Installation Guide: NexBot Robotics SA011-001 6-Axis Robot Arm 10kg Payload

SKU: NXB-ROB-SA011-001 | Revision: 1.0 | Category: Robots > Articulated Robots > Small Articulated (≤10kg)

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

1. Required Tools & Materials

- Metric hex key set (5mm to 12mm)
- Torque wrench (50-200 Nm range)
- M12 lifting eye bolts (Set of 4)
- Certified lifting straps and crane/hoist rated for at least 100 kg
- Digital multimeter
- EtherCAT compatible network cable (CAT6a Shielded)
- Precision spirit level
- Wire stripper and terminal crimping tool

2. Pre-Installation Checks

1. Verify the mounting surface is flat, rigid, and capable of supporting the robot's weight (65.0 kg) plus dynamic loads.
2. Confirm the availability of a stable 400-480VAC 3-Phase power source with appropriate circuit protection.
3. Inspect the shipping crate and robot for any signs of damage that may have occurred during transit.
4. Ensure all components listed on the packing slip are present, including the robot, controller, cables, and documentation.
5. Check that the planned installation area provides sufficient clearance for the robot's full range of motion (1300 mm reach).
6. Verify that the ambient temperature and humidity of the installation site are within the robot's operational limits.

3. Installation Procedure

Step 1: Unpacking and Lifting

Carefully remove the robot from its shipping crate. Install the four M12 lifting eye bolts into the designated points on the robot base and use certified lifting equipment to move the 65.0 kg robot to its mounting location.

> **Warning:** Improper lifting can cause severe injury or equipment damage. Always use certified lifting equipment rated for at least 100 kg and ensure the robot is balanced.

Step 2: Base Mounting

Position the robot on the prepared mounting surface, aligning it with the mounting holes. Secure the robot base using the specified grade and size of bolts, torquing them to the values specified in the mechanical drawings.

Step 3: Grounding Connection

Connect a dedicated protective earth (PE) ground wire to the robot's grounding terminal. A secure ground connection is critical for safety and to prevent electrical noise interference.

> **Warning:** Failure to properly ground the robot can result in a serious electric shock hazard.

Step 4: Main Power Connection

Connect the main power cable from the controller to a lockable, fused disconnect switch. Verify the incoming voltage is within the 400-480VAC 3-Phase range before connecting to the robot controller.

> **Warning:** Ensure main power is locked out and tagged out (LOTO) before making any electrical connections.

Step 5: Controller and Communication Cable Connection

Connect the main umbilical cable from the robot base to the controller. Connect the EtherCAT communication cable to the designated port on the controller to establish the network link.

Step 6: End-of-Arm Tooling (EOAT) Installation

Mount the desired end-of-arm tooling to the J6 mounting flange. Connect any pneumatic or electrical lines for the tooling, ensuring they are routed to prevent snagging or excessive stress during robot motion.

> **Warning:** Ensure the combined weight of the tooling and part does not exceed the maximum payload of 10 kg.

Step 7: Initial Power On

Remove all tools and personnel from the robot's work envelope. Disengage the LOTO, close the disconnect switch, and power on the robot controller. Verify that no errors appear on the teach pendant.

> **Warning:** The robot may perform a slight initial movement upon power-up. Maintain a safe distance.

4. Post-Installation Verification

1. Verify all mounting bolts are torqued to the correct specification.
2. Check for stable EtherCAT communication between the robot controller and the master device.
3. Perform a slow, manual movement of each of the 6 axes through its entire range to check for obstructions or binding.
4. Confirm that all emergency stop circuits (E-Stops) are functioning correctly.
5. Calibrate the Tool Center Point (TCP) for the installed end-of-arm tooling.
6. Run a simple test program at low speed to confirm proper operation and path accuracy.

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