Installation Guide: NexBot Drives 512-002 Bus Power Cable

SKU: NXB-CBL-512-002 | Revision: 1.0 | Category: Cables & Connectors > Power Cables > Bus Power Cables

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

1. Required Tools & Materials

- Calibrated Torque Screwdriver (for terminal blocks)
- Digital Multimeter (DMM)
- Wire Cutters
- Cable Tie Gun and Nylon Cable Ties
- Safety Glasses (ANSI Z87.1 rated)
- Insulated Hand Tools (Screwdrivers, Pliers)
- Lockout/Tagout (LOTO) Kit

2. Pre-Installation Checks

1. Verify the part number on the cable matches the order: NXB-CBL-512-002.
2. Visually inspect the entire 2m length of the cable for any nicks, cuts, or damage to the Polyurethane (PUR) jacket.
3. Confirm the system's DC bus voltage does not exceed the cable's 600VDC rating.
4. Ensure all power to the control cabinet is de-energized and a proper Lockout/Tagout procedure is in effect.
5. Plan the cable route to avoid sharp edges, high-temperature zones, and interference with sensitive data cables.
6. Confirm that the terminal blocks on the power supply and servo drives can accommodate the cable's conductors.

3. Installation Procedure

Step 1: Step 1: De-energize and Lockout System

Before beginning installation, completely de-energize the control cabinet at the main disconnect. Apply a personal lock and tag in accordance with your facility's Lockout/Tagout (LOTO) procedures to prevent accidental energization.

> **Warning:** Failure to de-energize the system can result in severe electrical shock, injury, or death. Verify zero energy state with a multimeter before proceeding.

Step 2: Step 2: Route the Cable

Carefully route the NXB-CBL-512-002 cable from the DC power supply's output terminals to the DC bus input terminals of the first servo drive. Use existing cable trays or channels where possible, ensuring the cable is not subject to pulling, kinking, or crushing.

Step 3: Step 3: Connect to DC Power Supply

Prepare the cable ends as required and connect the positive (+) and negative (-) conductors to the corresponding output terminals on the central DC power supply. Ensure correct polarity is observed. Tighten the terminal screws to the torque value specified by the power supply manufacturer.

> **Warning:** Reversing polarity can cause catastrophic damage to the power supply and connected servo drives upon power-up.

Step 4: Step 4: Connect to Servo Drive Bus

Connect the other end of the cable to the main DC bus input terminals on the first servo drive in the bank. If daisy-chaining power, ensure this connection is made to the primary input terminals as specified in the drive's documentation. Tighten terminal screws to the drive manufacturer's specification.

Step 5: Step 5: Secure Cable Routing

Using nylon cable ties, secure the cable along its route at regular intervals to prevent movement and sagging. The cable's 8.5mm outer diameter should be considered when selecting clamps. Do not overtighten cable ties, as this can deform the jacket and conductors.

> **Warning:** Ensure the cable is secured away from moving parts such as cooling fans or contactor mechanisms within the cabinet.

Step 6: Step 6: Verify Connections and Polarity

Perform a final physical inspection of all connections, ensuring they are secure and that no stray wire strands are present. Use a multimeter set to continuity mode to verify there are no shorts between the positive and negative conductors. Double-check that polarity is correct at both the power supply and the drive.

4. Post-Installation Verification

1. With the system still de-energized, perform a point-to-point continuity check on both conductors.
2. Verify insulation resistance between conductors and to ground is within acceptable limits.
3. Remove all tools, debris, and unused materials from the control cabinet.
4. Following safety procedures, remove your Lockout/Tagout device.
5. Energize the system and use a multimeter to confirm the DC bus voltage at the servo drive terminals matches the power supply output.
6. Check the servo drive status display for any DC bus-related faults or warnings.

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