NIRIKHON

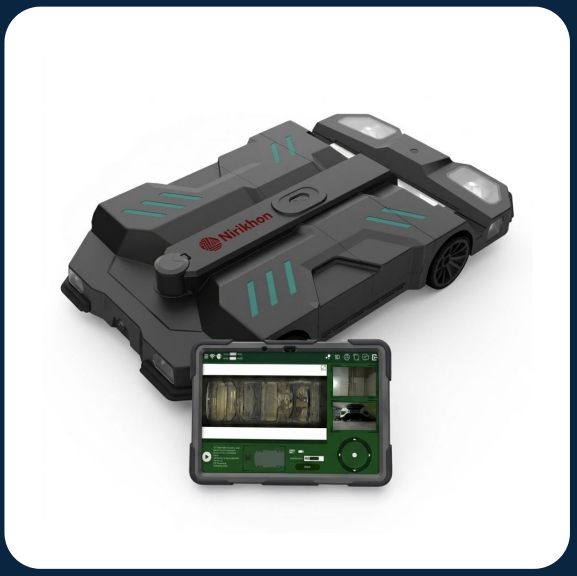
SECURITY & DEFENCE TECHNOLOGY

PRODUCT BROCHURE

UNDER VEHICLE SURVEILLANCE SYSTEM

Under Vehicle Inspection Robot

The Zoan Under Vehicle Inspection Robot by NIRIKHON (Model ZA-UABOT-I) delivers rapid chassis screening with 2048px high-resolution imaging and instant ≤1.0s startup. A 50m wireless control range enables safe standoff inspection, while 120°/s in-situ turning and 0.1–1.2m/s mobility ensure agile maneuvering under any vehicle. Backed by ≥6 hours of continuous runtime and a 1-year warranty — built for mission-ready checkpoint operations.



Under Vehicle Inspection Robot | Official Brochure

SOLUTION SNAPSHOT

2048px High-Definition Video Feed	**50-Meter Secure Wireless Remote Control Range**	**Rapid ≤1.0s Instant System Start-Up**
High-Mobility Drive System (0.1m/s – 1.2m/s Speed with 120°/s Turning)	**Ultra-Low Profile Chassis (≤610x380x115mm, Weight ≤12kg)**	**1-Year Company Warranty Coverage**

OVERVIEW

Built for Real Operations

01

The Zoan Under Vehicle Inspection Robot by NIRIKHON (Model ZA-UABOT-I) delivers rapid chassis screening with 2048px high-resolution imaging and instant ≤1.0s startup. A 50m wireless control range enables safe standoff inspection, while 120°/s in-situ turning and 0.1–1.2m/s mobility ensure agile maneuvering under any vehicle. Backed by ≥6 hours of continuous runtime and a 1-year warranty — built for mission-ready checkpoint operations.

CAPABILITIES

Key Features & Product Modules

02

Low-Profile Compact Chassis (≤115mm Body Frame)

Engineered at a height of ≤115mm within a ≤610x380x115mm footprint, this chassis is built to slide beneath low-clearance vehicles that would otherwise block inspection access. This compact structural design is what allows the unit to physically reach the confined undercarriage zones standard inspection methods cannot access.

Precision Drive System (0.1–1.2 m/s Speed & 120°/s Turning)

The drive system delivers a variable speed range of 0.1 to 1.2 m/s alongside rapid 120°/s in-situ turning, enabling controlled navigation through the tight, obstacle-dense space beneath a vehicle. This mobility system gives operators the agility to reposition instantly without needing to reverse or maneuver externally.

Fast-Boot Processing System (≤1.0s Boot-Up)

The onboard processing system brings the unit to full operational readiness in ≤1.0 seconds from activation, eliminating startup delay at active checkpoints. This near-instant boot capability supports rapid, back-to-back inspection cycles during high-throughput screening operations.

2048px High-Definition Camera Sensor Assembly

This imaging assembly captures the vehicle undercarriage at 2048px resolution, delivering the visual clarity needed to identify concealed objects, tampering, or anomalies in dim, obstructed spaces beneath a vehicle. This sensor is the unit's core detection instrument — turning a hidden chassis into a fully visible inspection surface.

50-Meter Wireless Control Module

This wireless module maintains a stable control link across a 50-meter operational range, allowing the operator to direct the unit and receive live video feed from a safe standoff distance. This module is what transforms the robot from a manually handled tool into a remotely operated inspection asset.

Extended-Runtime Power System (≥6 Hours Operation)

The onboard power system sustains a minimum of 6 hours of continuous operation per charge, supporting extended checkpoint shifts without requiring mid-operation recharging. This power reserve is what keeps the unit mission-ready across a full operational deployment window.

OPERATIONAL VALUE

Software, Benefits & Outcomes

04

Real-Time 2048px HD Video Live Streaming

Streams live 2048px high-definition video from the robot's undercarriage camera directly to the operator console during active inspection.

- View real-time chassis footage as the robot moves beneath a vehicle
- Monitor image clarity to identify anomalies during live inspection
- Maintain continuous visual contact throughout the inspection cycle
- Support immediate visual decision-making at the checkpoint
- Confirm coverage of all undercarriage zones before clearance

Wireless Remote Control & Direction Navigation (Up to 50m)

Provides operators with full directional control of the robot from a secure standoff distance of up to 50 meters.

