

Installation Guide: NexBot Vision SD131-003 Single-Axis Servo Drive (30A)

SKU: NXB-SRV-SD131-003 | 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 screwdriver with insulated bits (Phillips and flat-head)
- Wire stripper and crimping tool for power and signal terminals
- Digital Multimeter (DMM) for voltage verification
- Panel knockout punch or drill for mounting holes
- Tape measure and level
- ESD wrist strap
- Shielded EtherCAT cables with RJ45 connectors
- Appropriately sized ferrules for stranded wires

2. Pre-Installation Checks

1. Verify the product label matches the order: NexBot Vision SD131-003, SKU NXB-SRV-SD131-003.
2. Inspect the Anodized Aluminum housing for any signs of shipping damage such as dents or scratches.
3. Ensure the mounting panel is clean, flat, and provides adequate space, respecting the drive's dimensions of 225 x 85 x 190 mm plus required ventilation clearances.
4. Confirm the incoming power supply is de-energized and matches the drive's 480VAC 3-phase specification.
5. Check that the installation environment complies with the IP20 rating; the location must be dry and free of conductive dust.
6. Have the correct motor, encoder, and communication cables ready for connection.

3. Installation Procedure

Step 1: Mounting the Drive

Securely mount the SD131-003 drive vertically inside the control cabinet using four M5 screws. Ensure a minimum clearance of 50mm above and below the unit for proper airflow and heat dissipation.

Warning: Ensure the mounting panel is properly grounded and can support the drive's weight of 2.8 kg.

Step 2: Protective Earth (PE) Connection

Connect the main protective earth ground to the designated PE terminal on the drive. Use a wire gauge equal to or greater than the power input conductors. This is a critical safety connection and must be the first wire connected and the last disconnected.

Warning: Failure to properly ground the drive can result in electric shock hazard and may cause equipment damage.

Step 3: Connecting 480VAC Main Power

Connect the 3-phase 480VAC power lines to the L1, L2, and L3 input terminals. Ensure all terminal screws are tightened to the specified torque value found in the full product manual to prevent loose connections.

Warning: Verify that main power is locked out and tagged out before making any power connections.

Step 4: Connecting Motor Power and Encoder

Connect the motor power cables to the U, V, and W output terminals. Connect the motor's encoder feedback cable to the dedicated encoder port on the drive. Ensure all cables are shielded and the shields are properly terminated to ground.

Step 5: Connecting External Braking Resistor

If using an external braking resistor for regenerative energy dissipation, connect it to the RB+ and RB- terminals. Ensure the resistor's power rating and resistance value are within the drive's specified limits.

Warning: Braking resistors can reach extremely high temperatures during operation. Mount them in a well-ventilated area away from flammable materials.

Step 6: Connecting Digital I/O Signals

Wire the necessary control signals, such as 'drive enable' and 'fault reset', to the digital input/output terminal block. Refer to the full manual for pin assignments and logic settings.

Step 7: Connecting EtherCAT Network

Connect the incoming EtherCAT cable from the master or previous slave device to the X1 IN port. If this is not the last device in the chain, connect an outgoing cable from the X2 OUT port to the next EtherCAT slave.

Warning: Use only shielded CAT5e or better cables rated for industrial environments to ensure reliable communication.

4. Post-Installation Verification

1. Double-check all wiring connections for correctness and tightness, ensuring no stray wire strands are present.
2. Verify that all ventilation paths for the drive are unobstructed.
3. Confirm that the IP20-rated enclosure door is securely closed and sealed before applying power.
4. Remove all tools and foreign objects from the control cabinet.
5. Apply power to the drive and check that the status LED indicator illuminates as expected (e.g., solid green for normal operation).
6. Establish communication with the drive over EtherCAT using the NexBot configuration software and verify the drive is recognized on the network.

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