

Installation Guide: NexBot Drives AC111-002 Ac Servo Motor

SKU: NXB-SRV-AC111-002 | 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

- Metric Allen wrench set (4mm - 10mm)
- Calibrated torque wrench (up to 50 Nm)
- Digital multimeter with insulated probes
- Wire strippers and ferrule crimping tool
- PROFINET cable tester or network analyzer
- Precision laser alignment tool or dial indicator
- Safety glasses and insulated gloves (Class 0)
- M6 hex bolts of appropriate length for mounting flange

2. Pre-Installation Checks

1. Verify the motor nameplate SKU matches the order: NXB-SRV-AC111-002.
2. Inspect the motor housing, shaft, and connectors for any signs of shipping damage.
3. Confirm the mounting surface is clean, flat, and structurally rigid to handle the motor's 2.1 Nm torque.
4. Ensure the servo drive controller is powered down and Lockout/Tagout (LOTO) procedures are in effect.
5. Verify the drive's three-phase output is configured for 400VAC operation.
6. Check that the machine environment conforms to the IP65 rating requirements, especially regarding fluid exposure.

3. Installation Procedure

Step 1: Mechanical Mounting

Position the AC111-002 motor on the mounting surface, ensuring the pilot is correctly seated. Insert and hand-tighten the M6 mounting bolts through the 86 mm frame flange.

Step 2: Torqueing Mounting Bolts

Using a calibrated torque wrench, tighten the mounting bolts in a star pattern to the specified torque value listed in the machine's assembly drawings. This ensures even pressure on the motor flange.

Warning: Uneven or excessive torque can distort the motor flange, leading to misalignment and premature bearing failure. Do not exceed the recommended torque.

Step 3: Shaft Coupling and Alignment

Align the motor shaft with the load shaft using a precision alignment tool. Install the shaft coupling as per the coupling manufacturer's guidelines, ensuring minimal angular and parallel misalignment.

Warning: Poor alignment is a primary cause of vibration and bearing damage. Re-verify alignment after the coupling is fully installed.

Step 4: Connecting Power Cable

Connect the shielded three-phase power cable to the motor's power input connector. Ensure the U, V, W phases and the Protective Earth (PE) ground are connected to the correct pins.

Warning: Risk of electric shock. Ensure all power is off and locked out. Incorrect phase wiring will cause uncontrolled motor rotation or damage.

Step 5: Connecting Encoder Cable

Connect the shielded encoder feedback cable to the motor's signal connector. Secure the connector's locking mechanism to ensure a reliable connection and maintain the IP65 seal.

Warning: The encoder signal is sensitive to electrical noise. Route this cable separately from high-voltage power cables.

Step 6: Connecting PROFINET Cable

Attach the shielded PROFINET cable to the designated communication port on the motor. Ensure the connector is fully seated and locked to establish a stable network link.

Step 7: Cable Management and Strain Relief

Secure all cables to the machine frame using appropriate clamps, providing strain relief. Leave a service loop with a gentle bend radius to prevent stress on the motor connectors during axis movement.

Warning: Inadequate strain relief can lead to intermittent connections and eventual cable failure.

4. Post-Installation Verification

1. Visually re-inspect all electrical connections to ensure they are secure and correctly terminated.
2. Remove all tools, hardware, and foreign objects from the work area.
3. With the motor decoupled from the load, apply power to the servo drive and check for any fault codes.
4. Perform a low-speed jog test to confirm the direction of rotation is correct as per the system design.
5. Check the PROFINET network status to confirm the motor is online and communicating with the PLC.
6. After successful checks, power down, reconnect the load coupling, and prepare for system tuning.

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