Installation Guide: NexBot Robotics FLR022-004 Collaborative Robot Arm 10kg Payload

SKU: NXB-ROB-FLR022-004 | Revision: 1.0 | Category: Robots > Collaborative Robots > Floor Cobots (5-20kg)

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

1. Required Tools & Materials

- M8 Hex Key Set
- Torque Wrench (10-50 Nm range)
- Precision Bubble Level or Laser Level
- Digital Multimeter
- Shielded EtherCAT Network Cable (RJ45)
- Laptop with NexBot Control Suite
- Anti-static ESD Wrist Strap
- Wire Stripper and Terminal Crimper

2. Pre-Installation Checks

1. Verify the mounting surface is rigid, flat, and rated to support the robot's 35.5 kg static weight plus dynamic loads from a 10 kg payload.
2. Confirm the ambient operating environment is free from conductive dust and direct water spray to comply with the IP54 rating.
3. Check the incoming power source to ensure it provides a stable, regulated 48VDC supply capable of handling peak current draw.
4. Unpack the FLR022-004 robot arm and inspect the cast aluminum alloy body and connectors for any signs of shipping damage.
5. Ensure the designated workspace is clear of personnel and obstructions within the robot's 1300 mm reach envelope.
6. Cross-reference the SKU on the shipping container (NXB-ROB-FLR022-004) with the purchase order.

3. Installation Procedure

Step 1: Secure Robot Base to Mounting Surface

Carefully position the FLR022-004 robot base onto the prepared surface, aligning it with the mounting hole pattern. Insert and hand-tighten the required M8 mounting bolts.

> **Warning:** Use certified lifting equipment rated for at least 50 kg to safely maneuver the robot's 35.5 kg mass during installation.

Step 2: Level and Torque Mounting Bolts

Use a precision level on the robot's mounting flange to ensure it is perfectly horizontal. Following a star pattern, tighten the mounting bolts to the specified torque value using a calibrated torque wrench.

> **Warning:** Improper leveling or uneven torque can negatively impact the robot's ±0.03 mm repeatability and cause premature mechanical wear.

Step 3: Connect 48VDC Power

Connect the verified 48VDC power supply to the robot's primary power input connector. Ensure correct polarity and a secure, vibration-resistant connection before proceeding.

> **Warning:** Applying incorrect voltage or reverse polarity will cause immediate and permanent damage to the robot's internal control boards.

Step 4: Establish EtherCAT Communication

Connect a shielded EtherCAT cable from the master controller to the 'IN' port on the robot's communication panel. If the robot is part of a larger EtherCAT chain, connect the next device to the 'OUT' port.

Step 5: Attach Teach Pendant and Peripherals

Connect the NexBot teach pendant to its dedicated port on the robot controller. Attach any other required peripherals, such as safety I/O modules, ensuring all connectors are fully seated and locked.

Step 6: Initial Power On Sequence

Ensure the work area is clear, then energize the main controller followed by the 48VDC robot power supply. Launch the NexBot Control Suite on a connected PC and establish a connection to the robot.

> **Warning:** The robot may perform a slight motion upon initial power-up. Keep the emergency stop button readily accessible.

Step 7: Release Brakes and Home Robot

From the software interface, execute the 'Release Brakes' command to allow movement. Initiate the automated homing sequence, which will move all 6 axes to their calibrated zero positions.

> **Warning:** Confirm that no obstructions will interfere with the robot's movement during the homing procedure.

Step 8: Mount and Configure End-of-Arm Tooling (EOAT)

Power down the robot before mechanically mounting the EOAT to the tool flange. Ensure the combined weight of the tooling and intended workpiece does not exceed the 10 kg payload limit.

4. Post-Installation Verification

1. Jog each of the 6 axes individually at low speed to verify smooth, unrestricted motion.
2. Check the software diagnostics panel for any active error codes or warnings after the initial startup and homing.
3. Actuate the emergency stop circuit from both the controller and teach pendant to confirm it halts all robot motion immediately.

4. Run a simple pick-and-place program to verify the robot can move to commanded positions within its 1300 mm reach.
5. Calibrate the Tool Center Point (TCP) and enter the payload mass and center of gravity for the installed EOAT.
6. Perform a final risk assessment of the complete robotic cell to ensure all collaborative safety functions are configured appropriately for the application.

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