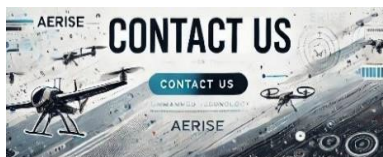


Intelligent Multi-functional Composite Robot with Body (CMR-D1)

Updated on Oct 2025

The CMR-D1 embodied intelligent multi-functional composite robot is an upgraded version of the DT-01 S1 platform, deeply integrating a 6-axis collaborative robotic arm and a 3D vision system. This model continues the lightweight chassis design and adds an aluminum alloy robotic arm module with a 600 mm working radius, equipped with an electric flexible gripper at the end, supporting 1.5 kg of dynamic load grasping. By integrating RGB-D depth cameras with 3D vision algorithms, it achieves precise multi-modal recognition of colour, shape, and feature points. Combined with adaptive path planning algorithms, the robot can perform two-dimensional coordinate positioning and dynamic obstacle avoidance in complex environments. The system adopts a modular architecture with an open ROS control interface. The robotic arm is compatible with Python/C++ development environments, allowing users to program or deeply customise robotic arm trajectories and grasping strategies through a visual interface. The built-in high-performance main control unit separately handles navigation logic and AI visual computations, supporting SLAM mapping, object sorting, automated palletising, and other educational and light industrial scenarios. Combined with pre-installed deep learning model libraries and open-source algorithms, it can rapidly deploy embodied intelligent applications such as smart warehousing and retail logistics.



Main Functions:

1. Laser Mapping and Obstacle Avoidance
2. High-Precision Navigation
3. Robotic Arm Gripping
4. Multi-Source Data Closed-Loop
5. Low Battery Automatic Recharging
6. Standard Protocols and Data Communication

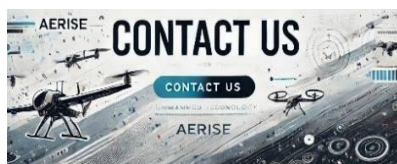
Robotic Arm Parameters

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, Comprehensive ≤ 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%, Non-condensing



Product Technical Parameter

Parameter	Details
Overall Dimensions (L*W*H)	500*420*310 mm
Chassis Weight	35 kg
Materials	Q235
Vertical Load	50 kg
Encoder Line Count	4096 Lines
Protection Rating	IP22
Operating Temperature	-10 – 60°C
Charging Time	< 3 h
Motor Power	60 W × 2
Motor Type	Hub motor (brushless DC)
Maximum Speed	1.3 m/s
Theoretical Battery Life	3 h
Battery Capacity	24V 20AH (lithium battery, expandable)
External Power Supply	24V / 19V / 12V
Emergency Stop Method	Remote emergency stop / hardware emergency stop / software emergency stop
System Support	ROS / WIN / UBUNTU
Navigation Method	Laser navigation (2D SLAM)
Navigation Accuracy	±50 mm
Navigation Protocol	MQTT
Remote Control Mode	2.4G RC Model Remote Control
Obstacle Avoidance Method	Supports obstacle detection and obstacle avoidance
Navigation Mode	Point-to-point, predetermined route, trajectory, etc.
Turning Radius	Rotate in place (0°)
Auxiliary Positioning Accuracy	±10 mm



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 $\times 1$, CAN interface $\times 1$
Parameter	Details
Weight	0.5 kg

