

User Manual: NexBot Vision 622-015 Emergency Stop Device, 40mm Twist-Release

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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: This device interrupts circuit power but does not eliminate the presence of voltage within the control panel. Always perform lock-out/tag-out procedures before accessing internal components.

WARNING: The NexBot Vision 622-015 is a component within a larger safety system. Its installation and use must comply with all local, national, and international safety standards. The overall system safety level is determined by the system integrator.

WARNING: Do not bypass, disable, or otherwise defeat the function of this emergency stop device. Doing so can lead to uncontrolled machine operation, resulting in severe injury or death.

CAUTION: Do not use the emergency stop button for routine operational stopping of machinery. Frequent use for non-emergency purposes can cause premature wear and may mask the development of faults in the primary control system.

NOTICE: This device is rated for IP65 when installed correctly on a flat, smooth enclosure surface. Use of harsh chemical cleaning agents may damage the polycarbonate material and compromise the seal.

2. Product Overview

The NexBot Vision 622-015 is a robust emergency stop device designed to provide immediate and reliable shutdown of industrial machinery and robotic cells in critical situations. This device is a fundamental component for building safety-compliant automation systems, ensuring personnel protection and minimizing equipment damage during an unplanned event. Its primary function is to open a safety circuit, bringing connected equipment to a safe state. Engineered for durability and ease of use, the 622-015 features a large 40mm red mushroom head actuator that is highly visible and simple to operate with a single push. The intuitive twist-to-release mechanism prevents accidental resets, requiring a deliberate action to re-engage the system after a stop condition has been cleared. The device is equipped with dual-channel, positive-opening contacts (2NC) to provide the redundancy required for high-reliability safety circuits, conforming to established industrial safety standards. Constructed with a rugged polycarbonate housing, this E-Stop device is built to withstand the demands of industrial environments. It carries an IP65 rating, certifying its protection against dust ingress and low-pressure water jets from any direction, making it suitable for a wide range of manufacturing settings. The device operates on a standard 24VDC control voltage, allowing for seamless integration into most industrial control panels and robot controller cabinets. Its standard panel-mount design simplifies installation, providing a clean and secure fit. This emergency stop device is a critical safety element for applications including automated assembly, material handling, robotic welding, and packaging lines.

3. Getting Started

1. Product Overview

The NXB-GEN-622-015 is a Category 4, Type 1 emergency stop device. Its purpose is to provide a manually actuated control to place a machine into a safe state. It consists of a 40mm mushroom-head push-button operator and one or more normally-closed (NC) contact blocks.

2. Principle of Operation

In its normal, reset state, the internal contacts are closed, allowing the safety circuit to be energized. When the button is pushed, the contacts are forced open, breaking the safety circuit and signaling the machine's control system to initiate a stop command.

3. States of Operation

The device has two distinct states. The 'Armed' or 'Reset' state is when the button is pulled out, and the machine is permitted to operate. The 'Actuated' or 'Tripped' state is when the button has been pushed in, opening the safety circuit and stopping the machine.

4. Operation

Actuating the Emergency Stop

In an emergency situation, strike the red mushroom-head button firmly with the palm of your hand. The button will latch in the depressed position, and the connected machinery will enter a safe state. Do not hesitate to use the device when you perceive a hazard.

Resetting the Device

After the hazardous condition has been resolved, the device can be reset. To do this, twist the mushroom head clockwise as indicated by the arrows on the button. The button will spring back to its original armed position.

Tip: The machine should not restart immediately upon resetting the E-stop. A separate, deliberate start command must be issued.

Visual Indication

A white ring is visible around the base of the red button head when the device is in the armed/reset position. When the button is actuated, this white ring is covered, providing a clear visual cue that the E-stop has been triggered.

Safe System Integration

This device must be wired to a safety monitoring relay or a safety PLC. The control system must be designed to stop all hazardous motion upon receiving the signal from the E-stop. This is known as a Category 0 or Category 1 stop, depending on system design.

5. Maintenance Schedule

Interval	Task	Notes
Daily	Perform a visual check of the device. Ensure it is not obstructed, damaged, or showing signs of excessive wear.	This check should be part of the operator's pre-shift machine inspection.
Monthly	Perform a functional push-to-stop, twist-to-release test. Confirm the button actuates and resets smoothly without sticking or binding.	This test must be conducted in a safe manner, with all personnel aware that the machine will stop.
Quarterly	Clean the device using a soft, damp cloth with a mild detergent. Do not use solvents, abrasives, or high-pressure washers.	Dirt and grime buildup can impede operation or obscure the device's visibility.
Annually	With the control panel de-energized, check the tightness of the wiring terminal screws. Wires can loosen over time due to machine vibration.	Requires a qualified technician and adherence to LOTO procedures.
Annually	Validate the entire emergency stop safety function. This involves actuating the E-stop and verifying that all connected hazards (motors, robots, hydraulics) stop as required by the risk assessment.	This is a comprehensive system test, not just a component test.

6. Troubleshooting

Symptom	Possible Cause	Solution
Button does not latch when pressed.	Internal latching mechanism is worn or broken.	The device has reached its end of life. Replace the entire NXB-GEN-622-015 unit immediately.
Button is difficult to press or reset.	Debris is caught in the mechanism, or the unit has been physically damaged.	Attempt to clean with compressed air. If binding persists, replace the unit. Do not lubricate.
Safety circuit remains open after button is reset.	Contact block is faulty, or wiring has become loose or broken.	Perform LOTO. Check wiring at terminals. Use a multimeter to test continuity of the contact block; replace if faulty.
Machine does not stop when E-stop is pressed.	This is a critical system failure. Cause could be a welded contact block, bypassed wiring, or a fault in the safety relay/PLC.	Immediately remove power from the machine. Perform a full diagnostic of the entire safety circuit. Replace the NXB-GEN-622-015 as a precautionary measure.
Cracks or chips are visible on the red mushroom head or housing.	Impact damage or material fatigue.	Replace the unit. A damaged housing compromises the IP65 rating and may lead to mechanical failure.
Machine restarts immediately after E-stop is reset.	Incorrect logic in the safety control system. The system lacks anti-restart protection.	This is a serious design flaw. The control system logic must be reprogrammed by a qualified integrator to require a separate start signal after an E-stop reset.

7. Technical Specifications

Parameter	Value	Unit
Weight	0.15	kg
Material	Polycarbonate	
Voltage	24VDC	
IP Rating	IP65	
Country of Origin	CH	
Dimensions	75 x 40 x 40 mm	