



AMR Autonomous Mobile Robot SLAM Laser Navigation 500KG Heavy Payload Capacity 8-Hour Battery for Warehouse Logistics

Our Product Introduction

Basic Information

- Place of Origin: GUANGZHOU
- Brand Name: TIANYUE
- Certification: CE, 3C
- Model Number: TY-AMR-H500
- Minimum Order Quantity: 1
- Price: Negotiable
- Packaging Details: Reinforced wooden crate with shock-absorbing foam protection and moisture-barrier wrapping
- Delivery Time: 30-45 work days
- Payment Terms: T/T, L/C
- Supply Ability: 100 units per month



Product Specification

- Navigation: SLAM Laser Navigation
- Product_material: Reinforced Steel
- Power_supply: Lithium Iron Phosphate (LiFePO4)
- Drive_mode: Mecanum Wheel (Omnidirectional)
- Bearing_weight: 500KG
- Travel_speed: 1.5 M/s
- Navigation_accuracy: $\pm 10\text{mm}$
- Battery_life: 8 Hours
- Charging_method: Automatic Return To Charge
- Dimensions: Customizable
- Obstacle_avoidance: LiDAR + 3D Camera + Ultrasonic
- Highlight: **AMR Autonomous Mobile Robot with 500KG payload**
, SLAM Laser Navigation AMR for warehouse,
Autonomous Mobile Robot with 8-hour battery

for more products please visit us on roboticsagv.com

Product Description

The TIANYUE AMR Autonomous Mobile Robot represents a breakthrough in industrial warehouse automation, combining SLAM laser navigation technology with a robust 500KG payload capacity. Engineered for demanding material handling operations, this autonomous mobile robot delivers exceptional reliability, precision, and operational efficiency across diverse industrial environments. Whether deployed in manufacturing plants, distribution centers, or logistics hubs, the AMR seamlessly integrates into existing workflows to streamline transportation tasks and reduce manual labor dependency. Designed and manufactured by TIANYUE with over a decade of robotics engineering expertise, this AMR platform provides a future-proof automation solution that scales with evolving operational requirements.

Built on a durable reinforced steel chassis with industrial-grade components, the AMR features advanced SLAM (Simultaneous Localization and Mapping) laser navigation that enables accurate autonomous movement without the need for magnetic tapes, QR codes, or other fixed infrastructure. The onboard sensor suite including high-precision LiDAR scanners and depth cameras provides comprehensive 360-degree environmental perception, allowing the robot to dynamically map its surroundings, plan optimal routes, and navigate safely around obstacles and personnel in real time. This infrastructure-free approach significantly reduces deployment time and cost while providing the flexibility to reconfigure routes and work zones as operational needs change.

The AMR is powered by a high-capacity lithium iron phosphate (LiFePO4) battery system that delivers up to 8 hours of continuous operation on a single charge. The integrated battery management system monitors cell health, temperature, and charge cycles to maximize service life and ensure safe operation. When battery levels reach a predefined threshold, the AMR autonomously navigates to the charging station for automatic docking and recharging, returning to duty without operator intervention. This self-sustaining power management enables uninterrupted multi-shift operations in 24/7 production environments.

Key Features

- **SLAM Laser Navigation:** Advanced simultaneous localization and mapping technology enables fully autonomous navigation without fixed guide paths or infrastructure modifications. The SLAM system supports dynamic route planning, automatic map updates, and real-time obstacle avoidance in complex industrial environments with moving personnel and equipment.
- **500KG Heavy Payload Capacity:** Robust chassis and high-torque powertrain are engineered to transport loads up to 500 kilograms with stability and precision. This substantial payload capacity makes the AMR suitable for heavy component transport, pallet movement, tooling delivery, and bulk material handling across factory floors, warehouses, and assembly lines.
- **8-Hour Continuous Battery Operation:** High-capacity lithium iron phosphate (LiFePO4) battery technology delivers up to 8 hours of uninterrupted operation on a single charge cycle. The intelligent battery management system provides automatic return-to-charge functionality, ensuring minimal downtime and continuous availability during multi-shift manufacturing operations.
- **Mecanum Wheel Omnidirectional Drive:** Equipped with precision mecanum wheels enabling full omnidirectional mobility with zero turning radius. The AMR moves forward, backward, sideways, and rotates in place with exceptional precision, optimizing maneuverability in narrow warehouse aisles, tight production line corridors, and confined industrial spaces where traditional vehicles cannot operate effectively.
- **Multi-Sensor Obstacle Detection:** Integrated LiDAR scanners, 3D depth cameras, and ultrasonic sensors provide comprehensive environmental perception with safety-rated obstacle detection zones. The multi-layer safety system detects obstacles, personnel, and equipment at varying distances, automatically adjusting speed or executing emergency stops to ensure safe operation in dynamic work environments shared with human workers.
- **Intelligent Fleet Management System:** Centralized fleet control software supports multi-robot coordination with intelligent task dispatching, traffic management, collision avoidance between robots, and real-time status monitoring and diagnostics. Seamless integration with existing WMS, MES, and ERP systems enables end-to-end automation with full operational visibility and analytics.
- **Durable Industrial Construction:** Heavy-gauge reinforced steel chassis with industrial powder-coated finish resists impacts, vibration, chemicals, and harsh manufacturing conditions. All critical components including motors, drivers, sensors, and controllers are protected to IP54 or higher standards, ensuring long-term reliability in demanding production and warehouse environments with minimal maintenance requirements.

