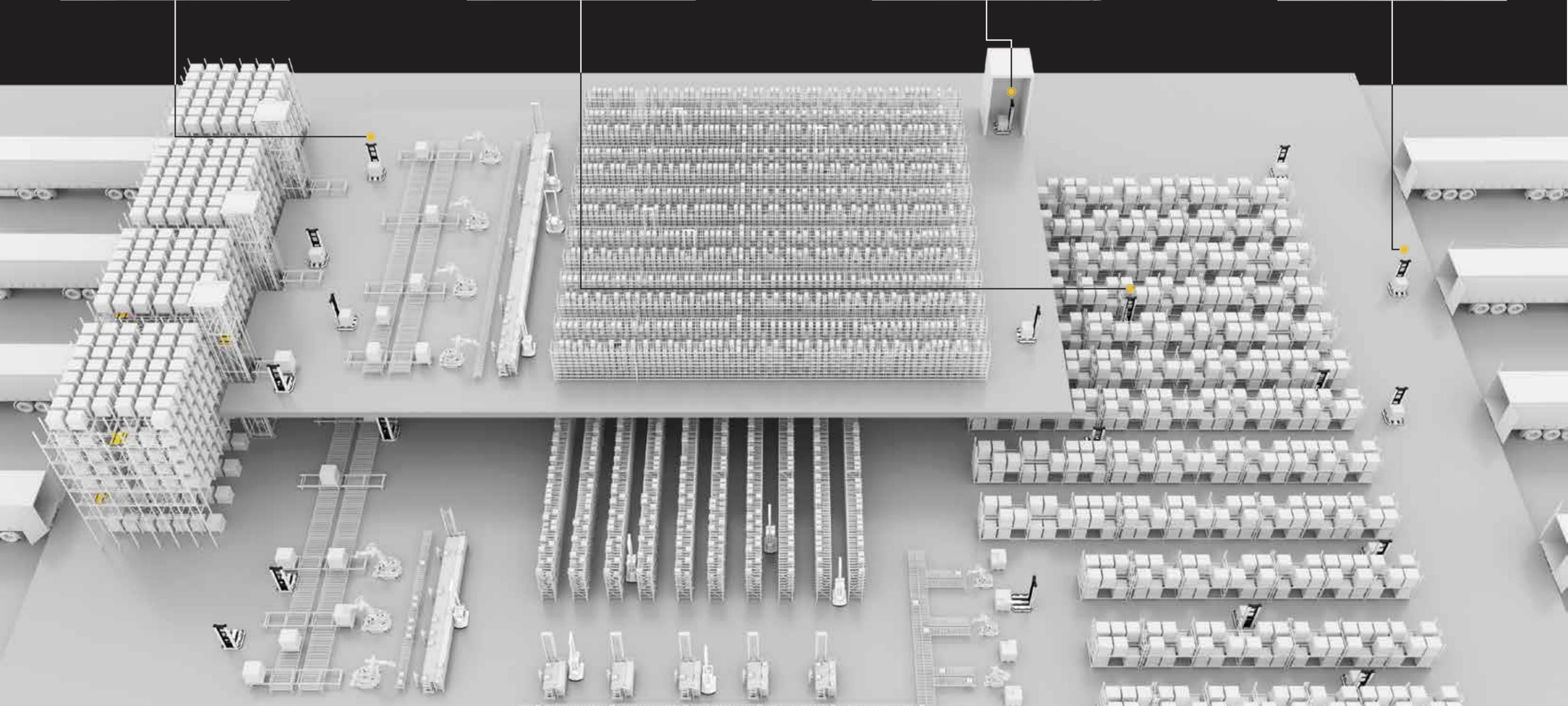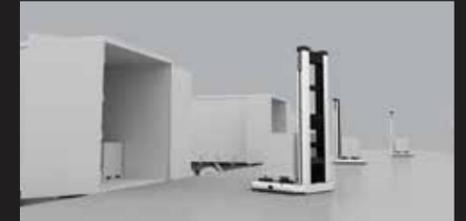
Pallet Transportation Robot
Cyber Lift

