User Manual: NexBot Robotics MD132-009 Multi-Axis Servo Drive

SKU: NXB-SRV-MD132-009 | 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 MD132-009 Multi-Axis Servo Drive; stored electrical or mechanical energy may remain present after shutdown.

WARNING: Operate NXB-SRV-MD132-009 only within its intended Drive Systems > Servo Drives > Multi-Axis Servo Drives 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 IP20 during installation and service.

2. Product Overview

The NexBot Robotics MD132-009 is a high-performance, multi-axis servo drive designed to provide precise motion control for demanding industrial automation and

robotics applications. This compact unit is engineered to manage up to two servo axes simultaneously from a single module, significantly reducing control cabinet footprint, simplifying wiring, and lowering total system cost compared to using individual single-axis drives. Its primary function is to accurately regulate the power delivered to servo motors, enabling the complex, synchronized movements required in modern manufacturing. Key features include a high-voltage input range of 400-480VAC (3-phase), which allows it to directly power large, high-torque servo motors common in articulated robots. This direct connection enhances system efficiency by eliminating the need for bulky step-down transformers. This high-speed data exchange is critical for applications requiring precise path-following and coordinated multi-axis motion, such as robotic welding and high-speed pick-and-place operations. Integrated safety is a core component of the MD132-009 design, featuring a built-in Safe Torque Off (STO) function rated at SIL 3 / PLe. This allows for safe machine shutdown without disconnecting main power, simplifying the implementation of emergency stop circuits and reducing system restart times. The drive is housed in a rugged, IP20-rated enclosure with an advanced thermal management system, ensuring reliable performance even under continuous, heavy-duty cycles. The MD132-009 is an ideal solution for controlling the major axes of NexBot Robotics articulated robots in material handling, machine tending, and assembly tasks, providing the power and precision needed for high-throughput operations. Installation is streamlined with DIN rail mounting and accessible front-panel connectors for power, motor, and communication wiring.

3. Getting Started

1. Confirm product identity

Verify the installed item is NexBot Robotics MD132-009 Multi-Axis Servo Drive with SKU NXB-SRV-MD132-009. 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 Drive Systems > Servo Drives > Multi-Axis Servo Drives 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 400-480VAC operating setup.

4. Operation

Normal operation

Run NexBot Robotics MD132-009 Multi-Axis Servo Drive 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 EtherCAT 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.

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 MD132-009 Multi-Axis Servo Drive 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
Unit does not initialize or remain ready	Incoming supply, controls wiring, or commissioning parameters do not match the documented 400-480VAC configuration.	Verify power quality, wiring continuity, protective devices, and startup parameters before restarting the unit.
	Loose connectors, damaged cabling, or	Inspect physical connections, confirm interface settings, and

Symptom	Possible Cause	Solution
Intermittent communication or status loss	interface mismatch on EtherCAT.	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-20, R-50, R-100).	Validate the configuration, confirm compatibility, and rerun the functional verification procedure after any corrections.

7. Technical Specifications

Parameter	Value	Unit
Weight	7.5	kg
Material	Anodized Aluminum Alloy	
Voltage	400-480VAC	
IP Rating	IP20	
Country of Origin	CH	
Protocol	EtherCAT	
Dimensions	280 x 150 x 220 mm	
Torque	9 Nm	