

User Manual: NexBot Robotics 531-001 Circular Connector IP67

SKU: NXB-CBL-531-001 | Version: 1.0 | Brand: NexBot Robotics

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1. Safety Information

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

2. Product Overview

The NexBot Robotics 531-001 is a high-performance circular connector engineered to provide secure and reliable power and signal transmission for industrial robotics and automation systems. Designed for durability and ease of use, this connector is a critical component for maintaining uptime and data integrity in demanding manufacturing environments. One of the primary features of the 531-001 connector is its robust construction. The housing is machined from nickel-plated brass, offering superior resistance to corrosion, chemical exposure, and physical impact. This ensures a long operational life, even when subjected to the daily rigors of a factory floor. Its comprehensive IP67 rating guarantees complete protection against dust ingress and resistance to temporary water immersion, making it an ideal choice for applications involving liquid coolants, washdown procedures, or high particulate levels. The connector employs a secure bayonet locking mechanism. This system provides a quick and reliable coupling that is highly resistant to vibration and shock, preventing accidental disconnection that could lead to costly downtime. The tactile and audible click upon connection gives technicians confidence that a secure link has been established. Inside, gold-plated contacts ensure maximum conductivity and signal integrity over thousands of mating cycles. This is crucial for sensitive data lines

connecting sensors or encoders, where signal degradation is not an option. The connector is rated to handle up to 250V and 4A per contact, making it versatile for both low-voltage signal and power applications. Typical applications for the 531-001 connector within the NexBot Robotics ecosystem include interfacing with end-of-arm tooling (EOAT), connecting external sensor arrays, establishing safety interlock circuits, and providing I/O points on the robot base or controller cabinet. Its wide operating temperature range of -40°C to +125°C allows it to perform reliably in a variety of industrial settings, from foundries to refrigerated packaging facilities. Installation is straightforward, as the connector is designed for standard panel-mount cutouts, facilitating clean and professional integration into any system.

3. Getting Started

4. Operation

5. Maintenance Schedule

| Interval | Task | Notes |
|----------|------|-------|
|----------|------|-------|

6. Troubleshooting

| Symptom | Possible Cause | Solution |
|---------|----------------|----------|
|---------|----------------|----------|

7. Technical Specifications

| Parameter | Value | Unit |
|-------------------|---------------------|------|
| Weight | 0.08 | kg |
| Material | Nickel-Plated Brass | |
| Voltage | 250V AC/DC | |
| IP Rating | IP67 | |
| Country of Origin | DE | |
| Protocol | PROFINET | |
| Dimensions | 55 x 20 x 20 mm | |