Installation Guide: NexBot Robotics AC111-001 Ac Servo Motor 4.5 Nm

SKU: NXB-SRV-AC111-001 | Revision: 1.0 | Category: Drive Systems > Servo Motors > AC Servo Motors

> **DANGER:** Disconnect all power sources before beginning installation. Follow lockout/tagout (LOTO) procedures per OSHA 1910.147.

1. Required Tools & Materials

- Torque wrench (up to 50 Nm)
- Metric hex key set (Allen keys)
- Metric socket wrench set
- Digital multimeter
- Wire stripper and crimping tool for power terminals
- Shielded cable termination tool
- Dial indicator or laser alignment tool
- PROFINET network cable tester

2. Pre-Installation Checks

1. Visually inspect the AC111-001 motor for any shipping damage to the housing, shaft, or connectors.
2. Verify the motor nameplate matches the SKU NXB-SRV-AC111-001 and that the voltage rating is 400VAC.
3. Ensure the mounting surface is clean, flat, and rigid enough to support the motor's 3.8 kg weight and operational torque.
4. Confirm that the associated servo drive is powered down and locked out according to safety procedures.
5. Check that the motor shaft rotates freely by hand without any grinding or binding.
6. Verify that all required cables (power, encoder, PROFINET) are the correct type and length.

3. Installation Procedure

Step 1: Mechanical Mounting

Secure the AC111-001 motor to the designated mounting surface using appropriate grade M6 bolts. Tighten the bolts in a star pattern to the recommended torque specification to prevent warping the die-cast aluminum frame.

> **Warning:** Ensure the mounting surface is perfectly flat. An uneven surface can cause stress on the motor frame and lead to premature bearing failure.

Step 2: Shaft Coupling

Align the motor shaft with the load shaft using a precision alignment tool. Install a suitable flexible or rigid coupling, ensuring there is no axial or radial loading on the motor shaft beyond its specifications.

> **Warning:** Improper alignment is a primary cause of vibration and bearing wear. Do not hammer the coupling onto the shaft.

Step 3: Power Cable Connection

Connect the three-phase 400VAC power lines (U, V, W) and the protective earth (PE) conductor to the motor's power connector. Use appropriately sized cables and terminals, ensuring a secure, low-resistance connection.

> **Warning:** Incorrect wiring can cause severe damage to the motor and drive. Always verify phase sequence and ensure the PE ground is connected first.

Step 4: Encoder Cable Connection

Connect the shielded encoder feedback cable to the motor's encoder port. Ensure the connector is fully seated and locked to maintain signal integrity and the IP65 rating.

Step 5: PROFINET Network Connection

Connect the shielded PROFINET cable to the designated port on the motor. Ensure the connector's locking mechanism is engaged to prevent accidental disconnection during operation.

Step 6: Cable Routing and Strain Relief

Route all cables securely, avoiding sharp bends, pinch points, and proximity to high-temperature sources. Use cable clamps to provide strain relief near the motor connectors to prevent damage from vibration or movement.

Step 7: Final Fastener Torque Check

Re-verify the torque on all mounting bolts and connector screws using a calibrated torque wrench. This ensures that vibration during operation does not loosen critical connections.

4. Post-Installation Verification

1. Double-check all electrical connections for tightness and correctness before applying power.
2. Verify in the servo drive software that the correct motor profile for the AC111-001 is selected.
3. Perform a low-speed, no-load jog test to confirm the direction of rotation is as expected.
4. Listen for any unusual noises or vibrations during the initial test run.
5. Check the motor housing temperature after a few minutes of operation to ensure it is not rising excessively.
6. Verify successful PROFINET communication between the servo drive and the network controller.

Note: For technical support, contact your authorized service provider or visit https://robotics.barca.group/support.