# Omnidirectional dual-Arm Composite Robot (CMR - H2)

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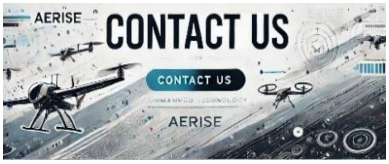
CMR-H2 Omnidirectional Dual-Arm Composite Robot, developed based on the HT-01 Mini four-wheel, four-rotation omnidirectional chassis, integrates a humanoid dual-arm system and a 1000mm lifting slide table, suitable for high-mobility scenarios such as industrial assembly and warehouse logistics. The chassis adopts an omnidirectional drive architecture (lateral/diagonal/zero-radius turning), equipped with multi-line laser radar and IMU fusion navigation, achieving ±8cm positioning accuracy on complex terrain and 120kg load transport. The dual arms feature modular joints, with adaptive grippers (3-15cm grasping span) at the end effectors. These are paired with a head-mounted RGB-D depth camera for dynamic target tracking, combined with visual algorithms to achieve centimeter-level segmentation and obstacle avoidance. The slide table supports 250mm/s vertical movement, expanding the vertical range to a 1m biomimetic workspace, enabling access to high-level shelves. It offers open ROS/API interfaces, compatible with gesture teaching and deep learning algorithm porting, centered on human-like operation, omnidirectional high-precision movement, and industrial-grade scalability, empowering the upgrade of embodied intelligent manufacturing.

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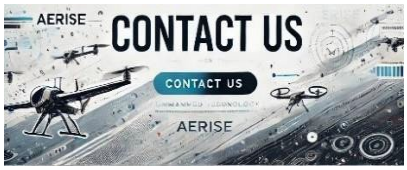
## Main Functions:

1. **Multi-line laser navigation and obstacle avoidance**
2. **High-Precision Navigation**
3. **Precision control of dual bionic robotic arms**
4. **Omnidirectional Chassis with High Mobility**
5. **Vertical Electric Lift Expansion**
6. **Standard Protocols and Data Communication**

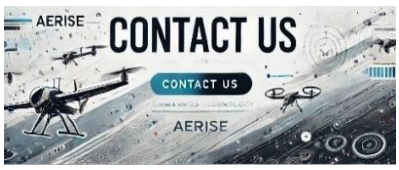
## Robotic Arm Parameters

| Parameter | Details |
|---|---|
| Working Radius | 626 mm |
| Payload | 1.5 kg |
| Material / Body Weight | Aluminum alloy + plastic shell / 4.2 kg |
| Repeatable Accuracy | ±0.1 mm |
| Terminal Velocity | ≤ 2 m/s |
| Power Consumption | Maximum ≤ 120 W, Total ≤ 40 W |
| Control Method | Drag teaching / offline trajectory / API / host computer |
| Noise | < 60 dB |
| Power Supply | DC 24V (24V–26V) |
| Protection Rating | IP54 |
| Communication | CAN |
| Working Environment | -20 – 50°C, humidity 25%–85% RH (non-condensing) |



## Product Technical Parameter

| Parameter | Details |
|---|---|
| Overall Dimensions (L*W*H) | 710*490*385 mm |
| Chassis Weight | 70 kg |
| Materials | Q235 |
| Vertical Load | 120 kg |
| Encoder Line Count | 4096 lines |
| Protection Rating | IP54 |
| Operating Temperature | -10 – 60°C |
| Charging Time | 3 h |
| Motor Power | Drive motor 150W × 4 + steering motor 60W × 4 |
| Height Above Ground | 100 mm |
| Maximum Speed | 2.0 m/s |
| Theoretical Battery Life | 3 h |
| Battery Capacity | 48V 25AH (lithium battery, expandable) |
| External Power Supply | 48V / 24V / 19V / 12V |
| Emergency Stop Method | Remote emergency stop / hardware emergency stop / software emergency stop |
| Supported Systems | ROS / WIN / UBUNTU |
| Climbing | 20% |
| Obstacle Crossing (Vertical Steps) | 5 cm |
| Movement Mode | Omnidirectional movement mode |
| Slope Hold | Servo hill hold |
| Navigation Method | Laser navigation (3D SLAM) |
| Navigation Accuracy | ±80 mm |
| Navigation Protocol | MQTT |
| Remote Control Mode | 2.4G RC Model Remote Control |



## Motorized Jaw Parameters

| Parameter | Details |
|---|---|
| Weight | 0.5 kg |
| Accuracy | ±0.5 mm |
| Opening and Closing Distance | 0–70 mm |
| Rated Clamping Force | 40 N |
| Maximum Clamping Force | 50 N |
| Supply Voltage | DC 24V |
| Power Consumption | Maximum ≤ 50 W, Total ≤ 30 W |
| Self-Locking | Not supported |
| Contact Surface Material | Rubber |
| External Interface | Power interface ×1, CAN interface ×1 |