# Installation Guide: NexBot Robotics 332-009 Laser Safety Scanner 5.5m Protection Field

SKU: NXB-GEN-332-009 | Revision: 1.0 | Category: Sensors & Vision > Proximity & Safety Sensors > Laser Safety Scanners

> **DANGER:** Disconnect all power sources before beginning installation. Follow lockout/tagout (LOTO) procedures per OSHA 1910.147.

## 1. Required Tools & Materials

- Metric Allen key set (2mm-8mm)
- Torque wrench with appropriate sockets
- Wire strippers and crimpers for M12 connectors
- Small flathead and Phillips screwdrivers
- Laptop with NexBot Configuration Suite software installed
- Shielded Ethernet cable (RJ45)
- Digital multimeter
- Bubble level or laser level

## 2. Pre-Installation Checks

1. Verify the received product is SKU NXB-GEN-332-009 and inspect for any visible damage from shipping.
2. Ensure the designated mounting location is structurally sound, free from excessive vibration, and provides an unobstructed view of the area to be protected.
3. Confirm a stable, regulated 24VDC power source is available and within cable reach of the mounting location.
4. De-energize and apply lockout/tagout procedures to the machine's main control panel before beginning any wiring.
5. Check that the host safety controller (e.g., safety PLC) has available inputs compatible with OSSD (Output Signal Switching Device) signals.
6. Ensure the laptop for configuration has administrative rights to install drivers and can be connected to the same network segment as the scanner.

## 3. Installation Procedure

### Step 1: Mount the Scanner

Securely attach the 332-009 scanner to its mounting bracket using the provided M6 bolts. Ensure the device is oriented correctly for the desired scan plane (horizontal or vertical). Consider the device dimensions of 105 x 102 x 152 mm for proper clearance.

### Step 2: Position and Secure the Assembly

Fasten the entire bracket and scanner assembly to the machine frame or designated surface. Use a level to ensure the scanner is perfectly parallel to the floor or reference plane to prevent gaps in detection.

> **Warning:** An incorrectly angled scanner can create undetected dead zones close to the device. Always verify the final position before commissioning.

### Step 3: Connect Power and Safety I/O

Connect the main M12 device cable. Wire the 24VDC and 0V terminals to the power supply, and connect the OSSD 1 and OSSD 2 outputs to the machine's safety relay or safety PLC inputs.

> **Warning:** Never wire OSSD outputs to standard PLC inputs. They must be connected to a dedicated safety-rated control device.

### Step 4: Establish EtherNet/IP Communication

Connect a standard shielded Ethernet cable from the scanner's network port to the industrial control network or directly to the configuration laptop. Ensure the connector is fully seated and locked to maintain the IP65 seal.

### Step 5: Configure Network Settings

Power on the scanner. Using the NexBot Configuration Suite, set a unique IP address for the 332-009 that is compatible with your control network. The default IP address is typically found in the product's startup guide.

### Step 6: Define Protective and Warning Fields

Using the graphical interface in the configuration software, draw the required protective and warning fields. The protective field can be defined with any shape up to the maximum range of 5.5 meters.

> **Warning:** The protective field must fully encompass the hazardous area. Leave an appropriate safety distance calculated based on system stopping time and approach speed.

### Step 7: Teach-in the Static Environment

Perform a 'teach-in' or 'static contour' scan. This allows the scanner to learn the position of permanent, stationary objects within the field so they do not cause nuisance trips.

### Step 8: Commission and Test the System

With the machine still locked out, perform a comprehensive test of the safety function. Use a standardized test object to methodically verify the detection capability at all boundaries of the protective field, ensuring the OSSD outputs switch to the OFF state upon intrusion.

> **Warning:** This is the most critical step. Failure to fully test the defined fields can lead to serious injury. The test must be documented.

### Step 9: Secure the Configuration

Once testing is successfully completed, save the final configuration to the device's non-volatile memory. Assign a strong password to the configuration file to prevent unauthorized tampering.

## 4. Post-Installation Verification

1. Verify the scanner's status LEDs indicate normal operation (e.g., solid green light).
2. Confirm the machine's safety controller correctly registers the scanner's state (safe/unsafe).

3. Trigger a warning field intrusion and verify the configured response (e.g., beacon, sounder) functions correctly.
4. Perform a final protective field intrusion test to confirm the machine enters a safe stop condition as expected.
5. Archive the final, password-protected configuration file as part of the machine's technical documentation.
6. Remove lockout/tagout devices and formally release the machine for operation.

> **Note:** For technical support, contact your authorized service provider or visit *https://robotics.barca.group/support*.

---