

Installation Guide: NexBot Robotics PWR511-010 Motor Power Cable

SKU: NXB-SRV-PWR511-010 | 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 10 Nm capability
- Connector cap removal tool
- Insulated electricians gloves
- Digital Multimeter (DMM)
- Safety glasses with side shields
- Lint-free wipes and contact cleaner
- Nylon cable ties
- Cable routing arm/snake

2. Pre-Installation Checks

1. Verify the part number on the cable packaging is NXB-SRV-PWR511-010.
2. Inspect the entire 10 m length of the Polyurethane (PUR) cable jacket and both connectors for any signs of shipping damage, such as cuts, cracks, or bent pins.
3. Confirm that the equipment is fully de-energized and that a proper Lockout/Tagout (LOTO) procedure is in effect before beginning work.
4. Ensure the planned cable route is clear of sharp edges, sources of extreme heat, and moving parts that could cause abrasion.
5. Verify that the connectors on the motor and drive unit are clean, dry, and match the connectors on the PWR511-010 cable.
6. Confirm the system voltage does not exceed the cable's 480VAC rating.

3. Installation Procedure

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

Before handling the cable, ensure all power to the robotic cell and associated drive cabinets is shut down at the main disconnect. Apply a personal lock and tag to the energy-isolating device to prevent accidental re-energization.

Warning: Failure to de-energize equipment can result in severe electrical shock, injury, or death. This cable is rated for up to 480VAC.

Step 2: Step 2: Plan and Route the Cable

Carefully route the 10 m cable from the drive cabinet to the motor connection point. Use existing cable trays and avoid sharp bends; maintain a bend radius of at least 8 times the cable diameter. Ensure the cable is not twisted or kinked during installation.

Step 3: Step 3: Prepare Connection Points

Remove the protective caps from the PWR511-010 connectors and the corresponding connectors on the motor and drive. Inspect all connector pins and sockets to ensure they are clean and free of debris. Use contact cleaner and a lint-free wipe if necessary.

Warning: Do not touch connector pins with bare hands. Skin oils can degrade connection quality over time.

Step 4: Step 4: Connect to Motor

Align the keyway on the cable connector with the key on the motor's power receptacle. Push the connector firmly into place until it is fully seated, then engage the locking mechanism by hand-tightening the coupling nut.

Step 5: Step 5: Connect to Drive/Amplifier

Repeat the connection process at the other end of the cable, connecting it to the designated motor power output on the servo drive or amplifier. Ensure a solid, secure connection is made before proceeding.

Step 6: Step 6: Torque Connectors to Specification

Using a calibrated torque wrench, tighten the coupling nuts on both connectors to the specified torque of 10 Nm. This precise torque ensures a secure connection and maintains the IP67 environmental seal.

Warning: Over-torquing can damage the connector threads or housing. Under-torquing can lead to intermittent connections, overheating, and loss of the IP67 rating.

Step 7: Step 7: Secure Cable and Provide Strain Relief

Secure the cable along its route using nylon cable ties at regular intervals. Leave a service loop near the motor to allow for movement without putting stress on the connector. This strain relief is critical for the cable's longevity.

Step 8: Step 8: Final Inspection

Perform a final visual inspection of the entire cable run. Verify that all connections are secure, the cable is not pinched or kinked, and it is clear of any potential hazards within the robotic cell.

4. Post-Installation Verification

1. With power still off, use a multimeter to perform a point-to-point continuity check and ensure there are no shorts between conductors or to ground.
2. Remove your lock and tag from the energy-isolating device according to established LOTO procedures.
3. Restore power to the system in a controlled manner.
4. Check the servo drive for any new fault codes related to motor power.
5. Jog the robot axis at a low speed to verify motor operation and ensure the cable moves freely without snagging.
6. Update the equipment's maintenance log to record the installation of the new NXB-SRV-PWR511-010 cable.

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

