magiclab

MagicDog Y1

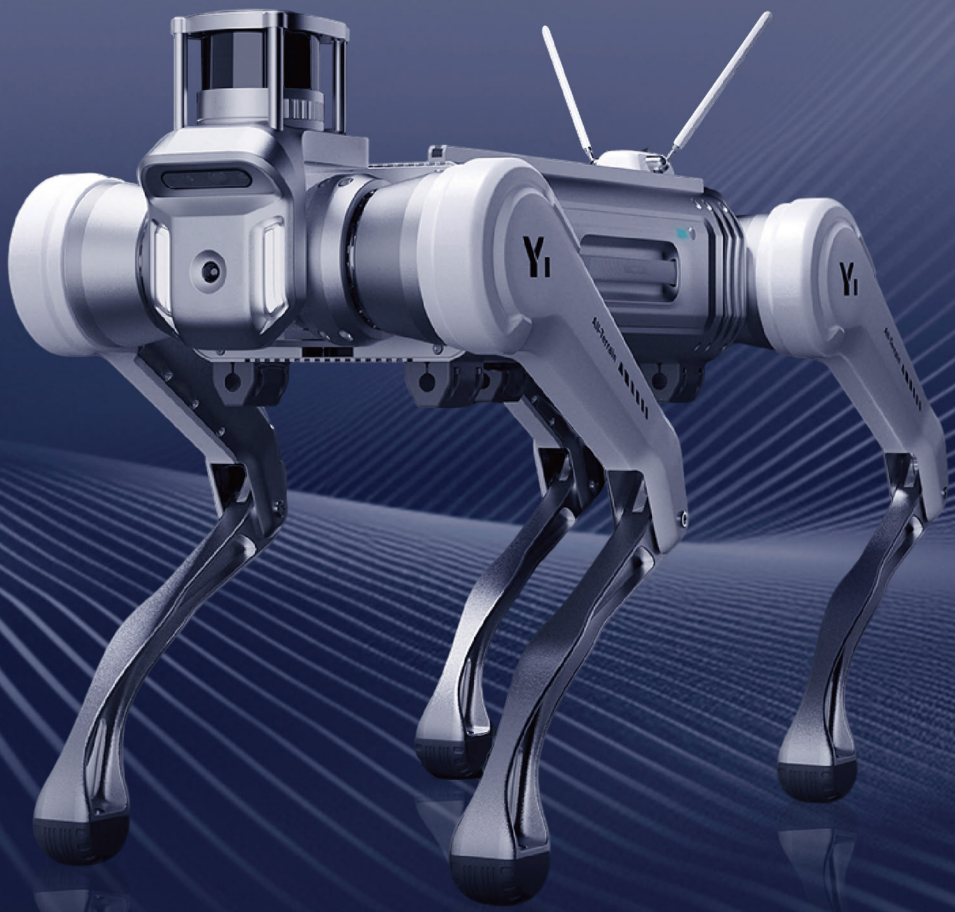
Empowering All Domains·Navigating the Future with Intelligence

Y1 Penetrates Complex Environments, Redefining the New Paradigm of Specialized Operations

https://www.magiclab.top/en/dog-y

Product Introduction

The Y1 industrial-grade quadruped robot is engineered for high-demand scenarios including power inspection, emergency rescue, hazardous chemical inspection, and research & education. It focuses on three core capabilities: "accessibility in complex environments, controllable task execution, and actionable data closed-loop." Built upon a foundation of stable and reliable locomotion, Y1 integrates multi-sensor fusion perception and autonomous navigation capabilities, enabling it to complete path traversal, environmental exploration, and mission data transmission in indoor/outdoor settings, low-light conditions, and challenging terrain. It supports multiple payload types and interface extensions, allowing flexible integration of visible light/thermal imaging cameras, gas detection modules, public address systems, lighting equipment, and more according to industry-specific requirements for rapid adaptation to diverse operational workflows. Through mission orchestration, remote operations & maintenance, and alarm linkage, Y1 upgrades frontline operations from "personnel on-site" to "data to platform," significantly enhancing safety and efficiency.



