Installation Guide: NexBot Drives FLR022-002 Collaborative Robot Arm 10kg Payload

SKU: NXB-ROB-FLR022-002 | 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

- Torque wrench (range appropriate for M8/M10 bolts)
- Metric hex key set (Allen wrenches)
- Precision level or laser level
- Mechanical lift or hoist rated for at least 50 kg
- Lifting straps
- Laptop with Ethernet port for configuration
- Multimeter for voltage verification
- Appropriate mounting hardware (e.g., M8 or M10 bolts, washers)

2. Pre-Installation Checks

1. Verify that the mounting surface is flat, rigid, and capable of supporting at least 5 times the robot's weight (approx. 150 kg) plus the maximum payload and dynamic forces.
2. Confirm that the complete shipment has been received by checking the contents against the packing list for SKU NXB-ROB-FLR022-002.
3. Ensure a stable 48VDC power source is available within reach of the power cable and can supply the required current.
4. Check that the ambient environment complies with the IP54 rating, ensuring it is free from excessive dust, corrosive gases, or conductive liquids.
5. Clear the intended workspace (1300 mm reach) of all personnel and obstructions before beginning installation.

6. Review all safety documentation provided with the robot controller and teach pendant.

3. Installation Procedure

Step 1: Unpacking and Initial Inspection

Carefully unpack the FLR022-002 robot arm and its controller from the shipping crate. Visually inspect all components for any signs of damage that may have occurred during transit.

Step 2: Prepare Mounting Surface

Clean the mounting surface and verify the bolt hole pattern matches the template provided in the product manual. Ensure the surface is level before proceeding.

> **Warning:** An uneven or unstable mounting surface can severely impact the robot's repeatability of ±0.05 mm and operational safety.

Step 3: Lifting and Positioning

Using a certified mechanical lift and appropriate lifting straps, carefully hoist the 28.5 kg robot arm. Slowly lower the arm onto the mounting surface, aligning its base with the pre-drilled holes.

> **Warning:** Never attempt to lift the robot arm manually. Use proper lifting equipment to prevent personal injury and damage to the unit.

Step 4: Securing the Robot Base

Insert the specified mounting bolts and washers through the robot base into the mounting surface. Tighten the bolts in a star pattern to the torque value specified in the hardware manual to ensure even pressure.

> **Warning:** Under-torquing can lead to vibration and inaccuracy. Over-torquing can damage the robot base or mounting surface.

Step 5: Connecting Cables

Connect the main robot cable between the robot base and the controller unit. Connect the 48VDC power supply cable and the EtherCAT communication cable to the designated ports on the controller.

> **Warning:** Ensure all power is off before connecting or disconnecting any cables to prevent electrical shock or equipment damage.

Step 6: Connecting Peripherals

Connect the teach pendant to its dedicated port on the controller. If using external safety devices (e-g., light curtains, safety mats), connect them to the safety I/O terminals as per the wiring diagram.

Step 7: Initial Power-Up

Ensure the emergency stop button on the teach pendant is not engaged. Turn on the main power to the controller. The controller's status indicators should light up, and the teach pendant will begin its boot sequence.

> **Warning:** Be prepared to press the emergency stop button immediately if any unexpected movement or sound occurs during the first power-up.

Step 8: Software Configuration and Homing

Using the teach pendant or connected laptop, follow the on-screen first-time setup wizard. This process includes setting the robot's network address and performing the initial homing sequence to calibrate all 6 axes.

4. Post-Installation Verification

1. Verify that no error or fault codes are displayed on the teach pendant after the homing sequence is complete.
2. Check the EtherCAT communication status to ensure a stable link is established between the robot controller and the master device.
3. Using the teach pendant in 'Manual' mode at a low speed (10% or less), gently jog each of the 6 axes to confirm smooth, unrestricted movement.
4. Inspect all cable connections to ensure they are secure and that the cables are routed to prevent pinching or stretching during robot motion.
5. Test the functionality of the emergency stop button on the teach pendant and any connected external safety devices.
6. Define a simple tool with an estimated weight and run a basic pre-loaded motion program to verify operational readiness.

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

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