CL1QS

—— **Main Parameters**

Rotating diameter
Min. 1850mm

Navigation
Hybrid SLAM + QR code

Max. Payload
1000kg

Min. height
3080mm

Rated speed
1.2m/s

Operaiton time
8h

CL2QS

—— **Main Parameters**

Rotating diameter
Min. 1600mm

Navigation
Hybrid SLAM + QR code

Max. Payload
1200kg

Min. height
1950mm

Rated speed
1.2m/s

Operaiton time
8h

Advantages

1.65m

Aisle Width
Outstanding
space utilizatio

Flexibility
Directly connnect to conveyors
and racks from ground

5G Network
Compatible with more
diversified communication solutions

Safety
Safe operation
ensured by multiple sensors

Intelligent
Pallet misaligned automatic
recognition and correction

Efficiency
Only 1.5 seconds positioning time, 80% efficiency improvement compared with forklift.

Compact
1.65 meter aisle width, 25% space utilization improvement compared with forklift.

Safety
Considering the complexity of scene safety in all aspects, it incorporates multiple types of sensors, which complies with the ISO3691-4 international standard.Complying with ISO3691-4 standard, it incorporates various sensors to ensure scene safety in all aspects.

Intelligent
By using laser radar to scan the pallet orientation, intelligently determines the angle of the pallet fork hole, and autonomously corrects the deviation to complete the pallet pickup.

Flexibility
PTR can pick the pallet from ground directly and without any steel frame, while also being able to lift and dock with conveyors and racks.

Duration
Equipped with a 75Ah battery, offers multiple chargeing mode includes manual charging, manual battery replacement, and automatic charging.

RCS
Robot Control System

GALAXIS Robot Control System can meet the needs of large-scale robot scheduling in intelligent manufacturing and logistics industries, used to control AMR, pallet shuttles and other intelligent robots.

RCS adopts a micro-service architecture, which allows for direct control of intelligent hardware equipments, and integration with the upper-level business system (WMS, ERP) or warehouse control system (WCS). This fully leverages and optimizeds the efficiency of robotic devices, thereby enhancing operational efficiency. Currently, GALAXIS RCS supports the integration of devices such as lifts, conveyors and robotic arms.
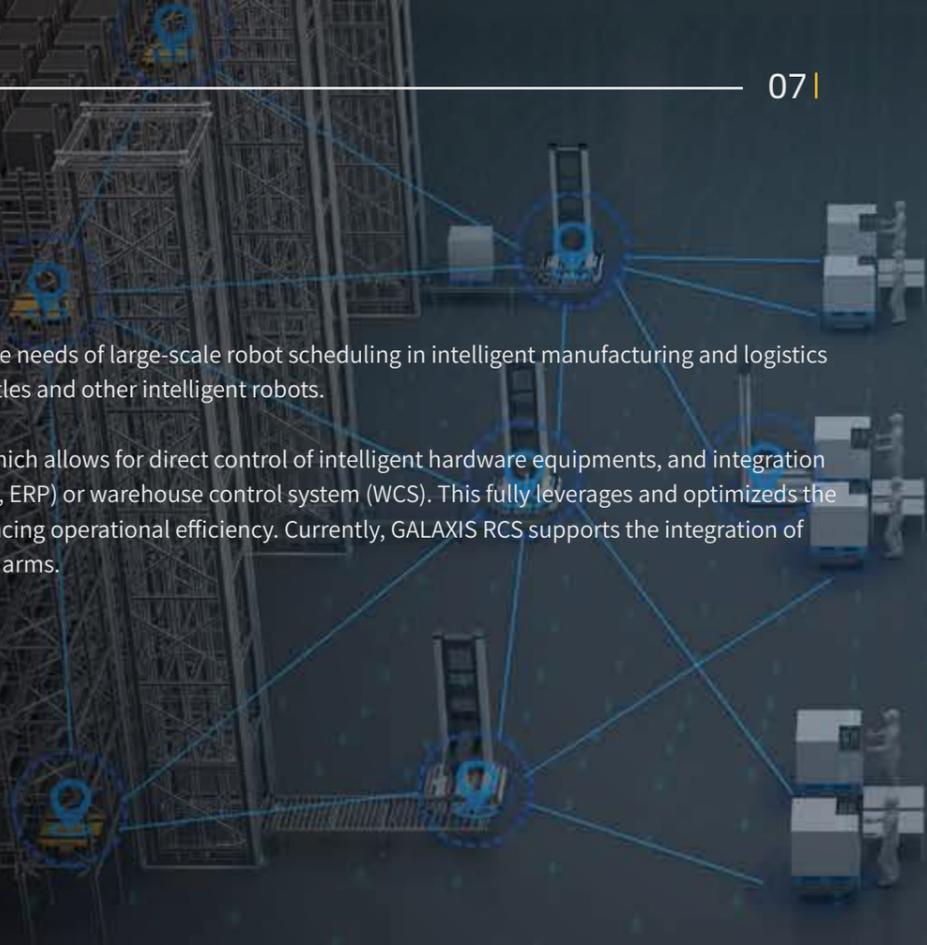
Multiple equipments control