Product Highlights

01 Ultimate Protection, All-Weather Ready (IP67+ Industrial Protection)

Industrial-Grade IP67 Protection

Crafted with rigorous processes to withstand water jets, sand, dust, and mud. Operates reliably in extreme temperatures ranging from -20°C frigid cold to 55°C scorching heat, ensuring uninterrupted missions during torrential rain, blizzards, and other severe weather conditions.

02 Extreme Obstacle Negotiation, Effortless Terrain Mastery (Extreme Mobility)

45° Maximum Climbing & Complex Terrain Adaptation

With significantly enhanced joint torque density, Y1 effortlessly conquers 45° industrial staircases, rubble ruins, grassy ditches, and slippery surfaces. Features autonomous fall recovery and high-dynamic jumping capabilities for confident obstacle traversal.

03 Extended Endurance, Worry-Free Operations (Long Endurance)

4+ Hours Ultra-Long Mission Endurance

Equipped with a high-energy-density battery system, achieving over 5 hours of no-load endurance and more than 3 hours under heavy loads. Supports hot-swappable/rapid battery exchange and autonomous wireless charging stations for true 24/7 continuous rotation.

04 Robust Payload, Multi-Dimensional Expansion (High Payload Capacity)

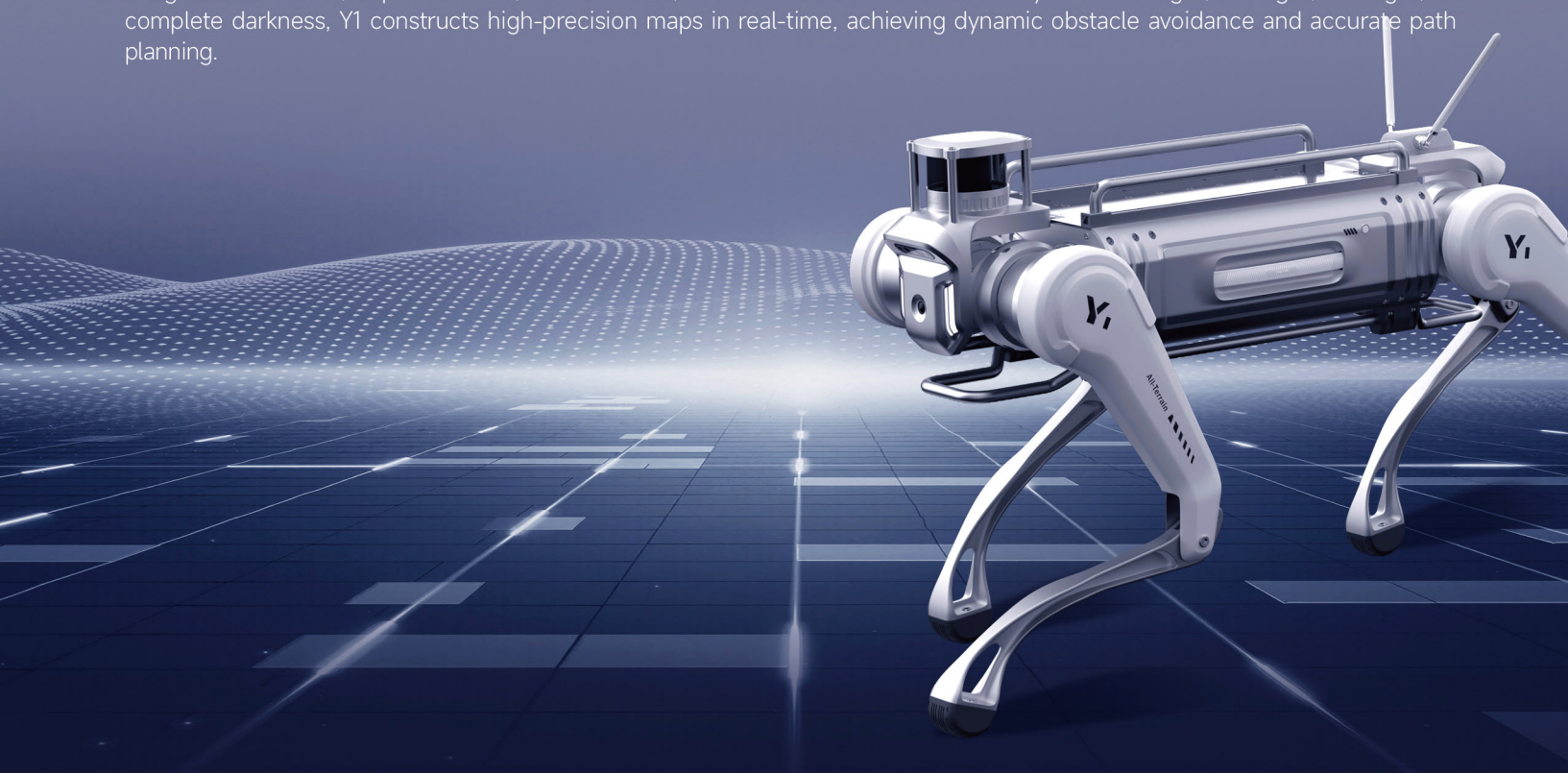
20kg+ Continuous Operation Payload

Features a spacious dorsal expansion area with standard interfaces (HDMI/USB/Ethernet/Power), capable of simultaneously mounting dual-spectrum PTZ cameras, robotic arms, LiDAR, gas sensor modules, and other equipment to meet "one robot, multiple applications" operational requirements.

