

Installation Guide: NexBot Drives SD131-006 Single-Axis Servo Drive 6A

SKU: NXB-SRV-SD131-006 | Revision: 1.0 | Category: Drive Systems > Servo Drives > Single-Axis Servo Drives

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

1. Required Tools & Materials

- Slotted and Phillips head screwdrivers (insulated, 1000V rated)
- Torque wrench with hex bit set (2-10 Nm range)
- Wire stripper and crimping tool for power and signal terminals
- Digital multimeter for voltage and continuity verification
- EtherCAT network cable tester
- Anti-static wrist strap
- Drill and M4 tap for mounting holes
- Panel cutout tool

2. Pre-Installation Checks

1. Verify the shipping container and NexBot Drives SD131-006 unit show no signs of physical damage.
2. Confirm the control cabinet has adequate clearance for the drive's dimensions (170 x 55 x 165 mm) plus a minimum of 50mm ventilation space above and below.
3. Ensure the incoming three-phase power supply is de-energized and locked out, and matches the drive's 400VAC rating.
4. Check that the servo motor and encoder cables are compatible with the drive's connectors and are of sufficient length.
5. Review the system's electrical schematics to confirm all connection points and wire gauges are correct.
6. Prepare a clean, static-free workspace for handling the drive.

3. Installation Procedure

Step 1: Mounting the Drive

Securely mount the SD131-006 drive vertically to the cabinet's backplate using four M4 screws. Ensure the anodized aluminum heatsink has unobstructed airflow for proper thermal dissipation.

Warning: Failure to ensure proper ventilation can lead to overheating and premature drive failure. Do not mount the drive horizontally.

Step 2: Protective Earth (PE) Connection

Connect the main protective earth conductor to the designated PE terminal on the drive. This connection is critical for safety and must be the first wire connected and the last disconnected.

Warning: A missing or improper ground connection can create a lethal shock hazard.

Step 3: Connecting 400VAC Mains Power

Connect the three-phase 400VAC power lines to the L1, L2, and L3 input terminals. Use the appropriate wire gauge as specified in the system design and tighten the terminals to the recommended torque value.

Warning: Ensure power is fully disconnected and locked out before making any connections. Incorrect voltage or phasing can permanently damage the drive.

Step 4: Connecting the Servo Motor

Connect the motor power phases (U, V, W) and the motor brake (if applicable) to the corresponding output terminals on the drive. Ensure a tight, secure connection to prevent arcing and performance issues.

Step 5: Connecting the Motor Encoder

Plug the motor's encoder cable into the designated encoder feedback port on the SD131-006. Ensure the connector is fully seated and secured to prevent intermittent signal loss during operation.

Warning: Running the motor without proper encoder feedback can lead to uncontrolled motion and potential equipment damage.

Step 6: Connecting EtherCAT Communication

Connect the incoming EtherCAT cable to the X1 IN port and the outgoing cable to the X2 OUT port for daisy-chaining devices. Use shielded CAT5e or better cables to ensure network integrity.

Step 7: Connecting Digital I/O and STO

Wire the control signals, such as limit switches and sensors, to the digital I/O block. Connect the Safe Torque Off (STO) circuit to the system's safety relay or safety PLC as per your machine's safety design.

Warning: The STO circuit must be correctly implemented and tested to ensure personnel safety during machine intervention.

Step 8: Final Connection Verification

Visually inspect all wiring to ensure it matches the schematics. Use a multimeter to check for short circuits between phases and to ground before applying power.

4. Post-Installation Verification

1. Double-check that all terminal screws are tightened to their specified torque values.
2. Verify that all protective covers and cable shields are correctly in place.
3. Remove all tools, wire clippings, and foreign objects from the control cabinet.

4. Close and secure the control cabinet door to maintain the system's overall IP rating, as the drive itself is IP20 rated.
5. Before enabling the drive, apply power to the cabinet and verify the SD131-006 status LED indicates ready state without faults.
6. Establish a connection with the commissioning software and verify the drive is detected on the EtherCAT network.

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