Flexible configuration strategy

Optimal path planning
Load balancing and task optimization

Segmented deployment architecture,
with more powerful system execution capabilities

Easy deployment, operation and maintenance,
with a good exception handling mechanism
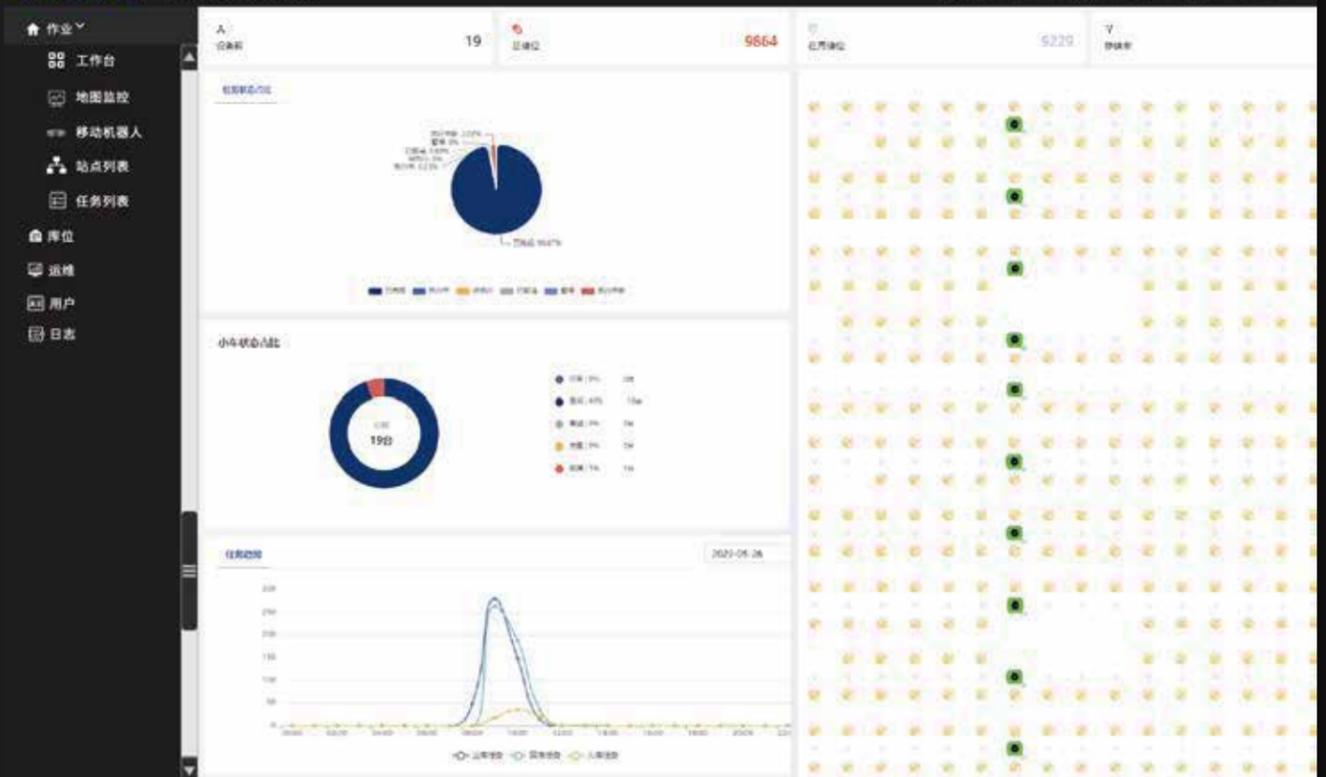
AMR Product Series

High flexibility in production process boosts the booming of intelligent manufacturing. The independently developed Robot Control system and AMR series products by GALAXIS, combine with Hybrid SLAM navigation technology and modular hardware, which can be applied in flexible intelligent solutions that meet multi-industry and cross-scenario needs, support the achievement of full-process logistics automation and data visualization, driving the intelligent upgrade of manufacturing and logistics enterprises.

