

User Manual: NexBot Robotics

341-004 Thermal Camera 160x120 Resolution

SKU: NXB-SNS-341-004 | 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 341-004 Thermal Camera 160x120 Resolution; stored electrical or mechanical energy may remain present after shutdown.

WARNING: Operate NXB-SNS-341-004 only within its intended Sensors & Vision > Temperature & Environment Sensors > Thermal Cameras 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 IP67 during installation and service.

2. Product Overview

The NexBot Robotics 341-004 is a compact, high-performance thermal camera designed for integration with robotic systems for advanced inspection and process monitoring applications. This camera provides real-time, non-contact temperature measurement, enabling automated systems to identify thermal anomalies, verify process parameters, and ensure product quality without physical interaction. Its robust construction and reliable performance make it suitable for demanding industrial environments. The core of the 341-004 is a sensitive microbolometer sensor with a 160x120 pixel resolution, capable of detecting minute temperature differences. This level of detail is critical for applications such as monitoring the thermal profile of welds, inspecting the integrity of seals on packaging, or verifying the temperature of components during electronics assembly. The camera features a wide measurement range of -20°C to 400°C, accommodating a broad spectrum of industrial processes from cold-chain logistics to moderate-heat manufacturing operations. The high thermal sensitivity (NETD <50 mK) ensures that even subtle temperature variations are captured, providing a clear picture of the thermal landscape. Built for industrial reliability, the camera is housed in a durable anodized aluminum body with an IP67 rating, offering complete protection against dust ingress and temporary water immersion. This resilience ensures consistent operation in environments with coolants, washdowns, or airborne particulates. Data communication is handled via the GigE Vision protocol, a standard for high-performance industrial imaging that provides high-speed, reliable data transfer over standard Ethernet cables. This simplifies integration with robot controllers and industrial PCs, allowing for seamless incorporation into existing automation cells. As an end-of-arm-tooling (EOAT) component, its lightweight and compact design minimizes impact on robot payload and maneuverability, making it compatible with a wide range of NexBot Robotics arms. Installation is straightforward, typically involving a standard EOAT mounting flange and connection to the robot's auxiliary power and data ports.

3. Getting Started

1. Confirm product identity

Verify the installed item is NexBot Robotics 341-004 Thermal Camera 160x120 Resolution with SKU NXB-SNS-341-004. 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 Sensors & Vision > Temperature & Environment Sensors > Thermal Cameras 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 24VDC operating setup.

4. Operation

Normal operation

Run NexBot Robotics 341-004 Thermal Camera 160x120 Resolution 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 GigE Vision 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.

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 341-004 Thermal Camera 160x120 Resolution 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 parameters do not match	Verify power quality, wiring continuity, protective devices, and

Symptom	Possible Cause	Solution
Unit does not initialize or remain ready	the documented 24VDC configuration.	startup parameters before restarting the unit.
Intermittent communication or status loss	Loose connectors, damaged cabling, or interface mismatch on GigE Vision.	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 (R-10, R-20, C-5).	Validate the configuration, confirm compatibility, and rerun the functional verification procedure after any corrections.

7. Technical Specifications

Parameter	Value	Unit
Weight	0.45	kg
Material	Anodized Aluminum 6061-T6	
Voltage	24VDC	
IP Rating	IP67	
Country of Origin	DE	
Protocol	GigE Vision	
Dimensions	75 x 50 x 50 mm	