

Installation Guide: NexBot Vision MD132-003 Multi-Axis Servo Drive 400-480VAC

SKU: NXB-SRV-MD132-003 | Revision: 1.0 | Category: Drive Systems > Servo Drives > Multi-Axis Servo Drives

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

1. Required Tools & Materials

- Torque wrench with insulated sockets
- Calibrated multimeter
- Wire stripping and crimping tool for power and signal terminals
- Phillips and flat-head insulated screwdrivers
- Shielded EtherCAT cables (RJ45)
- Appropriately gauged, shielded motor power and encoder cables
- Laptop with NexBot Drive Configuration Software installed
- Anti-static wrist strap

2. Pre-Installation Checks

1. Verify the delivered product is SKU NXB-SRV-MD132-003 and inspect for any visible damage from shipping.
2. Confirm the control cabinet provides at least 50mm of clearance on all sides of the drive's dimensions (310 x 120 x 250 mm) for proper ventilation.
3. Ensure the incoming three-phase power supply is de-energized and locked out, and verify it is within the 400-480VAC operational range.
4. Check that the servo motors to be connected are compatible with the drive's power stage and feedback interface.
5. Confirm the control cabinet's protective earth (PE) bus is clean and accessible for a low-impedance ground connection.
6. Have the system's electrical schematics available for reference during wiring.

3. Installation Procedure

Step 1: Step 1: Mount the Drive

Securely mount the NexBot Vision MD132-003 drive vertically to the cabinet's backplane. Due to its weight of 7.8 kg, use all four mounting holes with the specified M5 screws to ensure stability and proper heat dissipation through the chassis.

Warning: Ensure the mounting surface is flat and conductive to facilitate proper grounding and thermal transfer. Do not mount horizontally or upside-down as this will impede airflow.

Step 2: Step 2: Connect Protective Earth (PE)

Connect the drive's PE chassis terminal to the main control cabinet ground bus using a short, heavy-gauge wire. This is the first electrical connection to be made and is critical for safety and noise immunity.

Warning: Failure to establish a proper ground connection can create a severe electric shock hazard and may lead to unreliable operation.

Step 3: Step 3: Connect Main AC Power

With the main supply locked out, connect the incoming 400-480VAC three-phase power lines to the L1, L2, and L3 terminals. Use wiring sized according to local electrical codes and torque the terminals to the specification listed on the drive housing.

Warning: Verify the power source is OFF before making any connections. Incorrectly wiring the phase sequence may not damage the drive but can cause unexpected motor rotation direction.

Step 4: Step 4: Connect Motor Power Cables

Connect the shielded power cables for each servo motor to the respective axis output terminals (Axis 1: U1, V1, W1; Axis 2: U2, V2, W2; Axis 3: U3, V3, W3). Ensure the cable shield is properly terminated at the provided shield clamp.

Step 5: Step 5: Connect Motor Feedback Cables

Connect the encoder or resolver feedback cables from each motor to the corresponding feedback connectors on the drive. Ensure the connectors are fully seated and secured to prevent intermittent signal loss, which can lead to control faults.

Step 6: Step 6: Connect EtherCAT Network

Integrate the drive into the control network by connecting a shielded EtherCAT cable from the master or previous slave device to the 'ECAT IN' port. If this is not the last device in the chain, connect another cable from the 'ECAT OUT' port to the next slave.

Warning: Using unshielded or poor-quality communication cables can lead to data errors and unpredictable system behavior.

Step 7: Step 7: Wire Safety and I/O Signals

Connect the Safe Torque Off (STO) circuit and any required digital I/O signals as per the application wiring diagram. The STO inputs must be correctly wired to the machine's safety system to ensure functional safety.

Warning: The STO function is a critical safety feature. Its implementation must be validated by a qualified safety engineer before machine operation.

Step 8: Step 8: Reinstall Covers

Once all wiring is complete and has been double-checked, reinstall all terminal covers and the main front cover. This is necessary to maintain the drive's IP20 rating and protect against accidental contact with live components.

4. Post-Installation Verification

1. Perform a final visual inspection of all wiring, ensuring no loose strands or debris are present.
2. Use a multimeter to check for shorts between power phases and from power phases to ground.

3. Verify the tightness of all power, motor, and ground connections with a torque screwdriver.
4. Remove all tools from the control cabinet and securely close the cabinet door.
5. Before enabling power to the motors, apply control power only and establish communication with the NexBot Drive Configuration Software.
6. Check the software for any pre-existing faults and verify that the drive's firmware version is up to date.

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