User Manual: NexBot Robotics MD132-005 3-Axis Servo Drive

SKU: NXB-SRV-MD132-005 | Version: 1.0 | Brand: NexBot Robotics

Table of Contents

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 MD132-005 3-Axis Servo Drive; stored electrical or mechanical energy may remain present after shutdown.

WARNING: Operate NXB-SRV-MD132-005 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 IP54 during installation and service.

2. Product Overview

The NexBot Robotics MD132-005 is a compact, high-performance multi-axis servo drive designed to provide precise, synchronized motion control for up to three servo

motors in demanding industrial automation applications. This drive consolidates the control for multiple axes into a single hardware unit, significantly reducing control cabinet footprint, simplifying wiring, and improving the reliability of coordinated motion paths. Its primary use is to power and control the joints of articulated and SCARA robots where space and performance are critical. This real-time capability allows for smoother, more accurate tool path following and shorter cycle times. The drive operates on a standard industrial 400-480VAC 3-Phase input and can deliver continuous power suitable for a wide range of NexBot servo motors. Integrated safety is a core feature, with a built-in STO (Safe Torque Off) function compliant with SIL 2 / PL d standards, allowing for rapid and safe shutdown of motor torque in emergency situations without powering down the entire drive. Engineered for reliability in industrial environments, the drive is housed in a rugged anodized aluminum chassis measuring just 280 x 150 x 220 mm, which also serves as an effective heat sink for passive cooling in many applications. The IP54 rating ensures protection against dust and splashing water, making it suitable for typical factory floor conditions. Installation is streamlined with DIN rail mounting compatibility and accessible, front-facing connectors and diagnostic LEDs that provide at-a-glance status on power, communication, and error states, simplifying commissioning and troubleshooting.

3. Getting Started

1. Confirm product identity

Verify the installed item is NexBot Robotics MD132-005 3-Axis Servo Drive with SKU NXB-SRV-MD132-005. 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, 3-Phase operating setup.

4. Operation

Normal operation

Run NexBot Robotics MD132-005 3-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 MD132-005 3-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, 3-Phase configuration.	Verify power quality, wiring continuity, protective devices, and startup parameters before restarting the unit.
Intermittent communication or status loss	Loose connectors, damaged cabling, or interface mismatch on EtherCAT.	Inspect physical connections, confirm interface settings, and replace damaged cables or connectors as needed.

Symptom	Possible Cause	Solution
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, C-10, S-5).	Validate the configuration, confirm compatibility, and rerun the functional verification procedure after any corrections.

7. Technical Specifications

Parameter	Value	Unit
Weight	5.5	kg
Material	Anodized Aluminum	
Voltage	400-480VAC, 3-Phase	
IP Rating	IP54	
Country of Origin	US	
Protocol	EtherCAT	
Dimensions	280 x 150 x 220 mm	
Torque	5 Nm	