

Hangzhou Microrobot Technology Co., Ltd.

Replacing 20 Million Scenes Unsuitable for Human Labor

Hangzhou Microrobot Technology Co., Ltd.

www.microrobotech.cn

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Intelligent Management Platform & Value Proposition

Hangzhou Microrobot Technology Co., Ltd. specializes in wheeled quadruped robots with full-terrain autonomous capabilities.

Team: Experts from Stanford, Zhejiang University, Zhejiang Sci-Tech University, focused on AI and robotic control.

Platform: Integrated sensing and control enabling autonomous

navigation, multi-modal perception, and collaborative control.

Applications: Industrial security, emergency rescue, and special operations, with a modular design for fast adaptation.

Ecosystem: An end-to-end solution covering perception, decision-making, and execution.

Collaboration: Close ties with top global research institutions, continuous breakthroughs in perception and motion control.

Mission: Founding team driven to deploy high-performance robots at scale in real-world scenarios.

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ExR

Microrobot Technology's First Industry-Specific Legged Robot

400 kg Maximum Payload, Quadruple Protection, 12-Hour Battery Life

Microrobot Technology's First Flagship Wheeled-Legged Robot

Defined as an "All-Terrain Mobile Intelligent Agent"

100 kg Payload Capacity, 12-Hour Battery Life

Microrobot Technology's New Version of Specialized Legged Robots

Proprietary Battery Management System and Bionic Skeleton Algorithm

Microrobot MOVENEW Series Product Matrix

Microrobot Technology's Industrial Special-Purpose Wheeled-Legged Robot P2: Refreshed Edition

A hybrid explosion-proof wheeled-legged robot certified to Ex db eb IIB T4 Gb standards, featuring a proprietary battery management system (BMS) for safe, long-lasting power, and Microrobot's proprietary bionic skeleton algorithm for precise gait and balance.

Dimensions (unfolded)

900*600*650 mm

Dimensions (folded)

1150*800*200 mm

Battery

72V 3.2 kWh ternary lithium battery

Push-pull type

Total weight

≤ 77 kg

Maximum travel speed

3 m/s

Maximum runtime

12h

Maximum standing load

400kg

Continuous Travel Load

200kg

Stair Climbing Capability

Stair width $\geq 900\text{mm}$

Incline angle $\leq 35^\circ$

Step Climbing Capability

$\leq 400\text{mm}$

Uphill Climbing Capability

$\leq 45^\circ$

Operating Temperature

$-40\sim 85^\circ\text{C}$

Protection Rating

IP67 for the entire unit, IP68 for wheel ends

Computing Power

Supports 2000 TOPS of edge computing power

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Combined explosion-proof design - Ex db eb mb

Explosion-proof enclosure - Ex d

High-Strength Alloy Flameproof Enclosure: Sparks-generating components are sealed within a robust alloy housing. Any internal explosion is contained and cannot ignite the surrounding atmosphere

Safety-enhanced circuit - Ex e

Principles of core control circuit optimization: By implementing additional safety measures on equipment that does not generate arcs or sparks under normal operating conditions, the safety level is enhanced to prevent the occurrence of hazardous temperatures,

arcs, and sparks.

Three-tier defense: Flameproof + Increased Safety + Encapsulation
— absolute reliability in explosive atmospheres

Encapsulation Protection - Ex m

Key Electronics Sealed in Resin

Critical internal electrical components are sealed within a solid resin compound. Even if a fault occurs, the encapsulation ensures that the surrounding flammable gases cannot be ignited.

Product security protection technology

Explosion-proof design

Certified structures & components for hazardous area compliance.

IP67 Body / IP68 Wheels

sealed and rigorously tested for deep water protection.

Magnetic Shielding

Core electronics shielded against industrial magnetic interference.

Anti-freeze

Battery heating + body insulation for reliable cold start at -40°C

具微核心竞争力

Product Performance

2000Tops Computing Power Optimization

400kg Maximum Load

200kg Dynamic load

8-12h Battery life

All-terrain agility: performs across every scenario and surface.

