

User Manual: NexServo AC30 Servo Motor

SKU: NXB-SRV-AC-030-A | 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: RISK OF ELECTRIC SHOCK. The motor is powered by a 48VDC supply which can carry lethal current. Disconnect and lock out all power sources before installation or maintenance.

WARNING: UNEXPECTED MOTION. The motor can move unexpectedly with high torque (30 Nm). Keep body parts and loose clothing clear of the motor and connected machinery during operation.

CAUTION: HOT SURFACES. The motor housing can reach high temperatures during operation. Allow the motor to cool completely before handling to avoid burns.

NOTICE: The NexServo AC30 contains electrostatic discharge (ESD) sensitive components. Always use proper ESD protection, such as a grounded wrist strap, when handling connectors.

NOTICE: This motor is rated IP65, protecting against dust ingress and low-pressure water jets. Do not submerge the motor or expose it to high-pressure cleaning.

2. Product Overview

NexServo AC30 Servo Motor (NXB-SRV-AC-030-A) is a ac servo motors used in industrial robotics equipment where category-specific fit, electrical or mechanical compatibility, and predictable serviceability are important to buyers. The product should be understood as the exact component named by its category path, not as a complete robot or a generic service item. It supports installation, replacement, and maintenance workflows in robotic production cells by giving procurement and maintenance teams a clearly defined part class, relevant engineering specifications, and application context that matches the actual hardware being purchased.

3. Getting Started

1. Product Overview

The NexServo AC30 (NXB-SRV-AC-030-A) is a high-performance AC servo motor designed for industrial automation. It features a robust Anodized Aluminum housing, a peak torque of 30 Nm, and integrated PROFINET communication for direct integration into modern control systems.

2. System Requirements

To operate the NexServo AC30, a compatible servo drive capable of supplying 48VDC and interpreting the motor's encoder feedback is required. The control system must include a PROFINET IO Controller (PLC) to manage communication and motion commands.

3. Initial Configuration

After physical installation, the motor must be configured in the PROFINET controller's engineering software. You will need to assign a unique device name and IP address to the motor and import the GSDML file for the NXB-SRV-AC-030-A to expose its operational parameters.

4. Operation

Normal Operating Conditions

During normal operation, the motor should run smoothly with minimal audible noise. The integrated controller will manage position, velocity, and torque based on commands received over the PROFINET network. Monitor the drive's diagnostic status for any reported warnings or faults.

Tip: Regularly monitor the motor's operating temperature via the drive parameters. Consistently high temperatures may indicate an oversized load or insufficient cooling.

PROFINET Communication

The NexServo AC30 uses the PROFINET protocol for real-time control. The motor's status, position feedback, and diagnostic data are continuously transmitted to the controller. A stable network connection is critical for precise and safe operation.

Torque Management

The motor is rated for 30 Nm of torque. The servo drive's parameters can be configured to limit the maximum torque output to protect the mechanical system. Ensure these limits are set according to your application's requirements.

Fault Response

In the event of a fault such as over-temperature, over-current, or encoder error, the motor will report the specific fault code to the servo drive and PLC. The system should be programmed to enter a safe state, such as disabling the motor and applying a brake, when a critical fault is detected.

Tip: Refer to the servo drive's programming manual for a complete list of motor fault codes and their meanings.

5. Maintenance Schedule

Interval	Task	Notes
Daily	Visually inspect the motor for any signs of physical damage, fluid leaks, or loose connections.	This can be done as part of the operator's pre-shift machine checklist.
Weekly	Listen for any changes in operating noise, such as grinding or whining, which could indicate bearing wear.	Perform this check during a standard machine cycle under typical load.
Quarterly	Clean the motor housing of any accumulated dust or debris to ensure proper heat dissipation from the Anodized Aluminum surface.	Use a lint-free cloth and, if necessary, a mild solvent. Ensure power is off before cleaning.
Annually	Check the integrity of power, encoder, and PROFINET cables for chafing, cracking, or other damage.	Pay close attention to cable sections that are subject to movement or vibration.
Annually	Re-verify the torque of the motor mounting bolts to ensure they have not loosened due to vibration.	Use a calibrated torque wrench and follow the original tightening sequence.
	Inspect motor shaft seals for signs of wear or degradation.	This is a major service item and may

Interval	Task	Notes
Every 20,000 Hours	Replace if necessary to maintain the IP65 rating.	require motor removal.

6. Troubleshooting

Symptom	Possible Cause	Solution
Motor does not respond to commands	No power, faulty PROFINET connection, or incorrect device configuration.	Verify 48VDC power at the motor connector. Check PROFINET cable for damage and ensure network LEDs are active. Confirm device name and IP address in the PLC configuration.
Motor overheats and faults	Mechanical load exceeds 30 Nm rating, poor ventilation, or high ambient temperature.	Reduce the mechanical load or duty cycle. Ensure cooling fins are clean and airflow is not obstructed. Verify ambient temperature is within the specified operating range.
Excessive noise or vibration	Misalignment between motor shaft and load, worn internal bearings, or an unbalanced load.	Power down and re-align the shaft coupling. If noise persists, disconnect the load to isolate the motor; if the motor is still noisy, it may require bearing service. Balance the mechanical load.
Inaccurate or lost positioning (following error)	Encoder cable is loose or damaged, mechanical slippage in the coupling, or poorly tuned servo gains.	Inspect and re-seat the encoder connector. Check the shaft coupling for any signs of slippage. Perform a servo tuning procedure using the drive's software.
PROFINET device not found by controller	Incorrect GSDML file, duplicate IP address on the network, or faulty network cable/port.	Ensure the correct GSDML file for the NXB-SRV-AC-030-A is installed. Use a network scanning tool to check for IP conflicts. Test the cable and switch port with a known working device.
Motor trips on over-current fault immediately	Shorted motor windings, seized mechanical load, or incorrect wiring.	Disconnect motor from drive and measure resistance between windings; readings should be balanced and not shorted to ground. Disconnect load from motor and attempt to turn shaft

Symptom	Possible Cause	Solution
		by hand to check for binding. Double-check power wiring.

7. Technical Specifications

Parameter	Value	Unit
Weight	4.2	kg
Material	Anodized Aluminum	
Voltage	48VDC	
IP Rating	IP65	
Country of Origin	US	
Protocol	PROFINET	
Dimensions	142 × 87 × 87 mm	
Torque	30 Nm	