

Installation Guide: NexBot Drives NET522-006 Fieldbus Cable

SKU: NXB-CBL-NET522-006 | Revision: 1.0 | Category: Cables & Connectors > Signal Cables > Fieldbus Cables

DANGER: Disconnect all power sources before beginning installation. Follow lockout/tagout (LOTO) procedures per OSHA 1910.147.

1. Required Tools & Materials

- Zip ties or appropriate cable clamps
- Side cutters for trimming zip ties
- Lint-free cloths
- Isopropyl alcohol (for cleaning connectors)
- Digital Multimeter (for continuity checks)
- Cable labeling machine
- Torque driver (for connectors with specified torque)
- Protective gloves and safety glasses

2. Pre-Installation Checks

1. Verify the part number is NXB-CBL-NET522-006 and the length is 6 meters as required by the system design.
2. Visually inspect the entire cable jacket and both connectors for any signs of shipping damage, such as cuts, crushing, or bent pins.
3. Confirm that the target controller and peripheral device are fully powered down and locked out according to facility safety procedures.
4. Ensure the planned cable route is free of sharp edges, abrasive surfaces, and sources of high heat or strong electromagnetic interference (EMI).
5. Verify that the device and controller ports are clean, dry, and free of debris.
6. Confirm that the connectors on the cable match the receptacles on the equipment.

3. Installation Procedure

Step 1: Step 1: System Power-Down Verification

Ensure all related machinery, including the robot controller and peripheral devices, is in a zero-energy state. Follow all local lock-out/tag-out (LOTO) procedures before proceeding with any physical connection.

Warning: Failure to de-energize equipment can result in severe electrical shock and damage to components.

Step 2: Step 2: Plan and Clear Cable Path

Lay out the cable along the intended path from the controller to the end device. Ensure the path allows for the full range of machine motion without pulling or kinking the cable. The high-flexibility design of the NET522-006 is intended for dynamic applications, but the path must be clear of obstructions.

Step 3: Step 3: Clean Connector Interfaces

Using a lint-free cloth lightly dampened with isopropyl alcohol, gently clean the connector faces on both the cable and the equipment ports. Allow a moment for the alcohol to fully evaporate before making any connections.

Warning: Do not spray cleaning agents directly into equipment ports. Ensure solvent is fully evaporated to prevent short circuits.

Step 4: Step 4: Connect to the Master/Controller Device

Align the keyway on the first cable connector with the port on the master device (e.g., robot controller). Insert the connector firmly until it is fully seated. If it is a screw-type M12 or similar connector, tighten the coupling nut by hand until snug, then use a torque driver if a specific value is required by the controller manufacturer.

Step 5: Step 5: Route the Cable Through Motion Areas

Carefully route the 6-meter cable along the planned path, paying close attention to articulated joints. Do not bend the cable tighter than the manufacturer's recommended minimum bend radius. The Polyurethane

(PUR) jacket provides abrasion resistance, but proper routing is critical for longevity.

Warning: Avoid twisting the cable along its length (torsional stress) as this can lead to premature failure even in high-flex cables.

Step 6: Step 6: Secure the Cable

Use appropriate cable clamps or zip ties to secure the cable within cable trays or along structural members. Leave adequate slack loops at moving joints to prevent stress during operation. Do not overtighten zip ties, as this can compress the cable and degrade signal integrity.

Step 7: Step 7: Connect to the Slave/Peripheral Device

Align and insert the second connector into the port on the peripheral device. Secure the coupling nut in the same manner as the controller end to ensure a reliable connection that meets the IP67 rating for dust and moisture ingress protection.

Step 8: Step 8: Label the Cable

Apply durable, machine-printed labels to both ends of the NXB-CBL-NET522-006 cable. Labels should clearly identify the connected devices and ports for future maintenance and troubleshooting.

4. Post-Installation Verification

1. Double-check that both connectors are fully seated and secured.
2. Perform a final visual inspection of the entire cable run to ensure it is not pinched, kinked, or under tension.
3. Remove all LOTO devices and restore power to the system according to standard operating procedures.
4. Observe the status indicator LEDs on the connected devices for a stable link and communication activity.
5. In the controller software, perform a bus scan to verify the peripheral device is detected and communicating correctly over the EtherCAT protocol.
6. Run the machinery through its full range of motion while monitoring network status to confirm the cable performs without data loss.

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