Market Positioning

Core Focus:

Specialty Industrial-Grade Robot

Designed to replace 20 million + hazardous tasks unsuitable for humans

Security Technologies

Automotive-grade safety

Liquid-cooling system

Magnetic shielding

Waterproof

Explosion-proof

Unique body structure

Flat-wire motors

Cycloidal gearboxes

Liquid cooling technology

Disruptive Design of

Key Motor Modules

Freeze-proof

Core Competitive Advantage

Explosion-Proof Certification and Compliance

Certification Level : Ex db eb mb IIB T4 Gb

Gas Group IIB

Covers the vast majority of flammable gases found in petroleum, chemical, and oil & gas industries.

Temperature Class T4 ($\leq 135^{\circ}\text{C}$)

Surface temperature stays far below the ignition point of most gases, ensuring exceptional operational safety.

Equipment Protection Level Gb

High-level protection approved for Zone 1 and Zone 2 hazardous areas, suitable for higher-risk environments.

Core Advantages: Fully Domestic, Automotive-Grade Reliability, Leading Performance

Fully Independently Developed & Controllable

High-power computing unit: Real-time AI processing for UAV clusters, serving as a mobile reconnaissance hub.

Multi-protocol communication relay: On-site temporary base station to secure UAV control and data backhaul.

Integrated High Reliability

Industry-first automotive-grade design, adaptable to extreme conditions.

Integrated protective casing: Easy maintenance, higher structural strength & sealing capability.

Top Performance & Active Safety

Class-leading payload and endurance for heavy-load legged robots.

Full-cycle health monitoring: Real-time diagnosis & early warning, enabling predictive maintenance.

Triple Integrated Advantages: Computing Relay, All-Terrain Mobility, High-Efficiency Power

Compare with UAVs: Ground Intelligent Brain & Base Station

Onboard high computing power: Real-time AI processing for UAV clusters.

Built-in communication relay: Reinforces remote control and data transmission.

Compare with UGVs: Break Terrain Limits, Cover the Last Mile

All-terrain travel: Crosses 40cm obstacles and 45° slopes, adapts to complex roads.

Heavy load capacity: Delivers gear to unreachable operation sites.

Compare with Quadrupeds: More Efficient & Durable Mobility Platform

Wheel-legged hybrid drive: Faster flat-ground movement with lower energy consumption.

Optimized power system: Enables ultra-long continuous work.

As the command & empowerment hub for multi-task robots, this platform serves as the intelligent core for special industry

inspection, emergency response and fire rescue missions.

Accesses & schedules multiple robots, integrates video, thermal imaging, gas & audio data to perceive full-site status.

Identifies on-site hazards, issues remote commands, updates navigation & firmware for robots.

Realizes closed-loop data management, supports integrated scheduling, analysis & modular empowerment for high-risk scenarios.

Maximum Flexibility & Scalability

Intelligent Management Platform

Hardware Deployment

Operational Analysis and Decision Support

Comprehensive Situational Awareness

3D Digital Battlefield

Switch

Monitoring Host

Analysis Host

Security Access Gateway

Communication Base Station (WiFi/5G)

3D Visualization Platform

Hardware Deployment

Inspection System

Software Platform

Wheel-Legged Robot Operation System

Large-scale stations

Other scenarios (power generation, transmission, distribution, etc.)

Robot

Mobile Carrier

Operation Modes

Dual-spectral PTZ

3D LiDAR

360° LiDAR

Acoustic imager

Non-predetermined positions

作业模式

3D point cloud digitization

Intelligent Recognition Algorithm

Structured Multi-dimensional Spatiotemporal Big Data

In-depth Perception, Analysis & Early Warning for Equipment

解决方案 4、智能管理平台与价值

Onboard AI edge unit: real-time on-site warning + offline caching

Unified device data model; full log & attribute history traceability

Edge Computing

10+ core modules: device/patrol/map management, alarm center, rule engine

10,000+ device access & collaborative scheduling; global visualized command & closed data loop

