

Installation Guide: NexBot Robotics NXB-CBL-512-001 Bus Power Cable, 48VDC, IP67

SKU: NXB-CBL-512-001 | 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

- Digital Multimeter (DMM)
- Insulated torque wrench with appropriate connector bits
- Wire cutters and strippers (for non-terminated end, if applicable)
- Cable tie installation tool
- Safety glasses with side shields
- Insulated electrical gloves
- Cable lubricant for conduit pulls
- Appropriately sized cable clamps or P-clips

2. Pre-Installation Checks

1. Verify the part number on the cable is NXB-CBL-512-001.
2. Inspect the entire 5-meter length of the cable for any shipping damage, such as cuts or abrasions to the PUR jacket.
3. Confirm that the target power bus source is de-energized and locked-out/tagged-out (LOTO).
4. Use a multimeter to verify the source voltage is 48VDC before connecting the cable.
5. Ensure the connectors on the equipment and power source are compatible with the cable's terminations.
6. Plan the cable route, ensuring it avoids sharp edges, sources of extreme heat, and chemical exposure beyond its specifications.

3. Installation Procedure

Step 1: Route Planning and Preparation

Carefully lay out the cable path from the power source to the destination component. Ensure the 5-meter length is adequate and clear the path of any debris or potential hazards that could damage the cable jacket.

Warning: Never route power cables directly over areas with high foot traffic or where they can be crushed by moving equipment unless protected by a suitable rated cable tray or conduit.

Step 2: Cable Pulling

Gently pull the cable along the planned route. If pulling through conduit, use an appropriate cable lubricant to reduce friction on the 8.5 mm outer diameter PUR jacket. Avoid pulling directly on the connector heads.

Warning: Do not exceed the maximum pulling tension specified for the cable. Exceeding this limit can stretch conductors and compromise performance.

Step 3: Observe Minimum Bend Radius

When routing around corners or obstacles, ensure the bend radius is not violated. A tight bend can damage the internal conductors and shielding, especially in dynamic applications.

Warning: Forcing the cable into a bend tighter than its specified minimum radius will void the warranty and can lead to premature failure.

Step 4: Securing the Cable

Use appropriately sized cable clamps or nylon cable ties to secure the cable at regular intervals. Do not overtighten clamps, as this can compress the cable and damage the insulation.

Step 5: Strain Relief

Ensure adequate strain relief is provided at both connector ends. This is critical in dynamic applications to prevent stress from being transferred to the electrical connection points during movement.

Warning: Failure to provide proper strain relief is a leading cause of intermittent connections and connector failure.

Step 6: Connecting to Power Source

With the power source confirmed to be de-energized, securely attach the source-side connector. If a screw-type connector is used, tighten to the manufacturer's recommended torque value to ensure a solid electrical connection and maintain the IP67 seal.

Warning: Ensure connectors are fully seated and locked. An incomplete connection can compromise the IP67 rating and pose an electrical hazard.

Step 7: Connecting to Device

Attach the load-side connector to the target NexBot Robotics component. Ensure the connection is clean, dry, and secure to guarantee reliable power delivery.

4. Post-Installation Verification

1. Visually inspect the entire cable run for any signs of pinching, kinking, or damage that may have occurred during installation.
2. Double-check that all connectors are fully seated and secured.
3. Remove the LOTO device and re-energize the power source according to standard safety procedures.
4. Use a multimeter at the device end to verify that the correct 48VDC polarity and voltage are present.
5. Power on the connected device and monitor for stable operation without power-related faults.
6. Observe the cable during a test cycle of the machine's movement to ensure it is not snagging or being stressed beyond its limits.

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