

# User Manual: NexBot Vision PWR511-003 Motor Power Cable

SKU: NXB-SRV-PWR511-003 | Version: 1.0 | Brand: NexBot Robotics

## Table of Contents

1. Safety Information
2. Product Overview
3. Getting Started
4. Operation
5. Maintenance
6. Troubleshooting
7. Technical Specifications

## 1. Safety Information

**READ ALL SAFETY INSTRUCTIONS BEFORE OPERATION.** Failure to follow safety procedures may result in serious injury or equipment damage.

**DANGER:** This cable carries hazardous voltage up to 400VAC. Disconnect, lockout, and tagout all power sources before installation, inspection, or service. Failure to do so will result in fatal electric shock.

**WARNING:** Use a calibrated torque wrench to tighten connectors to the specified 3 Nm. Incorrect torque can lead to intermittent connections, overheating, arcing, and equipment failure.

**WARNING:** Do not operate the cable if the Polyurethane (PUR) jacket is damaged, cut, or abraded. A compromised jacket can expose internal conductors and negate the IP67 rating, creating a shock and fire hazard.

**CAUTION:** Avoid bending the cable tighter than its minimum specified bend radius. Excessive bending can damage internal conductors and shielding, leading to premature failure.

**NOTICE:** The NXB-SRV-PWR511-003 is designed for use in NexBot robotic systems. Use of this cable in non-specified applications may void the warranty and lead to unpredictable performance.

## 2. Product Overview

NexBot Vision PWR511-003 Motor Power Cable (NXB-SRV-PWR511-003) is a motor power cables used in industrial robotics equipment where category-specific fit, electrical or mechanical compatibility, and predictable serviceability are important to buyers. The product should be understood as the exact component named by its category path, not as a complete robot or a generic service item. It supports installation, replacement, and maintenance workflows in robotic production cells by giving procurement and maintenance teams a clearly defined part class, relevant engineering specifications, and application context that matches the actual hardware being purchased.

## 3. Getting Started

### 1. Product Identification

The NexBot Vision PWR511-003 Motor Power Cable is identified by the SKU NXB-SRV-PWR511-003 printed on the cable jacket and packaging. Always verify this identifier to ensure you are using the correct component for your application.

### 2. Scope of Use

This 3-meter cable is engineered specifically to deliver 400VAC power from a NexBot servo drive to a compatible motor. Its robust PUR jacket and IP67-rated connectors are designed for demanding industrial environments where reliability is critical.

### 3. Handling and Storage

Store the cable in a clean, dry environment away from direct sunlight and chemical contaminants. When handling, avoid dropping the connectors or kinking the cable. Keep protective caps on connectors until the moment of installation.

## 4. Operation

### Normal Operating Conditions

The PWR511-003 is designed to operate continuously at its rated voltage of 400VAC within the specified temperature range of the robotic system. It is a passive component that requires no user interaction during normal machine operation.

**Tip:** Proper cable management during installation is the key to a long, trouble-free service life. Ensure a service loop with sufficient slack is present to accommodate all robot movements.

## Environmental Resistance

The IP67 rating indicates the connectors are dust-tight and protected against temporary immersion in water. The Polyurethane (PUR) jacket provides excellent resistance to oils, coolants, and abrasion commonly found in industrial settings.

## PROFINET Environment Compatibility

This power cable is constructed with high-quality shielding to minimize electromagnetic interference (EMI). This design ensures it can be routed in proximity to sensitive PROFINET data cables without degrading network performance.

**Tip:** To further reduce EMI risk, avoid coiling power cables next to data cables and cross them at 90-degree angles whenever possible.

## Cable Management Best Practices

Secure the cable to prevent snagging on equipment or personnel. Use appropriate strain relief at both the motor and drive ends to protect the internal conductors from stress caused by machine vibration and movement.

## 5. Maintenance Schedule

| Interval  | Task                                                                                                                                      | Notes                                                                                                     |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| Weekly    | Visually inspect the cable jacket for signs of chafing, cuts, or chemical degradation, especially at points of movement or contact.       | Pay close attention to the section of the cable that experiences the most flexing during robot operation. |
| Monthly   | Check that the cable is securely fastened along its route and that all clamps and ties are intact.                                        | Vibration can loosen fasteners over time.                                                                 |
| Quarterly | With the system de-energized, check the tightness of the connectors. Verify they are still secure and have not loosened due to vibration. | Do not re-torque unless the connector is found to be loose.                                               |
| Annually  | Perform a thorough inspection of the connector pins for any signs of discoloration, pitting, or corrosion.                                | Requires de-energizing the system and disconnecting the cable. Clean contacts if necessary.               |

| Interval  | Task                                                                                                                   | Notes                                                                                 |
|-----------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| As Needed | Clean the exterior of the cable jacket to remove build-up of grime, oil, or metal shavings that could accelerate wear. | Use a mild detergent and a damp cloth. Do not use abrasive or solvent-based cleaners. |

## 6. Troubleshooting

| Symptom                                    | Possible Cause                                                                              | Solution                                                                                                                                                                                                         |
|--------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Motor fault code related to power loss     | Connector is loose or not fully seated, or there is an internal break in the cable.         | De-energize system. Verify both connectors are fully seated and torqued to 3 Nm. If the issue persists, perform a continuity test on the cable; replace if any conductor is open.                                |
| Intermittent motor operation or stuttering | A connector pin is damaged/bent, or a conductor is partially broken from excessive flexing. | De-energize system. Disconnect and inspect connector pins on both the cable and mating receptacles. If pins are damaged, replace the cable. Check for sharp bends or pinch points in the cable route.            |
| Overheating at a connector                 | Poor connection due to insufficient torque, contamination, or damaged pins.                 | Immediately de-energize the system. Allow the connector to cool. Inspect for signs of arcing or debris. Clean pins and re-torque the connector to 3 Nm. If discoloration is present, the cable must be replaced. |
| Visible damage to the PUR cable jacket     | Abrasion against a sharp edge, chemical attack, or excessive heat.                          | Schedule immediate replacement of the NXB-SRV-PWR511-003 cable. A compromised jacket invalidates the IP67 rating and poses a safety risk.                                                                        |
| Connector does not lock or seat properly   | Debris in the connector, bent guide pin, or incorrect cable for the application.            | Do not force the connection. Disconnect and carefully inspect both connectors for foreign objects or damage. Verify the cable SKU is correct for the connected motor and drive.                                  |

| Symptom                                           | Possible Cause                                                                                           | Solution                                                                                                                                                                                |
|---------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Increased data errors on adjacent PROFINET cables | The power cable's shielding has been compromised by physical damage, leading to increased EMI emissions. | Inspect the entire length of the power cable for crushing, cuts, or severe kinks. Reroute cables to increase separation if possible. Replace the NXB-SRV-PWR511-003 if damage is found. |

## 7. Technical Specifications

| Parameter         | Value                     | Unit |
|-------------------|---------------------------|------|
| Weight            | 1.8                       | kg   |
| Material          | Polyurethane (PUR) Jacket |      |
| Voltage           | 400VAC                    |      |
| IP Rating         | IP67                      |      |
| Country of Origin | IT                        |      |
| Protocol          | PROFINET                  |      |
| Dimensions        | 3 m length                |      |
| Torque            | 3 Nm                      |      |