- Direct the robot's movement path beneath the vehicle in real time
- Maintain safe operator distance during inspection
- Reposition the unit instantly to reach uninspected zones
- Sustain a stable control link throughout the full 50m range
- Operate the unit without requiring physical proximity to the vehicle

Multi-Speed Calibration & Turning Rate Control (0.1–1.2 m/s & 120°/s)

Allows operators to adjust the robot's movement speed and turning rate in real time to match the inspection environment.

- Slow the unit to 0.1 m/s for detailed close-range inspection
- Increase speed up to 1.2 m/s for rapid coverage of open areas
- Execute 120°/s in-situ turns to navigate tight clearance zones
- Adapt movement pace based on undercarriage complexity
- Fine-tune control responsiveness during active operation

Rapid System Readiness & Startup Monitoring (≤1.0s) Confirms the robot's operational readiness status, reflecting its ≤1.0 second startup time from activation.

Confirms the robot's operational readiness status, reflecting its ≤1.0 second startup time from activation.

- Verify system readiness before each inspection cycle
- Minimize checkpoint delay through near-instant activation
- Support back-to-back inspection sequences without downtime
- Monitor system status before deployment under each vehicle
- Reduce operator wait time during high-throughput screening

Battery Power Status & Runtime Monitoring (≥6 Hours)

Tracks the robot's battery level and remaining operational runtime throughout extended checkpoint shifts.

- Monitor real-time battery charge level during operation
- Plan inspection scheduling around remaining runtime
- Confirm sufficient charge before extended shift deployment
- Track cumulative operating hours per charge cycle
- Avoid mid-inspection power interruption through proactive monitoring

Wireless Signal Strength & Connectivity Telemetry

Displays real-time wireless connection status between the operator console and the robot across the 50m control range.

- Monitor signal strength throughout the inspection area
- Confirm stable connectivity before extending robot distance
- Identify potential signal degradation before control is affected
- Maintain awareness of effective operational range in real time
- Support reliable command transmission throughout the session

SPECIFICATION

Technical Details 05

2048PX HIGH-DEFINITION VIDEO FEED
✓ Included

50-METER SECURE WIRELESS REMOTE CONTROL RANGE
✓ Included

RAPID ≤1.0S INSTANT SYSTEM START-UP
✓ Included

HIGH-MOBILITY DRIVE SYSTEM (0.1M/S – 1.2M/S SPEED WITH 120°/S TURNING)
✓ Included

ULTRA-LOW PROFILE CHASSIS (≤610X380X115MM, WEIGHT ≤12KG)
✓ Included

1-YEAR COMPANY WARRANTY COVERAGE
✓ Included

EXTENDED ≥6 HOURS CONTINUOUS OPERATION BATTERY
✓ Included

ULTRA-LOW 115MM CLEARANCE HEIGHT FOR CONFINED UNDERCARRIAGE ACCESS
✓ Included

COMPACT FOOTPRINT FOR MANEUVERING IN NARROW SPACES
✓ Included

LIGHTWEIGHT SINGLE-OPERATOR DEPLOYABLE DESIGN
✓ Included

PRECISION VARIABLE SPEED CONTROL FOR METHODICAL SCANNING
✓ Included

REAL-TIME WIRELESS REMOTE OPERATION
✓ Included

SUSTAINED FIELD READINESS ACROSS EXTENDED SHIFTS
✓ Included

QUESTIONS

Frequently Asked Questions 07

Q. How reliable is the 50-meter wireless signal in environments with potential electronic interference at checkpoints?

A. The unit maintains a rated wireless control range of up to 50 meters under standard operating conditions. Procurement evaluators should note that specific electromagnetic interference resistance data beyond this range specification would require direct verification with the manufacturer for site-specific checkpoint environments.

Q. Can the robot's low-profile chassis achieve ground clearance access under both civilian and heavier low-slung vehicles?

A. Yes. The unit's chassis is engineered at a height of ≤115mm within a ≤610x380x115mm footprint, enabling access beneath low-clearance vehicle types that restrict standard inspection methods. This compact profile is central to the unit's ability to reach confined undercarriage zones across varied vehicle designs.

Q. How does the 120°/s turning rate perform when navigating uneven or obstacle-dense ground beneath a vehicle?

A. The unit is rated for in-situ turning speeds of up to 120°/s, combined with a variable movement speed range of 0.1 to 1.2 m/s. This combination allows operators to execute rapid directional changes while maintaining precise control, supporting maneuverability through the structurally complex space beneath a vehicle chassis.

Q. What battery endurance can be expected across a full continuous 6-hour operational shift?

A. The unit is rated for a minimum of 6 hours of continuous operation per charge. This runtime is designed to support extended checkpoint shifts without requiring mid-operation recharging, though procurement teams should factor in charge-cycle planning for consecutive multi-shift deployments.

Ready to deploy Under Vehicle Inspection Robot?

Talk to Nirikhon for product consultation, installation planning, integration support, and enterprise deployment.

Hotline: 09647 120 120 | Website: www.nirikhon.com