Installation Guide: NexBot Servo Drive SD-48

SKU: NXB-DRV-SD-048-A | 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

- Torque wrench with M4 hex bit
- Wire stripper and crimping tool for power terminals
- Small flathead screwdriver for I/O terminals
- Digital Multimeter
- ESD wrist strap and mat
- PROFINET network cable (shielded, Cat5e or better)
- Laptop with NexBot Commissioning Software
- Mounting screws (M4, length appropriate for mounting panel thickness)

2. Pre-Installation Checks

1. Verify the received product SKU is NXB-DRV-SD-048-A and check for any signs of shipping damage.
2. Ensure the main 48VDC power supply to the cabinet is de-energized and locked out (LOTO).
3. Confirm the mounting panel is clean, flat, and provides adequate ventilation around the drive's dimensions (142 x 87 x 87 mm).
4. Verify the connected servo motor is compatible with the SD-48 drive's power output characteristics.
5. Prepare the PROFINET network by assigning a valid IP address and device name for the new drive.
6. Read all safety notices in the user manual before beginning installation.

3. Installation Procedure

Step 1: Step 1: Mount the Servo Drive

Securely fasten the NexBot Servo Drive SD-48 to the mounting panel using four M4 screws. Ensure the drive is oriented vertically with the heatsink fins unobstructed to allow for proper convective cooling.

> **Warning:** Do not overtighten mounting screws. Ensure the drive is mounted to a conductive, grounded panel to aid in heat dissipation and electrical noise reduction.

Step 2: Step 2: Connect Chassis Ground

Connect the chassis ground terminal (PE) on the drive to the central system ground point using a low-impedance grounding wire. This is a critical step for operator safety and noise immunity.

> **Warning:** Failure to properly ground the drive can result in a serious electrical shock hazard.

Step 3: Step 3: Connect 48VDC Power

Connect the 48VDC power supply to the DC+ and DC- input terminals. Verify correct polarity with a multimeter before connecting. Use appropriate gauge wiring to handle the required current for your application.

> **Warning:** Reversing the polarity of the DC input voltage will cause permanent damage to the servo drive.

Step 4: Step 4: Connect Motor Power and Brake

Connect the motor phase wires (U, V, W) from the servo motor to the corresponding output terminals on the drive. If the motor is equipped with an electromechanical brake, connect its power leads to the brake control terminals.

Step 5: Step 5: Connect Motor Encoder

Connect the motor's encoder feedback cable to the designated encoder port on the SD-48. Ensure the connector is fully seated and secured to prevent intermittent signal loss during operation.

> **Warning:** The encoder cable is sensitive to electrical noise. Route it separately from motor power and other high-voltage cables.

Step 6: Step 6: Connect PROFINET Communication

Connect a shielded PROFINET cable from the network switch or previous device to one of the RJ45 ports on the drive. If the drive is not the last device in a line topology, connect an outgoing cable to the second port.

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

Connect the Safe Torque Off (STO) circuit and any other required digital or analog I/O signals. The STO inputs must be correctly wired to your system's safety relay or safety PLC for the drive to be enabled safely.

> **Warning:** The STO function is a safety-critical component. Its implementation must be validated by a qualified safety engineer.

4. Post-Installation Verification

1. Double-check all wiring connections for tightness and correctness against the wiring diagram.
2. Remove the lockout/tagout device and apply 48VDC power to the drive.
3. Observe the status LEDs on the front of the SD-48. A solid green status light indicates normal operation without faults.
4. Establish a connection to the drive using the NexBot Commissioning Software via the PROFINET network.
5. Verify the drive correctly identifies the connected motor and encoder.

6. Perform a low-speed jog command without a load on the motor to confirm correct direction of rotation and basic functionality.

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

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