

Installation Guide: NexBot Vision 512-011 Bus Power Cable (5m, IP67)

SKU: NXB-CBL-512-011 | 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

- Torque wrench with M12 connector head
- Digital Multimeter
- Industrial-grade cable ties
- Side cutters
- Insulated screwdrivers
- Cable gland wrench set
- Personal Protective Equipment (Safety glasses, insulated gloves)
- Lockout/Tagout (LOTO) kit

2. Pre-Installation Checks

1. Verify the SKU on the cable packaging is NXB-CBL-512-011 and matches the project requirements.
2. Inspect the full 5m length of the cable, including connectors, for any physical damage such as cuts, abrasions, or crushed sections.
3. Confirm the power source is de-energized and secured using proper Lockout/Tagout procedures before beginning any work.
4. Check that the system's operating voltage is 48VDC to match the cable's specification.
5. Ensure the mating connectors on the power distribution module and the peripheral device are clean, dry, and free of any debris or bent pins.
6. Verify the planned cable route is free of sharp edges, sources of extreme heat, and potential pinch points.

3. Installation Procedure

Step 1: Plan and Route Cable

Carefully route the NXB-CBL-512-011 cable from the power source to the target device. Follow existing cable trays where possible and avoid routing near high-temperature components or sources of significant electromagnetic interference.

Warning: Do not exceed the minimum bend radius specified in NexBot system guidelines. Over-bending can cause permanent damage to the internal conductors.

Step 2: Connect to Power Source

Align the keyed connector with the corresponding 48VDC output port on the power distribution module. Hand-tighten the coupling nut until snug, then use a calibrated torque wrench to tighten to the specification listed in the main robot service manual.

Step 3: Connect to Peripheral Device

Repeat the connection process at the peripheral device (e.g., I/O block, sensor hub). Ensure the connector is fully seated before tightening the coupling nut to establish a secure electrical connection and environmental seal.

Step 4: Verify Connector Sealing

Visually inspect both connected ends to confirm that the connector's seal is fully compressed. A proper seal is essential to maintain the cable's IP67 rating against dust and liquid ingress.

Warning: An improper seal can lead to connector corrosion and eventual system failure, especially in washdown environments.

Step 5: Secure Cable Run

Use industrial-grade cable ties or clamps at regular intervals to secure the cable along its route. Leave a small service loop near each connector to

prevent strain on the connection points, especially in applications with vibration or movement.

Warning: Do not overtighten cable ties, as this can compress and damage the Polyurethane (PUR) jacket over time.

Step 6: Manage Proximity to Data Cables

If routing alongside PROFINET or other data communication cables, maintain the recommended separation distance as defined in NexBot's installation standards. This minimizes the risk of electrical noise affecting data integrity.

Step 7: Final Inspection

Perform a final walkthrough of the entire cable installation. Check for any potential snag points, areas of abrasion, or unsecured sections before applying power to the system.

4. Post-Installation Verification

1. Remove the Lockout/Tagout device from the power source according to established safety protocols.
2. Re-energize the system and observe the status indicators on the connected peripheral device to confirm it has powered up correctly.
3. Use a multimeter at a designated test point to verify the peripheral is receiving stable 48VDC power.
4. Monitor the system controller for any new power-related alarms or fault codes after the installation.
5. If installed on a moving part, cycle the robot or machine through its full range of motion to ensure the cable does not bind, stretch, or snag.
6. Update the system maintenance log with the date of installation and component details.

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