» FM Series

FM series can be widely used in various intralogistics scenarios,with lifting function, it can handle pallet, carriers, shelf,material cart, etc. FM robot can be rapidly deployed for any complex environments for modern warehouse.

» FR Series

Designed for docking with conveyor line and production machines, it can automatically transport in different functional areas, with customized roller loading device and Hybrid SLAM navigation technology,FR robot ensure flexibility and reliability in various scenarios.

» FS Series

FS robot is a kind of box handling solution, it can dock with conveyors with different height, pick up the cartons or bin from rack and flow rack.

» PTR Series

PTR Cyber Lift can realize pallettransportation and storage. With minimum 1,650mm corridor width and very small turning radius, it can achieve about 30% system footprint saving.

» MR Series

Forklift robot are focusing on the automation of transportation needs for standard totes and pallets, using mechanisms such as fork and telescopic fork as the executing devices, in response to user demands.

FM Series Robot

FM100Q

FM300QS

FM1000QS

FM Robot

—— Product highlights

Flexibility and efficiency
- SCapable for various workflow scenarios

Customizable
- Capable for a wide range of applications

Rapid deployment
- Easy to modify and upgrade

Driving mode
- Differential mode

Precise docking
- Positioning accuracy ±5 mm

Navigation mode
- SLAM/QR code

Parameters

Equipment Models	FM100Q	FM300QS	FM1000QS
Dimension L*W*H（mm）	720*500*320	840*600*290	1150*820*315
Spin diameter (mm)	720	975	1150
Weight（kg）	90	135	260
Max. Payload（kg）	100	300	1000
Lift Distance (mm)	60	80	50
Navigation mode	QR code	QR code/SLAM	QR code/SLAM
Maximum operation speed（m/s）	2.2	2.2	1.2
Positioning accuracy（mm）	±5	±5	±5
Stop angle accuracy（°）	±1	±1	±1
Maximum span height（mm）	5	5	10
Climbing ability (% gradient)	6 (3° angle)	6 (3° angle)	6 (3° angle)
Rated operating time（h）	12	8	8
Battery capacity（Ah）	24	24	42
Rated voltage (V)	48	48	48
Battery life cycle (T)	1500	1500	1500

FM Series Robot

FM1500QS

FM2000QS

FM3000QS

FM Robot

—— Product highlights

Flexibility and efficiency
● Capable for various workflow scenarios

Customizable
● Capable for a wide range of applications

Rapid deployment
● Easy to modify and upgrad

Driving mode
● Differential mode

Precise docking
● Positioning accuracy ±5 mm

Navigation mode
● SLAM/QR code

Parameters

Equipment Models	FM1500QS	FM2000QS	FM3000QS
Dimension L*W*H (mm)	1600*900*370	1900*1200*370	2000*1400*480
Spin diameter (mm)	1760	2167	2358
Weight (kg)	700	800	900
Max. Payload (kg)	1500	2000	3000
Load type	Single electric lift	Hydraulic lift	Hydraulic lift
Navigation mode	QR code/SLAM	QR code/SLAM	QR code/SLAM
Maximum operation speed (m/s)	1.2	1.2	1.2
Positioning accuracy (mm)	±10	±10	±10
Stop angle accuracy (°)	±1	±1	±1
Maximum clearance height (mm)	5	5	5
Climbing ability (% gradient)	6 (3° angle)	6 (3° angle)	6 (3° angle)
Rated operating time (h)	8	8	8
Battery capacity (Ah)	44	66	125
Rated voltage (V)	48	48	48
Battery life cycle (T)	1500	1500	1500

