Installation Guide: NexBot Robotics AC111-013 Ac Servo Motor 1.3kW 4.1 Nm

SKU: NXB-SRV-AC111-013 | 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

- Calibrated Torque Wrench (for M8 bolts)
- Metric Hex Key Set (4mm - 10mm)
- Industrial Wire Strippers and Crimpers (for power terminals)
- Digital Multimeter with insulated probes
- PROFINET Cable Tester
- M8x25mm Class 10.9 Mounting Bolts (x4)
- Dial Indicator with Magnetic Base
- Anti-seize Compound for shaft coupling

2. Pre-Installation Checks

1. Verify the motor nameplate SKU matches the order: NXB-SRV-AC111-013.
2. Inspect the motor housing, shaft, and connectors for any visible damage from shipping.
3. Confirm the servo drive output is configured for 480VAC, 3-phase power.
4. Ensure the mounting surface is flat, clean, and structurally capable of handling the motor's 4.1 Nm torque and 4.2 kg weight.
5. Implement lock-out/tag-out (LOTO) procedures on the main electrical panel before beginning work.
6. Check that the intended operating environment complies with the IP65 rating and ambient temperature limits.

3. Installation Procedure

Step 1: Position and Mount the Motor

Carefully align the motor's flange with the mounting holes on the machine frame. Insert four M8 bolts and washers, then hand-tighten them in a star pattern to ensure the motor sits flush against the surface without binding.

Step 2: Torque Mounting Bolts

Using a calibrated torque wrench, tighten the mounting bolts to the specification listed in the machine's assembly manual. This ensures a secure, vibration-resistant connection.

> **Warning:** Uneven or incorrect torque can lead to excessive vibration, misalignment, and premature bearing failure. Do not exceed the specified torque.

Step 3: Couple the Motor Shaft

Slide the mechanical coupling onto the motor shaft. Use a dial indicator to verify that both angular and parallel alignment with the driven load are within acceptable tolerances to prevent excessive wear.

> **Warning:** Never use a hammer to force a coupling onto the shaft. This can damage the precision bearings and encoder.

Step 4: Connect Power Cable

Connect the three-phase power leads (U, V, W) and the protective earth (PE) conductor from the servo drive to the motor's power connector. Ensure the cable gland is tightened securely to maintain the IP65 seal.

> **Warning:** Ensure power is locked out. Incorrect phase wiring can cause immediate, uncontrolled motor rotation upon power-up.

Step 5: Connect Encoder Cable

Connect the shielded encoder feedback cable from the drive to the corresponding signal connector on the motor. Ensure the connector's locking mechanism is fully engaged to prevent disconnection due to vibration.

Step 6: Connect PROFINET Cable

Attach a shielded PROFINET cable to the communication port on the AC111-013. Route the cable separately from high-voltage power lines to prevent electromagnetic interference (EMI) which can disrupt communication.

> **Warning:** Use of unshielded or improperly grounded communication cables can lead to erratic performance and network faults.

Step 7: Verify Chassis Ground

Confirm the motor's chassis is properly bonded to the system's central earth ground via the PE conductor in the power cable or a dedicated grounding strap. A low-impedance ground path is essential for safety and noise immunity.

> **Warning:** Failure to properly ground the motor chassis creates a severe electrical shock hazard.

4. Post-Installation Verification

1. Double-check that all electrical connectors are fully seated and secured.
2. Verify that all mounting hardware is tightened to the correct torque specifications.
3. With the system unpowered, manually rotate the motor shaft to ensure it moves smoothly without binding.
4. Before applying main power, use a multimeter to check for short circuits between phases and from any phase to ground.
5. Power on the controller and use the engineering software to verify that the motor is detected on the PROFINET network.
6. Ensure all machine guards and safety covers are securely reinstalled before commissioning.

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