05 Fusion Perception, Omni-Domain Navigation (Omni-directional Perception)

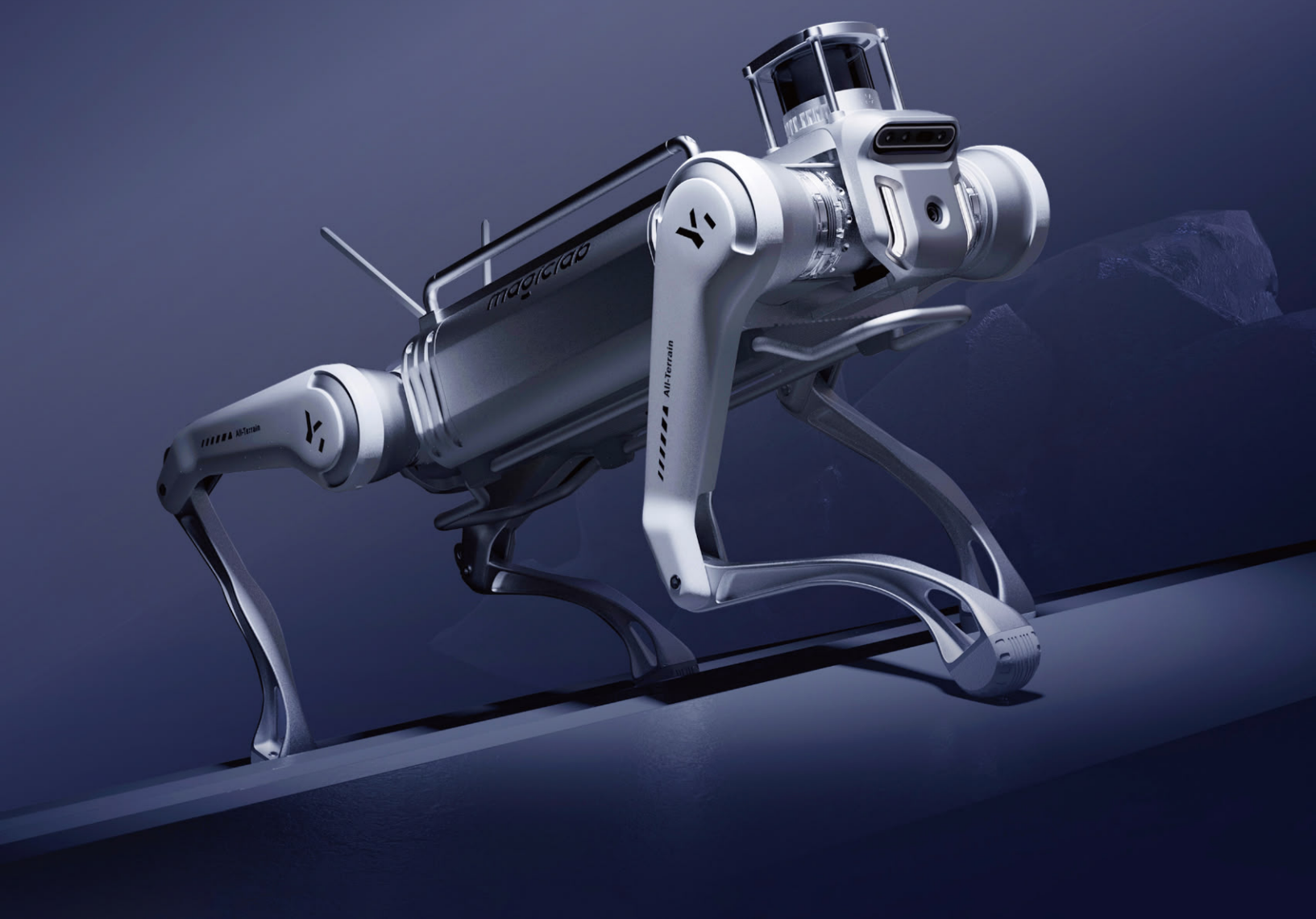
360° Panoramic Depth Perception

Integrates 3D LiDAR, depth cameras, RGB cameras, and other sensors. Unaffected by direct sunlight, low-light, dim-light, or complete darkness, Y1 constructs high-precision maps in real-time, achieving dynamic obstacle avoidance and accurate path planning.



Echnical Specifications & Features

Overall Dimensions 910×450×580 mm	**Maximum Load** 150 kg
Effective Payload 45 kg	**Endurance (No Load)** 7.5 hours
Endurance (20kg Payload) 4.5 hours	**Maximum Climbing Angle** 45°
Operating Temperature -20°C to 55°C	**Protection Rating** IP67



Application Scenarios

Power Inspection

24/7 Unmanned Autonomous Inspection, Replacing Manual Labor in High-Risk and Harsh Weather Conditions

For complex environments such as substations and underground cable tunnels, Y1 is equipped with dual-spectrum PTZ cameras and partial discharge detectors to perform meter reading recognition, infrared temperature measurement, and equipment status monitoring. Immune to strong magnetic field interference and rain, snow, wind, and frost, it supports 7×24 high-frequency, high-precision autonomous inspection, significantly reducing manual O&M costs and safety risks.

Emergency Rescue

Rubble Reconnaissance & Life Search, Penetrating Post-Disaster Fire Scenes, Ruins, or Toxic Areas Inaccessible to Personnel

