Installation Guide: NexBot Robotics MA012-004 6-Axis Robot Arm 25kg Payload

SKU: NXB-ROB-MA012-004 | Revision: 1.0 | Category: Robots > Articulated Robots > Medium Articulated (10-50kg)

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

1. Required Tools & Materials

- Forklift or certified lifting crane (rated for > 300 kg)
- M16 Torque Wrench
- Precision Machinist's Level
- Metric Allen Key Set (up to M12)
- Calibrated Multimeter
- EtherCAT Cable Tester
- Industrial Grout or Anchoring Compound
- Personal Protective Equipment (Safety Glasses, Steel-Toed Boots)

2. Pre-Installation Checks

1. Verify foundation integrity and levelness, ensuring it can support the robot's 275.0 kg static weight and dynamic operational loads.
2. Confirm a dedicated 400-480VAC 3-Phase power source with appropriate circuit protection is available within 3 meters of the installation point.
3. Inspect the shipping crate for any signs of damage before unpacking. Verify the SKU NXB-ROB-MA012-004 on the crate matches the packing list.
4. Ensure the planned work envelope is clear of all obstructions to accommodate the full 1600 mm reach plus a safety buffer zone.
5. Check that ambient temperature, humidity, and particulate levels at the installation site are within the robot's operational specifications.
6. Review all mechanical and electrical drawings for the specific automation cell layout, including mounting patterns and cable routing.

3. Installation Procedure

Step 1: Uncrating and Lifting

Carefully remove the robot from its shipping crate using certified lifting equipment. Attach rigging only to the designated forged lifting points on the robot base as indicated in the mechanical drawings.

> **Warning:** Improper lifting can cause severe equipment damage and personal injury. Ensure lifting equipment capacity exceeds 300 kg and the load is balanced.

Step 2: Base Mounting and Anchoring

Position the MA012-004 robot on the prepared foundation, aligning it with the mounting holes. Insert and hand-tighten all M16 mounting bolts.

Step 3: Leveling the Robot

Using a precision machinist's level on the robot's base mounting flange, adjust leveling bolts or shims until the base is perfectly level in both X and Y planes. An unlevel base will degrade accuracy and cause premature wear.

> **Warning:** Failure to properly level the robot will void the repeatability specification of ±0.03 mm.

Step 4: Torquing Mounting Bolts

Torque the M16 mounting bolts to the specification listed in the mechanical manual using a calibrated torque wrench. Follow a star pattern to ensure even pressure. If required, apply anchoring grout around the base and allow it to cure fully.

Step 5: Connecting Main Power and Ground

With the main power source locked-out and tagged-out, connect the 400-480VAC 3-Phase power cable and the main ground wire to the robot's power input terminal block. All electrical work must be performed by a qualified electrician.

> **Warning:** High voltage is present. Failure to follow Lockout/Tagout procedures can result in severe electrical shock or death.

Step 6: Connecting Control and Communication Cables

Connect the main control cable from the robot controller to the robot base. Connect the EtherCAT communication cable to the designated port, ensuring a secure, positive lock.

> **Warning:** Route cables carefully to prevent pinching or stretching during robot motion. Use strain relief where applicable.

Step 7: Installing End-of-Arm Tooling (EOAT)

Mount the specified gripper or tool to the wrist flange, ensuring the mounting pattern aligns correctly. The combined weight of the tooling and workpiece must not exceed the 25 kg payload limit.

Step 8: Initial Power-Up Sequence

Clear the area of all personnel and tools. Remove the lockout/tagout device and energize the main power. Power on the robot controller and observe the teach pendant for a successful boot sequence with no critical errors.

> **Warning:** The robot may perform a slight, unexpected motion on initial power-up. Maintain a safe distance.

4. Post-Installation Verification

1. Verify all mounting bolts on the robot base and end-of-arm tooling are torqued to their specified values.
2. Test all safety systems, including Emergency Stop buttons and any integrated light curtains or safety gates, to ensure they function correctly.
3. In manual mode at low speed (10% override), jog each of the 6 axes through its full range of motion, checking for any binding, obstructions, or unusual noises.
4. Check the teach pendant for any active alarms or warnings after the initial motion tests.

5. Verify a stable EtherCAT communication link between the controller and the robot arm is established and maintained.
6. Execute a simple, pre-written test program without a workpiece to confirm basic path following and positioning accuracy.

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