FR Series Robot

Parameters

FR100QS

FR500Q

FR Robot

——— Product highlights

Customizable
● Capable for a wide range of applications

Safety protection
● Visual camera and laser radar ensure safety

Rapid deployment
● Easy to modify and upgrade

Drive mode
● Differential mode

Operating accuracy
● Posistioning accuracy ±5 mm

Navigation method
● SLAM/QR code

Equipment Models	FR100QS	FR500Q
Dimension L*W*H（mm)	720*500*520(customizable)	940*690*520(customizable)
Spin diameter (mm)	840	940
Weight（kg)	100	220
Max. Payload（kg)	50	500/（250*2)
Load type	Roller transfer	Roller transfer
Navigation mode	QR code/SLAM	QR code
Maximum operation speed（m/s)	2.2	2.2
Positioning accuracy（mm)	±5	±5
Stop angle accuracy（°)	±1	±1
Maximum span height (mm)	5	10
Climbing ability (% gradient)	6(3°angle)	6(3°angle)
Rated operating time（h)	12	6
Battery capacity（Ah)	24	23
Rated voltage (V)	48	48
Battery life cycle (T)	1500	1500

FS Series Robot
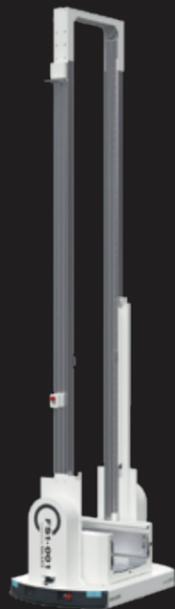
| FS1Q | FS3Q | FS1NQS |

FS Robot

—— Product highlights

Material
● Carton and tote

Load handling device
● Multi-sized item available

Compact
● Compact storage in small space

Drive mode
● Differential mode

Network
● Optional WiFi and 5G

Navigation mode
● SLAM/QR code

Parameters

Equipment Models	FS1Q	FS3Q	FS1NQS
Dimension (mm)	(Customizable height) 1150*820*5000	(Customizable height) 1400*900*5000	1730* 950* 4565
Spin diameter (mm)	1150	1410	1850
Weight (kg)	300	350	720
Max. Payload (kg)	40	30*3	30
Load type	Lift transfer	Lift transfer	Lift transfer
Hoist distance (mm)	400~4550	250~4550	280~4000
Navigation mode	QR code	QR code	QR code/SLAM
Maximum operation speed (m/s)	1.2	1.5	1.5
Positioning accuracy (mm)	±5	±5	±10
Stop angle accuracy (°)	±1	±1	±1
Maximum span height (mm)	5	5	5
Climbing ability (% gradient)	3(1.5°angle)	3 (1.5° angle)	3 (1.5° angle)
Rated operating time (h)	8	10	6-8
Battery capacity (Ah)	42	75	44
Rated voltage (V)	48	48	48
Battery life cycle (T)	1500	1500	1500

PTR Series Robot

CL1QS

CL2QS

PTR Robot

—— Product highlights

Narrow aisle
- Minimum 1650mm

Quick and agile
- 1.5 seconds of positioning time

Rapid deployment
- Easy to modify and upgrade

Drive mode
- Differential mode

Network
- Optional WiFi and 5G

Navigation mode
- SLAM/QR code

Parameters

Equipment Models	CL1QS	CL2QS
Dimension L*W*H (mm)	1500*1500*3080	1500*1500*1950-3080
Weight (kg)	1000	1200
Minimum rotating diameter (mm)	1850	1600
Max. payload (kg)	1000	1000
Lifting height (mm)	0〜2000	0〜2000
Docking equipment	Work station, conveyor, rack etc.	Work station, conveyor, rack etc.
Applicable pallet sizes (mm)	1000*1200、1200*1200	1200*800、1000*1200
Rated speed (m/s)	1.0/1.2	1.0/1.2
Lifting speed (mm/s)	190	200
Driving directions	Bidirectional movement	Bidirectional movement
Navigation mode	QR code/SLAM	QR code/SLAM
Positioning accuracy (mm)	±10	±10
Docking accuracy (mm)	±5	±5
Climbing ability (% gradient)	3 (1.5° angle)	3 (1.5° angle)
Operating time (h)	8	8
Charging mode	Manual charging, automatic charging and battery replacement	Manual charging, automatic charging and battery replacement
Battery life cycle (T)	1500	1500

MR Series Robot

MR1000S

MR1500S

MR Robot

—— Product highlights

Customizable
- Narrow body, supporting customized fork dimensions

Flexibility and efficiency
- Capable for various workflow scenarios

Rapid deployment
- Easy to deploy and upgrade

Safety protection
- Laser/Infrared anti-collision, loading detection, audible alerts

