

Installation Guide: NexBot Drives ELC412-014 Electric Gripper

SKU: NXB-GEN-ELC412-014 | Revision: 1.0 | Category: End-of-Arm Tooling > Grippers > Electric Grippers

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

1. Required Tools & Materials

- Metric hex key set (2.5mm to 8mm)
- Torque wrench with M6 hex bit socket
- Digital multimeter
- Wire stripper and crimping tool
- Small flathead screwdriver (for terminals)
- M12 8-pin A-coded cable (appropriate length)
- Cable ties or cable management conduit
- Safety glasses

2. Pre-Installation Checks

1. Verify the robot arm flange mounting pattern is compatible with the NexBot Drives ELC412-014.
2. Confirm the availability of a stable 24VDC power source capable of supplying at least 2A.
3. Inspect the gripper for any signs of damage that may have occurred during shipping.
4. Ensure the IO-Link master device is installed and accessible for connection.
5. Check the robot's declared payload capacity; the gripper weighs 1.6 kg plus the weight of custom fingers.
6. Download the latest IODD file for the ELC412-014 from the NexBot Robotics support portal.

3. Installation Procedure

Step 1: Step 1: De-energize Equipment

Power down the robot controller and any associated machinery. Follow standard lockout/tagout (LOTO) procedures to ensure the system cannot be accidentally energized during installation.

Warning: Failure to de-energize the system can result in electric shock or unexpected robot movement, leading to severe injury.

Step 2: Step 2: Mechanical Mounting

Securely attach the NexBot Drives ELC412-014 to the robot's end-of-arm tool flange using the appropriate M6 bolts. Use a torque wrench to tighten the bolts to the specification provided by the robot manufacturer to prevent vibration-induced loosening.

Step 3: Step 3: Connect Communication and Power Cable

Connect the M12 8-pin cable to the corresponding port on the gripper. Ensure the connector is fully seated and the threaded collar is tightened to maintain the IP54 seal.

Warning: Do not apply power until all connections are secure. An improperly seated connector can lead to intermittent communication and is not sealed against contaminants.

Step 4: Step 4: Route and Secure Cabling

Route the cable along the robot arm to the IO-Link master. Secure the cable using cable ties or a dress pack, leaving sufficient slack at each joint to allow for the robot's full range of motion without straining the cable or connectors.

Step 5: Step 5: Install Gripper Fingers

Mount the custom or standard gripper fingers onto the gripper's jaw interface plates. Ensure all fasteners are tightened correctly and that the fingers are properly aligned to prevent binding during operation.

Step 6: Step 6: Connect to IO-Link Master

Connect the other end of the M12 cable to an available port on your IO-Link master device. Connect the 24VDC power supply to the master or the gripper's power pins as specified in the wiring diagram. Double-check polarity with a multimeter before applying power.

Warning: Reversing the 24VDC polarity can permanently damage the gripper's internal electronics.

Step 7: Step 7: Power On and Configure

Remove LOTO devices and power on the robot controller and the 24VDC power supply. In your control software, upload the IODD file for the ELC412-014 to configure the IO-Link master port for communication with the gripper.

Step 8: Step 8: Perform Initial Function Test

Using the robot teach pendant or engineering software, operate the gripper at a low speed. Command the jaws to fully open and close, verifying smooth, unobstructed motion and confirming that the gripper's status is correctly reported.

Warning: Keep personnel clear of the robot's work envelope during the initial power-up and function test.

4. Post-Installation Verification

1. Verify that the IO-Link master shows a stable, active connection with the ELC412-014 gripper.
2. Check the controller for any fault codes related to the gripper or IO-Link communication.
3. Command the gripper to specific positions and verify the position feedback is accurate and repeatable.
4. Test the gripping force control by setting minimum and maximum force values and observing the behavior.
5. Run the robot through its intended path at operational speed to ensure the cable management is effective and does not snag.

6. Confirm that all guards and safety systems for the robotic cell are re-engaged and functional.

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