

Installation Guide: NexBot Vision FLR022-003 Collaborative Robot Arm 10kg Payload

SKU: NXB-ROB-FLR022-003 | 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 (20-100 Nm range)
- M8 Hex Bolt Set (Grade 8.8 or higher)
- 4mm and 5mm Allen Key Set
- Precision Bubble Level or Laser Level
- Multimeter with Voltmeter Function
- Wire Stripper and Crimping Tool for DC Power Terminals
- Laptop with NexBot Control Suite software installed
- Shielded EtherCAT Network Cable (RJ45)

2. Pre-Installation Checks

1. Verify the mounting surface is rigid, flat, and structurally capable of supporting the robot's 35.5 kg static weight plus dynamic loads from a 10 kg payload at full 1300 mm extension.
2. Ensure a regulated 48VDC power source capable of supplying the required peak current is available within 2 meters of the planned controller location.
3. Confirm that the ambient environment temperature and humidity are within the robot's operational limits (0°C to 50°C, <85% non-condensing).
4. Unpack and inspect all components (robot arm, controller, cables, teach pendant) for any signs of shipping damage.
5. Confirm the planned workspace is clear of obstructions and provides sufficient clearance for the robot's full range of motion.

6. Verify that the EtherCAT master is powered and configured to accept a new slave device on the network.

3. Installation Procedure

Step 1: Secure the Robot Base

Carefully lift the FLR022-003 arm onto the prepared mounting surface, aligning it with the drilled mounting holes. Insert and hand-tighten the M8 bolts, then use a torque wrench to tighten them in a star pattern to the specified torque value to ensure even clamping.

Step 2: Connect Main Power to Controller

Connect the 48VDC power supply to the controller's primary power input terminal. Double-check the polarity (+/-) before securing the connections. An incorrect connection can cause permanent damage to the controller.

Warning: Ensure the main 48VDC power source is completely de-energized and locked-out before making any electrical connections.

Step 3: Connect Robot Arm to Controller

Attach the main umbilical cable from the base of the robot arm to the corresponding multi-pin connector on the controller unit. Ensure the connector's locking mechanism is fully engaged to prevent accidental disconnection during operation.

Step 4: Establish EtherCAT Communication

Connect a shielded EtherCAT cable from your EtherCAT master device or the previous slave in the chain to the 'EtherCAT IN' port on the robot controller. If this is the last device, leave the 'EtherCAT OUT' port empty or use it to continue the chain.

Step 5: Connect Peripherals

Plug the teach pendant into its dedicated port on the controller. Connect any required I/O for end-of-arm tooling or external sensors to the appropriate I/O blocks on the controller.

Step 6: Initial Power-On Sequence

Clear the robot's entire working envelope of all personnel and tools. Apply power to the 48VDC supply, then turn on the main switch on the controller. Observe the status LEDs for the normal boot sequence.

Warning: Stand clear of the robot during the first power-on. The arm may perform a small calibration movement unexpectedly.

Step 7: Configure Network and Robot Model

Connect a laptop to the controller's service port and launch the NexBot Control Suite software. Establish a connection and ensure the software correctly identifies the NXB-ROB-FLR022-003 model. Set the robot's EtherCAT device address if required by your network configuration.

Step 8: Perform System Homing

Using the teach pendant, initiate the system's homing routine. This process moves each of the 6 axes to its home position to establish a known starting reference. The robot is not ready for programmed operation until homing is successfully completed.

4. Post-Installation Verification

1. Verify the controller status light is solid green, indicating the system is in a ready and error-free state.
2. Using the teach pendant at low speed (10% or less), manually jog each axis through its full range of motion to check for smooth, unimpeded movement.

3. Confirm that the robot is visible and communicating correctly on the EtherCAT network via your master controller's software.
4. Test the emergency stop buttons on both the teach pendant and the controller to confirm they immediately stop all robot motion and engage the brakes.
5. Define a simple tool with a zero weight and run a basic motion program to confirm path execution and system coordination.
6. Listen for any abnormal noises or grinding from the joints, which could indicate a mechanical issue or improper mounting.

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