Network
- Optional WiFi and 5G

Navigation method
- Laser SLAM (reflector)

Parameters

Equipment Models	MR1000S	MR1500S
Dimension L*W*H（mm）	1640*990*1990	1620*910*1940
Weight（kg）	795	450
Minimum rotating diameter（mm）	2356	2504
Max. payload（kg）	2052	2200
Lifting height（mm）	1950	125
Docking equipment	Roller, chain conveyor, specific working position etc.	Roller, chain conveyor, specific working position etc.
Applicable pallet sizes（mm）	1000*1200、1200*1200	1000*1200、1200*1200
Rated speed（m/s）	1.0/1.2	1.2/1.5
Lifting speed（mm/s）	100/135	25
Navigation mode	Laser slam (reflector)	Laser slam (reflector)
Driving mdoe	Steering wheels	Steering wheels
Stop accuracy（mm）	±10	±10
Docking accuracy（mm）	±10	±10
Operating time（h）	8	8
Charging mode	Manual charging and automatic charging	Manual charging and automatic charging
Battery life cycle (T)	1500	1500

Project reference

Wine Cabinet Manufacturer Warehouse（China）

GALAXIS provided a comprehensive AMR intelligent solution to this wine cabinet manufacturer. The solution adopted dozens of AMR units in conjunction with the RCS, overcoming the production line bottleneck in the factory, and achieving complete automation in transportation and storage.

- Increase in production capacity by 100% and significant decrease in labor and management costs
- High flexibility, rapid deployment, and easy relocation, enabling high logistics flexibility and inventory in the factory

Raw Materials Warehouseof Relay Factory（China）

GALAXIS designed a comprehensive logistics solution includes AS/RS, transportation, and sorting. The solution includes shuttle storage area for raw materials, semi-finished goods warehouse, finished goods warehouse, and an automatic palletizing area, providing an all-in-one logistics automation solution.

- Realization of overall visual management
- Increase production capacity by 50%, and decrease in production cost
- Seamless integration with the production line, which significantly improved efficiency, ensuring production quality

A Famous Public Library (China)

GALAXIS, as the integrated solution provider and equipment supplier for the project, provided shuttle system, lift system, and AMR system-related equipment and services, realizing the storage and circulation needs of over 300,000 books.

- Increase space utilization rate by 50%
- Increase book collections by 30%

Leading Pharmaceutical Enterprise Logistics Center (China)

GALAXIS provided the enterprise with a comprehensive intelligent logistics integration system, which was successfully deployed and efficiently applied for automated operations such as collection, return, storage and retrieval, and sorting of various medicines. As the first PTR project in the industry, it has become a benchmark in northeastern China.

- Storage increased by over 30% compared to traditional solutions
- Full replacement of pallet transportation and manual labor

BottleCap Manufacturer Factory (China)

GALAXIS provided a complete AMR intelligent transportation solution for a renowned bottle cap manufacturer. The solution was tailored to adapt to the current production process and the application of automated logistics, effectively reducing manual labor and improving the operation efficiency of production and logistics.

- Dynamic recognition with accuracy close to 100%
- Seamless integration with the production line, improving overall efficiency an capacity
- Automatic 1-hour fast charging, improving the utilization rate of robots

Textile Enterprise Warehouse (China)

GALAXIS planned and implemented a complete logistics automation solution for its industrial park. By using automation equipment in collaboration with related software and hardware systems, it achieved closed-loop coordination of logistics, production, warehousing, sorting, and shipping operations within the park.

- "Goods to Person" operation mode by over a hundred PTR units
- Fullreplacementofmanualtransportation
- Increaseinsiteutilizationby35%comparedtomanualstacking

Project reference

Parts Manufacturer Warehouse (China)

GALAXIS provided a complete logistics automation solution for a well-known industrial parts enterprise in Wuhan. The solution realized the automatic transportation of PTR and conveyor line, recycle and stacking of empty pallets, disassembly of empty pallet groups at inbound area, and automatic container supply.

- Completion of deployment and commissioning in two weeks
- Unmanned and contactless transportation with equipment failure rate less than 0.001

A Public Security Bureau Warehouse (China)

GALAXIS provided an AMR and intelligent warehouse system for a public security bureau project in Shenzhen. The system is easy to operate, significantly increasing the storage capacity and operational efficiency of the property management center, while reducing the workload of warehouse personnel. The solution meets requirements while ensuring safety and value preservation.

