Installation Guide: NexBot Robotics DC112-007 Dc Servo Motor

SKU: NXB-SRV-DC112-007 | Revision: 1.0 | Category: Drive Systems > Servo Motors > DC 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 M4 hex bit
- Digital Multimeter (DMM)
- Wire stripper and crimping tool for power terminals
- IO-Link Master device for configuration
- Anti-static wrist strap
- Safety glasses
- M4 mounting bolts (length appropriate for mounting surface)
- Flat-head screwdriver (small)

2. Pre-Installation Checks

1. Verify the shipping container is undamaged and the SKU NXB-SRV-DC112-007 matches the packing slip.
2. Inspect the motor housing and connectors for any physical damage sustained during transit.
3. Confirm the mounting surface is clean, flat, and dimensionally compatible with the 50 x 50 mm motor footprint.
4. Ensure the 24VDC power supply is de-energized and locked out according to site safety procedures.
5. Verify the control system has a compatible IO-Link master port available.
6. Check that the motor shaft rotates freely by hand without grinding or binding.

3. Installation Procedure

Step 1: Step 1: De-energize and Lockout

Before beginning installation, ensure all power to the robotic cell and control cabinet is turned off. Apply appropriate lockout/tagout (LOTO) devices to the main power disconnect to prevent accidental energization.

> **Warning:** Failure to de-energize the system can result in severe electrical shock or unexpected machine movement, leading to injury or death.

Step 2: Step 2: Mechanical Mounting

Secure the NexBot Robotics DC112-007 motor to the designated mounting bracket using four M4 bolts. Align the motor squarely on the mounting surface to prevent mechanical stress on the housing.

Step 3: Step 3: Torque Mounting Bolts

Using a calibrated torque wrench, tighten the M4 mounting bolts in a cross pattern to the torque value specified in the machine's assembly documentation. Do not overtighten, as this can damage the motor housing or mounting threads.

> **Warning:** Improper torque can lead to vibration and premature failure of the motor or connected components.

Step 4: Step 4: Connect Power Cable

Connect the 24VDC power supply leads to the motor's power input connector. Ensure correct polarity is observed (+24V to +, 0V to -). Use properly sized and terminated wires for a secure connection.

> **Warning:** Reversing the power polarity may cause permanent damage to the motor's internal electronics.

Step 5: Step 5: Connect IO-Link Communication Cable

Attach the M12 communication cable from the system's IO-Link master to the corresponding port on the DC112-007 motor. Ensure the connector is fully seated and the locking ring is tightened to maintain the IP67 rating.

Step 6: Step 6: Couple Mechanical Load

Attach the mechanical load (e.g., gearbox, actuator arm) to the motor shaft using a suitable high-torque shaft coupler. Ensure precise alignment between the motor shaft and the load shaft to prevent excessive wear and vibration.

> **Warning:** Misalignment of the shaft can cause severe mechanical stress, leading to bearing failure and inaccurate positioning.

Step 7: Step 7: Cable Management

Route and secure all power and communication cables, ensuring they are clear of any moving parts and pinch points. Use cable ties or conduit to protect cables from abrasion and environmental hazards.

4. Post-Installation Verification

1. Remove all tools and foreign objects from the work area.
2. Remove LOTO devices and restore power to the system.
3. Using the IO-Link master software, verify that the DC112-007 motor is detected and communicating.
4. Check the controller for any motor-related fault codes.
5. Perform a low-speed, low-torque jog command to confirm the motor moves in the expected direction.
6. Listen for any unusual noises or vibrations during the initial test movement.

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