User Manual: NexBot Robotics HA014-001 6-Axis Robot Arm 250kg Payload

SKU: NXB-ROB-HA014-001 | Version: 1.0 | Brand: NexBot Robotics

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1. Safety Information

READ ALL SAFETY INSTRUCTIONS BEFORE OPERATION. Failure to follow safety procedures may result in serious injury or equipment damage.

DANGER: Isolate all hazardous energy before servicing NexBot Robotics HA014-001 6-Axis Robot Arm 250kg Payload; stored electrical or mechanical energy may remain present after shutdown.

WARNING: Operate NXB-ROB-HA014-001 only within its intended Robots > Articulated Robots > Heavy Articulated (>200kg) duty profile and published specification limits.

CAUTION: Use only approved tools, mating parts, and installation hardware to prevent premature wear or unsafe operation.

NOTICE: Protect the product from contamination, impact, and environmental exposure beyond IP67 during installation and service.

2. Product Overview

The NexBot Robotics HA014-001 is a six-axis articulated robot arm engineered for high-payload applications in demanding industrial environments. This robot combines a substantial 250 kg payload capacity with a generous 3100 mm horizontal reach, making it an ideal solution for automating tasks involving large or heavy workpieces over a significant operational area. The robust construction of the HA014-001 ensures high rigidity and minimal vibration, which is critical for maintaining its position repeatability of ±0.07 mm even at high speeds and full extension. Its six axes of motion provide exceptional dexterity, allowing the arm to perform complex movements and access difficult-to-reach points, which is essential for applications like machine tending, intricate material handling, and spot welding around complex fixtures. The arm's internal routing for utilities helps protect them from wear and tear, reducing downtime and simplifying integration. Key benefits of the HA014-001 robot include increased throughput and enhanced operational safety. By automating physically demanding and repetitive tasks, it allows personnel to be reassigned to higher-value roles while ensuring consistent production quality around the clock. The sealed joints and IP67-rated body provide reliable protection against dust and liquids, making the robot arm suitable for harsh settings such as foundries, automotive assembly plants, and general manufacturing facilities. Common applications include: - Heavy payload material handling and transfer - Palletizing and depalletizing of bulk goods - Automotive body-in-white (BIW) assembly and spot welding - Tending large CNC machines and presses - Foundry and casting operations The HA014-001 is engineered for longevity and ease of maintenance, with durable components designed to withstand continuous industrial use. Its powerful performance and large work envelope make it a cornerstone for factory automation projects focused on maximizing productivity and efficiency for heavy-duty processes.

3. Getting Started

1. Confirm product identity

Verify the installed item is NexBot Robotics HA014-001 6-Axis Robot Arm 250kg Payload with SKU NXB-ROB-HA014-001. Cross-check the unit against project documentation before applying power or connecting it to the host system.

2. Review operating context

Understand how the product is used within the Robots > Articulated Robots > Heavy Articulated (>200kg) workflow, including any upstream and downstream dependencies, service intervals, and operator responsibilities.

3. Complete initial startup

Power up the unit under controlled conditions, observe indicator states, and verify the product initializes cleanly with the expected 480VAC operating setup.

4. Operation

Normal operation

Run NexBot Robotics HA014-001 6-Axis Robot Arm 250kg Payload within the documented workload, environmental, and service conditions. Track alarms, unusual noise, heat, or vibration so corrective action can be scheduled before unplanned downtime occurs.

Interface and controls

Use the supported electrical and control interfaces to commission, monitor, and troubleshoot the device. Validate all signal mappings and control behavior after maintenance or part replacement, especially where PROFINET communication is required.

> **Tip:** Capture a baseline of healthy status indicators after commissioning so later diagnostics can be compared quickly.

Load and application limits

Keep the product within the published ratings for speed, force, load, and environmental exposure. Where applicable, confirm mounting, routing, and attached tooling do not compromise access, cooling, or serviceability; rated payload reference: 250 kg.

Change management

Whenever hardware, firmware, wiring, or connected tooling changes, repeat the relevant verification and commissioning checks before returning the equipment to production service.

> **Tip:** Update maintenance records immediately after any wiring, parameter, or parts change.

5. Maintenance Schedule

Interval	Task	Notes
Daily	Inspect NexBot Robotics HA014-001 6-Axis Robot Arm 250kg Payload for visible wear, damage, contamination, loose hardware, and abnormal status indicators.	Record any abnormalities before the next production cycle begins.
Monthly	Verify mounting integrity, connector condition, and cable routing or strain relief points.	Retorque or reseat hardware only to the documented service specification.
Quarterly	Review diagnostic logs, event history, and operational trends for early signs of degradation.	Escalate recurring warnings before they develop into hard faults.
Annually	Perform a full service inspection covering mechanical condition, electrical connections, and functional verification.	Coordinate annual service with planned downtime to minimize production disruption.

6. Troubleshooting

Symptom	Possible Cause	Solution
	Incoming supply, controls wiring, or commissioning	Verify power quality, wiring continuity,

Symptom	Possible Cause	Solution
Unit does not initialize or remain ready	parameters do not match the documented 480VAC configuration.	protective devices, and startup parameters before restarting the unit.
Intermittent communication or status loss	Loose connectors, damaged cabling, or interface mismatch on PROFINET.	Inspect physical connections, confirm interface settings, and replace damaged cables or connectors as needed.
Unexpected wear, vibration, or overheating	Mechanical loading, contamination, misalignment, or duty cycle exceeds the intended application conditions.	Inspect the installation, restore proper alignment and cooling, and verify the product is being used within its published operating limits.
Connected equipment performance is inconsistent	The installed product is not configured correctly for the host system or compatible robot series (R-100).	Validate the configuration, confirm compatibility, and rerun the functional verification procedure after any corrections.

7. Technical Specifications

Parameter	Value	Unit
Weight	2350.0	kg
Material	Cast Iron and Forged Steel	
Voltage	480VAC	
IP Rating	IP67	
Country of Origin	KR	
Protocol	PROFINET	
Reach	3100 mm	
Payload	250 kg	
Axes	6	
Repeatability	±0.07 mm	