

Installation Guide: NexBot Robotics 512-004 Bus Power Cable, 4m, IP67

SKU: NXB-CBL-512-004 | 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

- Insulated gloves (Class 00)
- Digital Multimeter (DMM)
- Connector torque wrench (for M-style connectors)
- Isopropyl alcohol and lint-free wipes
- Cable ties or appropriate cable clamps
- Side cutters
- Flashlight or headlamp
- Lockout/Tagout (LOTO) kit

2. Pre-Installation Checks

1. Verify the part number on the cable packaging matches NXB-CBL-512-004.
2. Inspect the full 4-meter length of the cable for any shipping damage, such as cuts, abrasions, or crushed sections in the Polyurethane (PUR) jacket.
3. Ensure both connectors are clean, and that pins are straight and free of debris.
4. Confirm that the robot controller and robot base power have been de-energized and locked out according to site safety procedures.
5. Verify the power source is correctly configured for 48VDC output.
6. Plan the cable route to avoid sharp bends, pinch points, and sources of extreme heat or chemical exposure.

3. Installation Procedure

Step 1: Step 1: Position and Route the Cable

Carefully route the NXB-CBL-512-004 cable from the controller's power output port to the robot base's power input port. Follow designated cable trays and avoid laying the cable across walkways or areas where it could be damaged by mobile equipment.

Warning: Do not exceed the minimum bend radius specified in the robot system manual. Over-bending can cause internal conductor damage and premature failure.

Step 2: Step 2: Clean Connector Interfaces

Using isopropyl alcohol and a lint-free wipe, gently clean the connector interfaces on both the controller and the robot base. This ensures a clean, low-resistance connection and helps maintain the IP67 rating.

Step 3: Step 3: Connect to Robot Controller

Align the keyway on the cable connector with the corresponding slot on the controller's power output port. Push the connector in firmly and then tighten the coupling nut by hand until it is snug.

Warning: Never connect or disconnect the cable while the controller is powered on. This can cause electrical arcing, damaging the connectors and posing a safety risk.

Step 4: Step 4: Connect to Robot Base

Repeat the connection process at the robot base. Align the connector, insert it fully, and hand-tighten the coupling nut to secure it.

Step 5: Step 5: Torque Connectors

Using an appropriate torque wrench, tighten the coupling nuts on both connectors to the manufacturer's specified value. Proper torque is essential to guarantee the IP67 seal against dust and moisture ingress.

Warning: Do not over-tighten the connectors, as this can damage the o-ring seals or the connector housing itself.

Step 6: Step 6: Secure Cable with Strain Relief

Secure the cable at several points along its run using cable ties or clamps, paying special attention to providing strain relief near the connectors. The cable should not support its own weight or be under tension at the connection points.

Step 7: Step 7: Perform Continuity and Isolation Test

With power still off, use a digital multimeter to verify continuity on each power conductor from end to end. Also, perform an isolation test to ensure there are no short circuits between conductors or to the connector shell.

Warning: This test must only be performed on a de-energized circuit.

4. Post-Installation Verification

1. Visually double-check that both connectors are fully seated and secured.
2. Confirm the cable is not kinked, pinched, or under tension at any point in its route.
3. Verify that the cable routing does not interfere with the robot's range of motion or other moving components.
4. Remove all tools and materials from the work area.
5. Remove the Lockout/Tagout device according to authorized procedures.
6. Perform a controlled power-up of the system and check the controller for any power-related fault codes.

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