Installation Guide: NexBot Drives LA013-002 6-Axis Robot Arm 120kg Payload

SKU: NXB-ROB-LA013-002 | Revision: 1.0 | Category: Robots > Articulated Robots > Large Articulated (50-200kg)

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

1. Required Tools & Materials

- Overhead crane or forklift with a minimum lifting capacity of 1500 kg
- Certified heavy-duty lifting straps and shackles
- High-range industrial torque wrench (up to 1000 Nm)
- M24 anchor bolt installation kit for concrete foundation
- Precision machinist's level or laser alignment tool
- Calibrated industrial multimeter for voltage verification
- PROFINET cable tester and analyzer
- Complete set of large metric hex keys and industrial wrenches

2. Pre-Installation Checks

1. Verify the concrete foundation is cured and meets the specified thickness and strength to support the robot's 1250 kg weight and dynamic operational forces.
2. Confirm a stable 400-480VAC 3-Phase power source with appropriate circuit protection is available within 5 meters of the controller location.
3. Inspect all delivered crates for shipping damage and verify the contents against the packing list, ensuring the LA013-002 arm, controller, and teach pendant are present.
4. Ensure the planned installation area provides a clear work envelope for the robot's full 2,702 mm reach, free of personnel and obstructions.
5. Confirm the robot's 800 x 650 mm base footprint aligns with the anchor bolt pattern on the engineering drawings.

6. Check that ambient temperature, humidity, and air quality in the installation area are within the robot's operational specifications.

3. Installation Procedure

Step 1: Robot Base Positioning and Anchoring

Using a certified crane, carefully lift the 1250 kg robot arm and position its 800 x 650 mm base over the prepared foundation holes. Lower the robot into place, install the M24 anchor bolts, and torque them in a star pattern to the value specified in the engineering manual.

> **Warning:** CRUSH HAZARD. Ensure all personnel maintain a safe distance during lifting operations. Never stand under a suspended load.

Step 2: Connecting Controller and Power Cables

Securely connect the main robot power and signal cables from the robot base to the corresponding ports on the NexBot controller cabinet. Route the main 400-480VAC 3-Phase power supply to the controller's main disconnect switch, ensuring proper grounding.

> **Warning:** ELECTRICAL SHOCK HAZARD. All electrical work must be performed by a qualified electrician following full Lockout/Tagout (LOTO) procedures.

Step 3: Establishing PROFINET Communication

Connect the shielded PROFINET cable from the controller's designated port to the plant's automation network switch. Use the NexBot commissioning software to configure the robot's IP address and device name to integrate it into the PLC's hardware configuration.

Step 4: Attaching End-of-Arm Tooling (EOAT)

Mount the custom end-effector to the robot's wrist flange. Connect any pneumatic lines and electrical signals for the EOAT to the provided ports on the robot's upper arm.

> **Warning:** Ensure the combined weight of the EOAT and workpiece does not exceed the 120 kg maximum payload.

Step 5: Connecting the Teach Pendant

Connect the teach pendant cable to the main controller cabinet. Power on the system and wait for the pendant to initialize and establish a connection with the robot's core software.

Step 6: System Mastering and Calibration

In T1 (Teach) mode, carefully jog each of the 6 axes to its designated mastering mark. Execute the mastering procedure from the teach pendant to establish the robot's absolute home position, which is critical for achieving the ±0.05 mm repeatability.

> **Warning:** Keep the robot's speed low during the mastering process. Be prepared to press the Emergency Stop button at all times.

Step 7: Configuring Payload and Tool Center Point (TCP)

Accurately define the Tool Center Point (TCP) and the mass properties of the installed EOAT in the robot's system settings. This ensures precise linear movements and allows the controller to optimize motion performance for the 120 kg payload capacity.

Step 8: Verifying Safety Circuits

Systematically test every safety input and output, including all Emergency Stop buttons, safety gates, and light curtains. Confirm

that activating any safety device immediately brings the robot to a controlled stop and engages all motor brakes.

> **Warning:** NEVER bypass safety circuits. A complete functional safety validation is mandatory before enabling automatic operation.

4. Post-Installation Verification

1. In a low-speed manual mode, jog each of the 6 axes through its entire range of motion to confirm smooth, unrestricted movement.
2. Execute a simple test program without a workpiece to verify path accuracy and motion.
3. Verify stable, error-free PROFINET communication between the robot controller and the master PLC.
4. Pressurize any pneumatic systems and check all fittings and hoses for air leaks.
5. Create a complete backup of the initial system configuration, including mastering data, programs, and network settings.
6. Complete and sign the official NexBot installation and commissioning checklist for warranty validation.

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