NIRIKHON

SECURITY & DEFENCE TECHNOLOGY

PRODUCT BROCHURE

UNDER VEHICLE SURVEILLANCE SYSTEM

Portable Under Vehicle Search Machine

The Portable Under Vehicle Search Machine by NIRIKHON delivers rapid single-pass undercarriage scanning with 1080p Full HD wide-angle imaging and automatic panoramic stitching. Its IP67-rated, roll-over resistant chassis withstands direct vehicle drive-over, while the 10-inch+ rugged display ensures clear outdoor visibility. Deployable by a single operator in just 2-3 minutes, with ≥4 hours battery life. Backed by a 1-year warranty.



Portable Under Vehicle Search Machine

Official Brochure

SOLUTION SNAPSHOT

Full HD 1080p Single-Pass Undercarriage Imaging	**Automatic Panoramic Image Stitching & Real-Time Comparison**	**Heavy-Duty IP67 Waterproof & Roll-Over Weight-Bearing Enclosure**
High-Brightness 10-Inch+ Outdoor-Readable Control Tablet	**Rapid 2-to-3 Minute Single-Person Field Deployment**	**Optional ANPR Integration & 1-Year Warranty**

OVERVIEW

Built for Real Operations

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The Portable Under Vehicle Search Machine by NIRIKHON delivers rapid single-pass undercarriage scanning with 1080p Full HD wide-angle imaging and automatic panoramic stitching. Its IP67-rated, roll-over resistant chassis withstands direct vehicle drive-over, while the 10-inch+ rugged display ensures clear outdoor visibility. Deployable by a single operator in just 2-3 minutes, with ≥4 hours battery life. Backed by a 1-year warranty.

CAPABILITIES

Key Features & Product Modules

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Heavy-Duty Load-Bearing Scanner Chassis (Vehicle Roll-Over Resistant)

Engineered to withstand direct vehicle roll-over weight, this reinforced chassis forms the structural foundation of the scanning platform, allowing continuous drive-over operation at active checkpoints without compromising internal components.

Protective Perimeter Bumper

A protective bumper surrounds the unit's exterior, absorbing impact during vehicle approach and positioning at the checkpoint. This bumper safeguards the scanning platform's structural integrity during repeated daily drive-over use.

1080p Full HD Wide-Angle Optical Sensor & Lens Assembly

This sensor and wide-angle lens capture the complete vehicle undercarriage in a single pass at a minimum of 1080p Full HD resolution, delivering the image clarity operators need to identify anomalies without requiring multiple scan attempts.

Integrated IR & White LED Illumination Modules

Built-in infrared and white LED illumination ensures consistent image capture quality regardless of ambient lighting, enabling reliable undercarriage scanning during both daytime and nighttime checkpoint operations.

IP67 Waterproof & Dustproof Sealing System

Rated IP67, this sealing system protects the unit's optical and processing components from water and dust ingress, ensuring reliable operation across outdoor checkpoint environments regardless of weather exposure.

Automatic Panoramic Image-Stitching Processing Core

This processing core automatically stitches captured footage into a complete panoramic undercarriage view, with real-time comparison capability enabling operators to identify configuration anomalies during active vehicle screening.

Heavy-Duty Mobility Wheels

Mounted on heavy-duty wheels, the scanning platform can be repositioned across a checkpoint area, supporting flexible deployment at different inspection lanes as operational needs shift.

10-Inch+ Outdoor-Readable Rugged Display Tablet

This high-brightness, 10-inch or larger rugged tablet display gives operators clear visibility of scan results even in direct sunlight, supporting reliable field operation at exposed checkpoint locations.

Ethernet, USB & Wi-Fi Connectivity Interface

Supports Ethernet, USB, and Wi-Fi connections, giving procurement teams flexible integration options for connecting the system to existing checkpoint network infrastructure or standalone field operation.

Rechargeable Battery Pack (≥4 Hours Runtime)

This rechargeable battery pack delivers ≥4 hours of continuous operation, supporting extended checkpoint shifts without requiring mid-operation recharging.

Multi-Source AC/DC Power System

Supplementing the onboard battery, this power system supports multi-source AC/DC input, ensuring continuous functionality whether the unit is connected to fixed infrastructure power or running independently in the field.

Wide Operating Temperature Range Construction (-20°C to +60°C)

The unit's build is rated for reliable operation across a temperature range of -20°C to +60°C, ensuring consistent scanning performance across extreme outdoor climate conditions at checkpoint locations.

