

User Manual: NexBot Drives FLR022-006 Collaborative Robot Arm 10kg Payload

SKU: NXB-ROB-FLR022-006 | 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.

DANGER: Isolate all hazardous energy before servicing NexBot Drives FLR022-006 Collaborative Robot Arm 10kg Payload; stored electrical or mechanical energy may remain present after shutdown.

WARNING: Operate NXB-ROB-FLR022-006 only within its intended Robots > Collaborative Robots > Floor Cobots (5-20kg) duty profile and published specification limits.

CAUTION: Use only approved tools, mating parts, and installation hardware to prevent premature wear or unsafe operation.

NOTICE: Protect the product from contamination, impact, and environmental exposure beyond IP54 during installation and service.

2. Product Overview

The NexBot Drives FLR022-006 is a versatile 6-axis collaborative robot arm engineered for medium-payload applications requiring close human-robot collaboration. This robot is designed to augment human labor by automating repetitive or strenuous tasks safely and efficiently, increasing productivity and improving workplace ergonomics without the need for extensive safety fencing. Key Features and Benefits: With a substantial 10 kg payload capacity and a generous 1300 mm reach, the FLR022-006 is perfectly suited for a wide range of tasks. This combination allows the robot to handle larger parts and service multiple workstations or machines from a single, fixed position, maximizing its utility on the factory floor. The arm's design delivers exceptional positional repeatability of ± 0.03 mm, ensuring that processes like component assembly, dispensing, and quality inspection are performed with consistent accuracy, cycle after cycle. This level of precision is critical for maintaining high product quality and reducing defects. At its core, the FLR022-006 is a collaborative robot, or cobot. Integrated force-torque sensing in all six joints allows it to detect unexpected contact and stop safely, enabling operators to work alongside the robot. It complies with key safety standards for power and force limiting, making it suitable for fenceless installations after a proper risk assessment. The robot also supports intuitive programming through a graphical user interface and hand-guiding capabilities. Operators can physically guide the arm to teach waypoints, drastically reducing programming time and complexity, and empowering non-expert users to deploy and redeploy the robot for new tasks quickly. Applications: The FLR022-006 excels in applications such as CNC machine tending, injection molding machine unloading, pick-and-place operations, packaging and palletizing, light assembly, and automated inspection. Its versatility makes it a valuable asset in industries ranging from automotive and electronics to consumer goods and logistics. Integration: The robot features a standard ISO 9409-1-50-4-M6 mounting flange for the base and end-of-arm tooling, simplifying integration with third-party grippers and accessories. It operates on a 48VDC power supply and communicates via EtherCAT for reliable, high-speed control within a larger automation system.

3. Getting Started

1. Confirm product identity

Verify the installed item is NexBot Drives FLR022-006 Collaborative Robot Arm 10kg Payload with SKU NXB-ROB-FLR022-006. Cross-check the unit against project documentation before applying power or connecting it to the host system.

2. Review operating context

Understand how the product is used within the Robots > Collaborative Robots > Floor Cobots (5-20kg) workflow, including any upstream and downstream dependencies, service intervals, and operator responsibilities.

3. Complete initial startup

Power up the unit under controlled conditions, observe indicator states, and verify the product initializes cleanly with the expected 48VDC operating setup.

4. Operation

Normal operation

Run NexBot Drives FLR022-006 Collaborative Robot Arm 10kg Payload within the documented workload, environmental, and service conditions. Track alarms, unusual noise, heat, or vibration so corrective action can be scheduled before unplanned downtime occurs.

Interface and controls

Use the supported electrical and control interfaces to commission, monitor, and troubleshoot the device. Validate all signal mappings and control behavior after maintenance or part replacement, especially where EtherCAT communication is required.

Tip: Capture a baseline of healthy status indicators after commissioning so later diagnostics can be compared quickly.

Load and application limits

Keep the product within the published ratings for speed, force, load, and environmental exposure. Where applicable, confirm mounting, routing, and attached tooling do not compromise access, cooling, or serviceability; rated payload reference: 10 kg.

Change management

Whenever hardware, firmware, wiring, or connected tooling changes, repeat the relevant verification and commissioning checks before returning the equipment to production service.

Tip: Update maintenance records immediately after any wiring, parameter, or parts change.

5. Maintenance Schedule

Interval	Task	Notes
Daily	Inspect NexBot Drives FLR022-006 Collaborative Robot Arm 10kg Payload for visible wear, damage, contamination, loose hardware, and abnormal status indicators.	Record any abnormalities before the next production cycle begins.
Monthly	Verify mounting integrity, connector condition, and cable routing or strain relief points.	Retorque or reseal hardware only to the documented service specification.
Quarterly	Review diagnostic logs, event history, and operational trends for early signs of degradation.	Escalate recurring warnings before they develop into hard faults.
Annually	Perform a full service inspection covering mechanical condition, electrical connections, and functional verification.	Coordinate annual service with planned downtime to minimize production disruption.

6. Troubleshooting

Symptom	Possible Cause	Solution
	Incoming supply, controls wiring, or commissioning	Verify power quality, wiring continuity,

Symptom	Possible Cause	Solution
Unit does not initialize or remain ready	parameters do not match the documented 48VDC configuration.	protective devices, and startup parameters before restarting the unit.
Intermittent communication or status loss	Loose connectors, damaged cabling, or interface mismatch on EtherCAT.	Inspect physical connections, confirm interface settings, and replace damaged cables or connectors as needed.
Unexpected wear, vibration, or overheating	Mechanical loading, contamination, misalignment, or duty cycle exceeds the intended application conditions.	Inspect the installation, restore proper alignment and cooling, and verify the product is being used within its published operating limits.
Connected equipment performance is inconsistent	The installed product is not configured correctly for the host system or compatible robot series (C-5).	Validate the configuration, confirm compatibility, and rerun the functional verification procedure after any corrections.

7. Technical Specifications

Parameter	Value	Unit
Weight	35.5	kg
Material	Cast Aluminum Alloy	
Voltage	48VDC	
IP Rating	IP54	
Country of Origin	DE	
Protocol	EtherCAT	
Reach	1300 mm	
Payload	10 kg	
Axes	6	
Repeatability	±0.03 mm	