- Full-process unmanned horizontal and vertical transportation and storage within the warehouse
- Real-time control of all property and physical evidence, ensuring that warehousing records match with the physical flows

A Public Security Bureau Warehouse (China)

GALAXIS provided a full SLAM-navigated AMR solution for a well-known new energy customer in Hangzhou, enabling AMR transportation and docking operations for materials.

- 360° laser scanning both in the front and back, ensuring a smooth and seamless motion docking process
- Adoption of SLAM navigation, no other positioning aids are required on the ground

Products Warehousein Semiconducto factory (China)

GALAXIS provided a complete storage area for finished products, material transportation system, automated packaging production line, intelligent stacking, and other components for a leading semiconductor industry customer in Tianjin. These components were seamlessly interconnected, creating a fully automated and unmanned intelligent storage service system.

- Pallet transportation by AMR instead of conveyors, allowing for flexible site layout
- The AMR operating site can be expanded according to business needs, with a short deployment cycle

Pharmacy Distribution Center (China)

GALAXIS provided a complete logistics solution for a pharmaceutical project in Qingdao, utilized the AMR system to achieve unmanned transportation and sorting operations from the AS/RS to manual picking stations, as well as automatic soting using robotic arms.

- Meeting the daily shipment requirement of 4,000 boxes from the warehouse
- Realizing unmanned and automated transportation within the warehouse, decreasing labor costs

A Renowned Pharmaceutical Enterprise Warehouse(China)

GALAXIS provided integration services for a pharmaceutical project in Nanchang. In the project, the PTR solution realized automated transportation and docking, compact storage and sorting in multi-story warehouses, as well as operations like stacking empty pallets.

- 1.7-meter aisle width, increasing storage capacity by 30% compared to traditional automation solutions
- Sorting is carried out in a pallet-to-person mode, increasing efficiency by 50%

GALAXIS

Jiaxing, China
Add: No.1118, Chicheng Road, DaqiaoTown,Nanhu District, Jiaxing City, Zhejiang Province, China
Tel：+86 0573 8258 6878
Web: en.galaxis-tech.com

Shanghai, China
Address: Room 309, Building C, Dongshuo Space of Yupei, No.1899 Shenkun Road, Shanghai
Tel：+86 021 6221 2357

Wuxi, China
Add: A101, Liye Building, University Technology Park of Sensing Network, No.18 Qingyuan Road, Wuxi New District
Tel：+86 0510 6879 2600

Wuhan, China
Add:22nd Floor, Office Building, Building 6, Jiuzhoutong Health City, Longxing West Street, Hanyang District, Wuhan

Shenzhen, China
Add: 101, Building 3, Nangang First Industrial Park, 1029 Songbai Road, Yangguang Community, Xili Street, Nanshan District, Shenzhen

Kunming, China
Add: Room 1003, Main Building, High-tech Information Center, No.398 West Second Ring Road, High-tech Zone, Kunming City, Yunnan Province

Wuhu, China
Add: No. 1211, No. Kechuang Road, Anhui Xinwu Economic Development Zone, Wanzhi District, Wuhu City, Anhui Province, China

Dongguan , China
Add: Building 19-03, Post 6, CIMIC Zhigu Industrial Park, Songshan Lake Park, Dongguan City, Guangdong Province

Guangzhou, China
Add: Building 5, Units 5106-5108, West Area, Chebei Road, Tianhe District, Guangzhou City,China

Beijing, China
Add: Room 1036, 10/F, Building 5, No.36 Guangqu Road, Chaoyang District, Beijing

Hong Kong, China
Add: 61 Mody Road, East Tsim Sha Tsui, Hong Kong

Moscow , Russia
Add: Office 110, bldg. 1-1A, str. Malaya Andron yevskaya 20/8, Moscow
Tel：+7(910)439-0149

Hamburg, Germany
Add: Boettgerstr.12,20148 Hamburg Germany
Tel：+49-40-3499940

NO:CATALOG-2022-05

Zhejiang Galaxis Technology group Co.Ltd
No.1118, Chicheng Road, DaqiaoTown,Nanhu District, Jiaxing City, Zhejiang Province, China

T: 400-101-0947
E: info@galaxis.com.cn
w: en.galaxis-tech.com