Optional ANPR Integration Capability

Supports optional integration with Automatic Number Plate Recognition (ANPR) systems, enabling combined vehicle identification and undercarriage screening within a single checkpoint workflow.

OPERATIONAL VALUE

Software, Benefits & Outcomes 04

Real-Time 1080p Full HD Video Live Streaming & Monitoring

Streams live 1080p Full HD video with no motion blur directly to the control unit as the camera captures the vehicle undercarriage in real time.

- View live undercarriage footage as the vehicle passes over the platform
- Monitor image clarity throughout the scanning sequence
- Confirm full coverage before completing the inspection
- Support immediate visual assessment at the checkpoint
- Maintain continuous visual contact during active scanning

Automatic Undercarriage Panoramic Image Stitching

Automatically compiles captured footage into a single, complete panoramic image of the vehicle undercarriage.

- Generate a full undercarriage panorama from one scanning pass
- Review the complete stitched image immediately after capture
- Eliminate blind spots from partial or segmented views
- Standardize image output across every vehicle inspected
- Reduce operator workload compared to manual review

Automatic Anomaly & Foreign Object Highlighting

Highlights anomalies or foreign objects within the captured undercarriage image to support faster threat identification.

- Identify irregularities against expected vehicle configuration
- Flag foreign objects for closer operator review
- Reduce reliance on manual visual inspection alone
- Support faster clearance decisions during high-traffic periods
- Strengthen consistency in anomaly detection across shifts

Side-by-Side Historical Image Comparison

Enables direct comparison between the current scan and a previously captured image of the same or similar vehicle.

- Compare current undercarriage configuration against prior scans
- Identify unauthorized additions or modifications
- Support faster decisions during repeat vehicle inspections
- Cross-reference scans for vehicles with prior checkpoint history
- Strengthen inspection accuracy through direct visual comparison

Image Zoom-In, Zoom-Out & Display Magnification

Gives operators direct control over image magnification within the captured undercarriage view.

- Zoom into specific undercarriage areas for closer inspection
- Zoom out to review the full panoramic image at once
- Adjust magnification level based on inspection detail needed
- Examine suspicious areas in greater visual detail
- Support thorough review without requiring a second pass

Brightness, Contrast & Exposure Digital Image Adjustment

Allows operators to fine-tune image brightness, contrast, and exposure for optimal visibility of undercarriage detail.

- Adjust brightness and contrast to improve image clarity
- Correct exposure for varying lighting conditions
- Enhance visibility of shadowed or hard-to-see areas
- Standardize image quality across different checkpoint environments
- Improve anomaly visibility through manual image refinement

High-Resolution Undercarriage Snapshot Capture

Enables operators to capture and save individual high-resolution snapshots of specific undercarriage areas during inspection.

- Capture still images of specific points of interest
- Preserve high-resolution detail for closer review
- Support documentation of flagged anomalies
- Build a visual record for each inspected vehicle
- Enable rapid image sharing for secondary review

Continuous High-Definition Video Recording & Playback

Records full video of each undercarriage scan and enables operators to play back footage for review.

- Record complete video of every scanning pass
- Play back footage to review scan details after capture
- Support post-inspection review without re-scanning the vehicle
- Maintain a video record for extended investigation needs
- Review recorded footage during shift handovers

Time-Stamped Vehicle Inspection Logging with Unique ID Assignment

Assigns a time-stamped record and unique ID to each vehicle inspection for structured recordkeeping.

- Generate a unique ID for every inspected vehicle
- Record the exact date and time of each scan
- Retrieve historical records by vehicle ID or timestamp
- Maintain structured, chronological inspection records
- Support audit-ready documentation for institutional review

Automated Checkpoint Inspection Report Generation

Compiles captured scan data into structured reports for each vehicle inspection.

- Generate inspection reports directly from captured scan data
- Standardize reporting format across all checkpoint operations
- Reduce manual documentation time for operators
- Support consistent recordkeeping across shifts and personnel
- Prepare audit-ready documentation for institutional review

Data Export via USB, Memory Card & Local Network Storage

Supports multiple export pathways for transferring captured inspection data off the device.

- Export scan data via USB or memory card
- Transfer data directly to local network storage
- Consolidate records from multiple checkpoint units
- Support flexible data handling based on site infrastructure
- Preserve inspection data for extended-term storage

Password-Protected User Access & Secure Database Management

Protects system access and stored inspection data through password-protected controls.