Cloud (MICRO Intelligent Connectivity Platform)

MOVENEW P2 — Mobile perception & execution terminal

Real-time collection of video, IR, gas and acoustic data

Supports remote configuration & service instruction delivery

End (Robot Terminal)

End-Edge-Cloud Integrated Architecture

Module

Core Capabilities

Dashboard Overview

Device stats, real-time robot status, working hour ranking, point cloud map entry

Device Management

Device/gateway management, logs & config deployment, robot remote control

Rule Engine

Trigger-action rules, Cron scheduling, data forwarding & linkage control

Inspection Management

Scheduled plans, routes & waypoints, inspection actions, execution records

Map Management

Point cloud map version control, waypoint marking, real-time positioning

Alarm Center

Alarm trigger & notification settings, historical alarm records

Message Channel

Multi-channel notifications, message template & log management

System Management

User/role permission management, announcements & file management

System Monitoring

Online user tracking, operation & login audit logs

10 Core Functions for Full-Scenario O&M

Application Scenario: Petroleum & Petrochemical

01 Tank Farms / Refineries / Pump Houses

Pain Points

Fluid leakage on pipes, tanks and site ground

Flammable & toxic gas (H_2S) leaks at pipe joints

Corrosion, deformation & frosting on valves and tanks

Non-compliant operations & hazardous zone trespassing

Overheating risks of key process equipment

Inspection scenarios: tank farms, refinery plants, pump houses, oil & gas pipeline zones and hazardous chemical storage areas

Core Functions

Leakage detection, personnel monitoring, gas (CH_4/H_2S /flammable) monitoring, meter recognition, equipment anomaly detection, IR thermometry, explosion-proof zone patrol

Application Scenario: Petroleum & Petrochemical

02 Gas Stations / Oil Depots / Loading & Unloading Zones

Pain Points

Oil & gas leakage on pipelines, valves and tank perimeters

Flammable gas leaks at flanges, loading arms and tank breather valves

Valve position anomalies, tank corrosion, deformation and seal

failure

Open fire hazards and non-standard static discharge on site

Auto meter reading for level, pressure and flow inventory control

Inspection scenarios: gas stations, oil depots, loading & unloading zones, oil & gas pipeline corridors, oil & gas recovery units

Core Functions

Leakage detection, flammable gas monitoring, automatic meter recognition, equipment anomaly detection, IR thermometry, static & open fire monitoring, explosion-proof zone patrol, personnel violation monitoring

Coal Mines / Mines & Mine Shafts

Surface & Underground Explosion-Proof Zones

Pain Points

Gas & toxic gas (CH_4 , CO , H_2S) overlimit and suffocation hazards

Roof & rock cracks, deformation and geological disasters like roof falls

Operation failures of mining, ventilation and drainage equipment

Non-compliant personnel operations and lack of precise positioning

Water inrush risks and excessive dust in underground working faces

Inspection scenarios: underground roadways, working faces, ventilation rooms, pump houses, gas drainage stations, coal & gangue yards

Core Functions

Gas & harmful gas monitoring, roof rock monitoring, equipment anomaly detection, personnel behavior monitoring & positioning, water hazard monitoring, dust monitoring, IR thermometry, explosion-proof zone patrol, emergency rescue support

Utility Tunnels & Gas Pipelines

Pain Points

Flammable gas leakage at pipe joints (explosion & poisoning risks)

Leakage & condensation on utility pipe welds

Tunnel structure deformation & oxygen deficiency hazards

Malfunctions of ventilation & fire safety facilities

Unauthorized personnel entry & pipeline damage risks

Inspection scenarios: tunnel main body, gas/heating/water/electricity compartments, ventilation shafts, tunnel entrances, gas valve chambers

Core Functions

Gas leak detection, pipeline inspection, environmental monitoring, structural health detection, equipment diagnosis, IR thermometry, intrusion detection, explosion-proof patrol, emergency response support

