User Manual: NexBot Robotics FLR022-007 Collaborative Robot Arm 10kg Payload

SKU: NXB-ROB-FLR022-007 | 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 Robotics FLR022-007 Collaborative Robot Arm 10kg Payload; stored electrical or mechanical energy may remain present after shutdown.

WARNING: Operate NXB-ROB-FLR022-007 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 Robotics FLR022-007 is a 6-axis collaborative robot arm engineered for medium-payload automation tasks where flexibility and safety are paramount. This cobot is designed to work alongside human operators without the need for extensive safety fencing, enabling new possibilities for hybrid assembly lines and adaptable production cells. Key to its performance is a balanced combination of strength and precision. With a substantial 10 kg payload capacity, the robot arm can handle a wide range of end-of-arm tooling and workpieces for applications such as machine tending, material handling, and packaging. Its generous 1300 mm reach allows it to service multiple stations or work on large components, maximizing its utility within a single workcell. The robot delivers excellent positional accuracy with a repeatability of ±0.03 mm, ensuring consistent quality in delicate tasks like dispensing, screwdriving, and quality inspection. Safety is a core design principle of the FLR022-007. Integrated force and torque sensing in all six joints allows the robot to detect unexpected collisions and stop safely, protecting both personnel and equipment. This feature facilitates collaborative workflows, where humans and robots can share a common workspace effectively. The intuitive programming interface, which supports both graphical block-based programming and lead-through teaching, significantly reduces deployment time and allows operators with minimal robotics experience to create and modify routines. This robot is an ideal solution for automating repetitive or ergonomically challenging tasks, freeing up skilled workers to focus on higher-value activities.

3. Getting Started

1. Confirm product identity

Verify the installed item is NexBot Robotics FLR022-007 Collaborative Robot Arm 10kg Payload with SKU NXB-ROB-FLR022-007. 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 Robotics FLR022-007 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 Robotics FLR022-007 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 reseat 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
Unit does not initialize or remain ready	Incoming supply, controls wiring, or commissioning parameters do not match the documented 48VDC configuration.	Verify power quality, wiring continuity, protective devices, and startup parameters before restarting the unit.

Symptom	Possible Cause	Solution
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-10).	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	KR	
Protocol	EtherCAT	
Reach	1300 mm	
Payload	10 kg	
Axes	6	
Repeatability	±0.03 mm	