

Installation Guide: NexBot Vision PWR511-015 Motor Power Cable

SKU: NXB-SRV-PWR511-015 | Revision: 1.0 | Category: Cables & Connectors > Power Cables > Motor 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 wrench with 15 Nm capability
- Insulated electricians gloves (rated for 480VAC)
- Safety glasses
- Digital Multimeter (DMM) with continuity test function
- Cable ties and flush cutters
- Lint-free cloths and isopropyl alcohol
- Standard screwdriver set
- Lockout/Tagout (LOTO) kit

2. Pre-Installation Checks

1. Verify the received part number is NXB-SRV-PWR511-015 and matches the work order.
2. Inspect the entire length of the cable and both connectors for any signs of damage sustained during shipping.
3. Confirm that the power source to the robot controller and drive unit is de-energized and secured using proper LOTO procedures.
4. Ensure the motor and drive connection ports are clean, dry, and free of any debris or contaminants.
5. Verify the planned cable route is free from sharp edges, pinch points, and sources of extreme heat or chemical exposure.
6. Check that the cable length is sufficient for the intended path, including any required service loops for robotic arm movement.

3. Installation Procedure

Step 1: Step 1: Implement Lockout/Tagout (LOTO)

Before beginning any work, completely de-energize the robotic cell and associated machinery. Apply a personal lock and tag to the main electrical disconnect to prevent accidental re-energization.

Warning: Failure to de-energize and lock out the power source can result in severe electrical shock, injury, or death. Always verify zero energy state with a multimeter.

Step 2: Step 2: Route the Cable

Carefully route the NXB-SRV-PWR511-015 cable from the drive cabinet to the motor connection point. Follow existing cable trays and conduits where possible, ensuring the cable is not twisted or kinked.

Warning: Do not exceed the minimum bend radius of the cable. Forcing the cable around tight corners can damage internal conductors and shielding.

Step 3: Step 3: Prepare Connection Points

Remove the protective caps from both ends of the new cable and from the corresponding ports on the motor and drive. Inspect the connector pins and sockets to ensure they are straight and clean.

Step 4: Step 4: Connect to Motor

Align the keyway on the cable connector with the corresponding notch on the motor's power port. Gently push the connector straight in until it is fully seated. Thread the locking collar by hand until it is snug.

Warning: Do not force the connection. If it does not seat easily, remove it and check for pin misalignment or debris.

Step 5: Step 5: Torque Motor Connector

Using a calibrated torque wrench, tighten the locking collar on the motor connector to exactly 15 Nm. This ensures a secure, vibration-resistant connection and maintains the IP67 environmental seal.

Warning: Over-tightening can damage the connector threads and seal, while under-tightening can lead to intermittent power and moisture ingress.

Step 6: Step 6: Connect to Drive/Controller

Repeat the connection process at the other end of the cable, connecting it to the designated motor power output port on the servo drive or controller cabinet. Ensure the keyway is aligned and the connector is fully seated before tightening the collar.

Step 7: Step 7: Torque Drive Connector

Use the calibrated torque wrench to tighten the drive-side connector's locking collar to the specified 15 Nm. A consistent and correct torque value is critical for long-term reliability.

Step 8: Step 8: Secure Cable Run

Secure the cable along its route using appropriate cable ties or clamps, leaving a service loop with adequate slack to accommodate the full range of robot motion without straining the cable. Trim cable tie ends flush to avoid creating sharp edges.

4. Post-Installation Verification

1. Double-check that both connectors are torqued to the specified 15 Nm.
2. Perform a point-to-point continuity test with a multimeter to ensure there are no open circuits or shorts in the newly installed cable.
3. Verify that the cable is securely fastened and does not interfere with any moving parts of the robot or surrounding equipment.
4. Remove your Lockout/Tagout device and follow all site-specific procedures for re-energizing the equipment.

5. Once powered, check the servo drive for any power or connection-related fault codes.
6. Perform a low-speed manual jog of the robot axis to confirm proper motor function and ensure the cable moves freely without binding.

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