Technical Specifications

Parameter	Specification
Model Number	TY-AMR-H500
Robot Type	Autonomous Mobile Robot (AMR)
Navigation Technology	SLAM Laser Navigation (LiDAR + Depth Camera)
Maximum Payload	500 KG
Drive Mode	Mecanum Wheel (Omnidirectional)
Maximum Travel Speed	1.5 m/s (Adjustable)
Navigation Accuracy	±10 mm
Battery Type	Lithium Iron Phosphate (LiFePO4)
Battery Capacity	48V 60Ah
Battery Life	8 Hours Continuous Operation
Charging Method	Automatic Return to Charge / Manual Charging
Obstacle Avoidance	LiDAR Scanner + 3D Camera + Ultrasonic Sensors
Safety Sensors	Safety-Rated Laser Scanner + Emergency Stop Button
Communication Interface	Wireless LAN (Wi-Fi 802.11ac) / Optical Communication
Control System	PLC / Embedded Industrial Controller
Chassis Material	Reinforced Steel with Industrial Powder Coating
Ingress Protection	IP54 (Critical Components)
Operating Temperature	0°C to 45°C
Dimensions (L x W x H)	Customizable Based on Application Requirements
Warranty	12 Months

Applications

The TIANYUE 500KG AMR Autonomous Mobile Robot is purpose-built for a wide range of industrial automation scenarios across diverse sectors. In automotive manufacturing facilities, it reliably transports engine components, transmission assemblies, and chassis parts between production stations with precise timing, traceability, and integration with assembly line control systems. Within electronics and semiconductor fabrication plants, the AMR moves sensitive components through cleanroom environments with minimal vibration and controlled speed profiles to prevent electrostatic discharge risks. For e-commerce fulfillment centers and third-party logistics warehouses, it handles high-volume order picking and sorting operations, autonomously shuttling totes and parcels between picking stations, packing lines, and shipping docks with optimized path planning. In heavy industry and metal fabrication plants, the robust 500KG load capacity enables the safe transport of raw materials, tooling fixtures, weldments, and finished products across extended factory layouts. The AMR also serves pharmaceutical warehouses requiring controlled, documented material flow for raw ingredients and finished drug products, as well as food and beverage distribution centers managing palletized goods and temperature-sensitive inventory with full audit trail capabilities.

Packaging & Quality Assurance

Every TIANYUE AMR unit undergoes comprehensive pre-shipment testing including full navigation system calibration, payload stress testing at 125 percent of rated capacity, sensor validation and calibration across all operational modes, and 72-hour continuous run-in testing to verify reliability under sustained operation. Each AMR is carefully packaged in a reinforced wooden export-grade crate with custom-cut shock-absorbing foam protection panels, anti-static shielding for electronic components, and multi-layer moisture-barrier wrapping to ensure safe international transportation by sea, air, or land. Standard delivery includes the AMR unit, automatic charging station, fleet management software license with one year of updates, operator training documentation, maintenance manual, and installation toolkit. All TIANYUE AMR products carry CE and 3C international certifications, backed by a comprehensive 12-month warranty covering manufacturing defects, component failures, and remote technical support. Extended warranty packages and on-site commissioning services are available for international deployments. Customized configurations for load capacity, dimensions, navigation preferences, communication protocols, and integration with third-party systems are available upon request to meet specific application requirements.





13570415240



mkliangjintian@gmail.com



roboticsagv.com

Self-Compiled Buildings 7-8, Shitouji Jewelry Co., Ltd., No. 2 Daguan Yuan Road, Jewelry City, Huadu District,
Guangzhou City, Guangdong Province, China