Installation Guide: NexBot Robotics AC111-017 AC Servo Motor, 17 Nm

SKU: NXB-SRV-AC111-017 | 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 with appropriate sockets
- Metric hex key set (Allen wrenches)
- Digital Multimeter (DMM)
- Industrial wire stripper and crimping tool for power connectors
- PROFINET cable termination tool
- Mounting hardware (M8 bolts recommended)
- Lifting straps or hoist for 8.5 kg motor
- Personal Protective Equipment (PPE): safety glasses, insulated gloves

2. Pre-Installation Checks

1. Verify the received product SKU is NXB-SRV-AC111-017 and check for any signs of shipping damage.
2. Ensure the mounting surface is clean, flat, and structurally capable of supporting the motor's 8.5 kg weight and 17 Nm torque reactions.
3. Confirm the connected servo drive is compatible with the AC111-017 and configured for its electrical parameters.
4. Verify the main power supply is de-energized and locked out before beginning any wiring.
5. Check that the ambient operating temperature and environment are within the motor's specified limits and compliant with its IP65 rating.
6. Confirm the mechanical load coupling is correctly sized and balanced for the motor shaft.

3. Installation Procedure

Step 1: Mechanical Mounting

Securely mount the AC111-017 motor to the prepared machine surface using four M8 bolts. Ensure the motor is properly aligned with the driven load to prevent premature bearing wear. Tighten mounting bolts in a cross pattern to the specified torque value found in the drive system manual.

> **Warning:** The motor weighs 8.5 kg. Use proper lifting techniques or mechanical assistance to prevent injury.

Step 2: Shaft Coupling

Attach the mechanical load to the motor shaft using a high-quality, zero-backlash coupling. Ensure proper axial and angular alignment to minimize vibration and maximize lifespan. Do not hammer or apply excessive force to the shaft.

Step 3: Power Cable Connection

Connect the three-phase power conductors (U, V, W) and the protective earth (PE) conductor to the designated terminals on the motor's power connector. Use appropriate wire gauges for the 480VAC supply and ensure all connections are securely crimped and insulated.

> **Warning:** Risk of severe electrical shock. Ensure all power is disconnected and locked out. This motor operates at a lethal voltage of 480VAC.

Step 4: Encoder Cable Connection

Connect the encoder feedback cable from the servo drive to the corresponding signal connector on the motor. Ensure the connector is fully seated and secured to maintain signal integrity and prevent positional errors.

> **Warning:** Do not route encoder cables parallel to high-voltage power lines to avoid signal interference.

Step 5: PROFINET Network Connection

Connect the PROFINET communication cable to the designated M12 D-coded port on the motor. Ensure the connector is tightened to maintain the IP65 seal and provide a reliable network link for control and diagnostics.

Step 6: Chassis Grounding

Connect a dedicated grounding wire from the motor's chassis grounding point to the machine's main earth ground. This is a critical safety step to protect against electrical faults and must be a low-impedance connection.

> **Warning:** Improper grounding can lead to a severe shock hazard and equipment damage.

Step 7: Cable Gland and Seal Verification

After all connections are made, inspect all cable entries and connector seals. Ensure they are properly tightened and sealed to maintain the motor's IP65 rating, protecting it from dust and water ingress in industrial environments.

4. Post-Installation Verification

1. Double-check all electrical connections for tightness and correct phasing before applying power.
2. Verify that all safety guards and covers are securely in place.
3. Remove all tools and foreign objects from the motor and surrounding work area.
4. Perform an initial power-on test with the motor decoupled from the load, if possible.
5. Check for correct direction of rotation and perform a 'jog' test at low speed via the servo drive controller.
6. Listen for any unusual noises or vibrations during the initial low-speed test run.

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