- Restrict system access to authorized operators only
- Secure stored inspection data within a protected database
- Maintain accountability through controlled access
- Reduce risk of unauthorized data tampering
- Support institutional data security compliance requirements

Optional ANPR/LPR Integration

Supports optional integration with Automatic Number Plate Recognition (ANPR/LPR) systems for combined vehicle identification and screening.

- Link vehicle identification data with undercarriage scan results
- Combine plate recognition with inspection recordkeeping
- Support faster vehicle processing at high-traffic checkpoints
- Strengthen record accuracy through combined data sources
- Integrate with existing plate recognition infrastructure where available

Central Monitoring System & Access Control Integration

Supports optional integration with central monitoring systems and access control infrastructure.

- Connect checkpoint inspection data to a central monitoring system
- Coordinate inspection results with access control decisions
- Support multi-checkpoint oversight from a central location
- Strengthen coordinated institutional security operations
- Integrate with existing facility security infrastructure where available

Tethered / Wireless Control Interface Communication

Manages real-time data communication between the camera platform and the control unit via tethered or wireless connection.

- Operate the system via wired or wireless control link
- Maintain real-time data transfer during active scanning
- Choose connection method based on site conditions
- Support flexible deployment across varied checkpoint layouts
- Ensure reliable communication throughout the inspection process

SPECIFICATION

Technical Details

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FULL HD 1080P SINGLE-PASS UNDERCARRIAGE IMAGING
✓ Included

AUTOMATIC PANORAMIC IMAGE STITCHING & REAL-TIME COMPARISON
✓ Included

HEAVY-DUTY IP67 WATERPROOF & ROLL-OVER WEIGHT-BEARING ENCLOSURE
✓ Included

HIGH-BRIGHTNESS 10-INCH+ OUTDOOR-READABLE CONTROL TABLET
✓ Included

RAPID 2-TO-3 MINUTE SINGLE-PERSON FIELD DEPLOYMENT
✓ Included

OPTIONAL ANPR INTEGRATION & 1-YEAR WARRANTY
✓ Included

EXTENDED BATTERY RUNTIME WITH MULTI-SOURCE POWER ARCHITECTURE
✓ Included

INTEGRATED IR & WHITE LED ILLUMINATION FOR DAY/NIGHT INSPECTION
✓ Included

REAL-TIME HISTORICAL VEHICLE IMAGE COMPARISON
✓ Included

HEAVY-DUTY WHEELED MOBILITY PLATFORM
✓ Included

ETHERNET, USB & WI-FI CONNECTIVITY OPTIONS
✓ Included

MULTI-SOURCE AC/DC POWER COMPATIBILITY
✓ Included

WIDE OPERATING TEMPERATURE RANGE (-20°C TO +60°C)
✓ Included

QUESTIONS

Frequently Asked Questions

Q. How does the chassis withstand accidental drive-over by heavy vehicles at the checkpoint?

A. The unit's chassis is specifically rated to withstand vehicle roll-over weight, with a reinforced enclosure and protective bumper engineered for continuous drive-over operation. This construction ensures the scanning platform remains structurally intact and operational even under the weight of heavy vehicles passing directly over it.

Q. Does panoramic stitching quality remain consistent across varying vehicle approach speeds?

A. The system's 1080p Full HD wide-angle imaging combined with automatic panoramic stitching is designed to capture the complete undercarriage in a single pass. Procurement committees evaluating stitching performance across a specific range of vehicle speeds should note that consistent image quality at standard checkpoint approach speeds is the confirmed operational basis for this feature.

Q. How does the system perform for night inspection of low-clearance vehicle chassis?

A. The unit integrates both infrared (IR) and white LED illumination, ensuring consistent image capture quality regardless of ambient lighting conditions. This dual illumination system supports reliable undercarriage scanning during nighttime checkpoint operations, including on vehicles with reduced ground clearance.

Q. Can the system maintain its rated 4-hour battery endurance across extreme temperature conditions?

A. The unit is rated for ≥4 hours of continuous battery runtime and for operation across a temperature range of -20°C to +60°C. These two ratings are specified independently as confirmed operating parameters; procurement teams should note that combined extreme-condition endurance testing beyond these individual specifications was not part of the provided technical data.

Ready to deploy Portable Under Vehicle Search Machine?

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

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