In earthquake ruins, fire scenes, or collapsed buildings, Y1 serves as the "vanguard" with its exceptional obstacle negotiation capabilities. Equipped with gas sensors, panoramic cameras, and two-way voice modules, it penetrates oxygen-deficient, smoke-filled, toxic environments to transmit on-site images and data, assisting rescue decision-making and seizing the golden rescue window.

Hazardous Chemical Inspection

Safety Sentinel in High-Risk Environments, Safety Monitoring & Leakage Detection in Flammable and Explosive Settings

Designed for high-risk scenarios such as petrochemical facilities and gas pipelines, Y1 supports mounting of highly sensitive gas leakage detection modules. Combined with explosion-proof design standards, it conducts autonomous patrols in toxic/hazardous gas leakage and high-temperature/high-pressure areas, providing real-time early warnings of potential risks to establish a safety defense line for chemical plants.

Research & Education

Open Platform & Frontier Exploration, Providing High-Performance Secondary Development Platform Supporting Algorithm Verification

Serving top universities and research institutions worldwide, Y1 offers deeply open API interfaces. Supporting the ROS2 ecosystem, it meets the verification and development needs of reinforcement learning, multi-robot collaboration, SLAM navigation, and motion control algorithms, facilitating innovative breakthroughs in artificial intelligence and robotics disciplines.

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