Fire Emergency Rescue

Pain Points

High manual reconnaissance risk in toxic, smoky disaster scenes

Difficult trapped personnel locating in dark complex spaces

No real-time continuous gas & environmental data monitoring

Lack of unified situational data for command decisions

Casualty risks in close-range high-risk rescue operations

Scenarios: high-rise fires, tunnel/metro emergencies, chemical blasts, mine accidents, hazmat leaks, earthquake collapses

Core Functions

Full-scene reconnaissance, toxic/flammable gas monitoring, thermal imaging search & thermometry, trapped personnel positioning, real-time video transmission, high-risk operation substitution, command situational display, fire rescue linkage support

Power Industry

Substations / Power Plants / Energy Storage Stations

Pain Points

Undetected equipment overheating & thermal runaway risks

Inefficient, error-prone manual meter & status checks

Hidden defects easily missed in traditional inspection

Environmental & intrusion threats to grid safety

Heavy labor burden in all-weather high-frequency patrol.

Scenarios: substations, thermal/hydro/new energy plants, energy storage, PV & wind farms, HV switchrooms, cable trenches

Core Functions

Precision IR thermometry, auto meter recognition, switch/disconnector status detection, equipment defect identification, smoke & fire monitoring, environmental & gas monitoring, foreign object & intrusion detection, 24/7 unattended patrol, cloud data integration

Special Industry: Electrolytic Aluminum

Explosion-proof & Anti-magnetic Design

Pain Points

Harsh conditions: strong magnetic field, high temperature, dust & corrosive gas cause equipment failure

High manual patrol risks: burn hazards & heavy labor in confined high-temperature zones

Inefficient manual data collection: errors, low efficiency, no real-time upload

Signal disorder & frequent crashes of traditional devices in strong magnetic fields

Backward process monitoring: manual parameter collection, no automated full coverage

Scenarios: full aluminum process patrol, cell zones, alumina silos, rectifier rooms, equipment monitoring, digital data collection

Core Functions

IR thermometry, AI meter recognition, HD visual inspection, cell parameter detection, material level linkage monitoring, automatic patrol & data archiving, equipment anomaly warning, smart center linkage, anti-magnetic stability, liquid cooling & anti-corrosion

Scenarios: smart triage, patient comfort, automated delivery, hospital security patrol, service optimization

Pain Points

Overloaded manual triage under concentrated patient flow

Cross-infection risks in manual medicine & specimen delivery

Insufficient emotional support for elderly & pediatric patients

Security patrol blind spots with slow anomaly response

Fixed service terminals, lack of mobile smart carriers

Core Functions

Smart triage & navigation, autonomous following, LiDAR obstacle avoidance, voice health education, self-service registration & settlement, medicine/specimen delivery, security patrol with fall & face recognition, multi-scene voice interaction

Hospital Scenarios

Smart Triage for Safe & Comfortable Healthcare

Scenarios: smart security, alarm linkage, visual control, behavior detection, campus education, fire detection, multi-system linkage, SOS call

Pain Points

Insufficient patrol coverage with blind spots in multi-zone campus security

Isolated security/fire/broadcast systems, low emergency response efficiency

Lack of tangible tools for robotics popularization and coding education

Core Functions

Smart security patrol, one-click alarm & positioning linkage, Pad visual control, abnormal behavior detection, voice interaction & guidance, campus STEM & coding education, temperature & fire detection, multi-system linkage, remote intercom, item delivery simulation, child-friendly SOS call

Campus Scenarios

Smart Campus Safety & Quality Education

Public Security & Defense

3D Patrol for Public Safety

Pain Points

Heavy labor burden & patrol omissions in complex long-route areas

High personal safety risks for officers in unknown hazardous scenes

Patrol blind spots in crowded venues & complex buildings

Slow response & low synergy in multi-scene task switching

Lack of real-time data analysis & closed-loop intelligent warning

Scenarios: border & key area patrol, crowded event inspection,
rapid public security incident response

Core Functions

Human-robot collaborative 3D security system, full-coverage high-intensity patrol, pre-deployment detection in hazardous environments, reduced officer safety risks

THANKS 感谢您对我们的支持

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