

Installation Guide: NexBot Drives TBL021-002 Collaborative Robot Arm 10kg Payload

SKU: NXB-ROB-TBL021-002 | Revision: 1.0 | Category: Robots > Collaborative Robots > Tabletop Cobots (≤5kg)

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

1. Required Tools & Materials

- Metric Allen key set (2mm to 10mm)
- Torque wrench with M8 socket
- Digital multimeter
- Wire stripper and 24AWG ferrule crimper
- Industrial Ethernet cable tester
- Precision bubble level
- Laptop with NexBot Configuration Suite software
- Safety glasses and cut-resistant gloves

2. Pre-Installation Checks

1. Verify the SKU on the shipping crate is NXB-ROB-TBL021-002 and inspect all components for shipping damage.
2. Confirm the mounting surface is rigid, flat, and rated to support a minimum static load of 170 kg.
3. Ensure a regulated 48VDC power source capable of supplying the required peak current is available within 3 meters of the controller location.
4. Check that the installation environment's ambient temperature and humidity are within the robot's specified operating range.
5. Verify that there is sufficient clearance for the robot's full 1300 mm reach, including any end-of-arm tooling.
6. Ensure a dedicated earth ground connection is available for the robot controller chassis.

3. Installation Procedure

Step 1: Mounting the Robot Arm

Secure the TBL021-002 robot base to the prepared mounting surface using four M8 Grade 10.9 (or higher) bolts. Torque the bolts in a star pattern to the specification listed in the mechanical drawings.

Warning: Failure to use the correct grade bolts or torque specification can lead to insecure mounting and potential equipment failure.

Step 2: Connecting the Robot Controller

Connect the main robot cable from the base of the arm to the 'ROBOT' port on the controller. Ensure the connector's locking mechanism is fully engaged.

Step 3: Connecting Main Power

With the power source de-energized, connect the 48VDC supply lines to the controller's power input terminal block. Ensure correct polarity is observed.

Warning: Ensure power is locked out and tagged out before making any electrical connections to prevent electric shock.

Step 4: Grounding the System

Connect the controller's chassis grounding point to the facility's verified earth ground using a dedicated, low-impedance grounding wire. This is critical for safety and noise immunity.

Step 5: Establishing EtherCAT Communication

Connect the incoming EtherCAT cable from the network master or previous slave to the 'ECAT IN' port on the controller. If the robot is

not the last device in the chain, connect an outgoing cable from the 'ECAT OUT' port.

Step 6: Mounting End-of-Arm Tooling (EOAT)

Attach the desired gripper or tool to the ISO standard tool flange at the end of Axis 6. Connect any required electrical or pneumatic lines to the ports provided on the tool flange.

Warning: Ensure the combined weight of the EOAT and the workpiece does not exceed the maximum 10 kg payload.

Step 7: Initial Power-On Sequence

Clear the robot's working area of all personnel and obstructions. Apply power to the 48VDC supply, then press the power button on the controller. Observe the status LEDs for a normal boot sequence.

Warning: The robot may perform a slight motion upon initial power-up. Maintain a safe distance.

Step 8: Software Connection and Homing

Connect a laptop via Ethernet to the service port of the controller. Launch the NexBot Configuration Suite, establish communication, and initiate the 'Homing' routine to calibrate all 6 axes.

4. Post-Installation Verification

1. Verify that all status indicators on the robot controller show a green or normal state.
2. Check for any error messages or warnings within the NexBot Configuration Suite software.
3. Using the teach pendant at low speed (10%), jog each axis individually to its positive and negative limits to confirm smooth motion.
4. Test the functionality of the physical emergency stop buttons on the controller and teach pendant.

5. Activate and test any connected End-of-Arm Tooling to ensure it responds to commands.
6. Run a simple test program to verify the robot can accurately reach programmed points.

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