Installation Guide: NexBot Robotics 332-001 Laser Safety Scanner 5.5m Protective Field

SKU: NXB-GEN-332-001 | 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

- M4 Allen Wrench Set
- Torque Wrench (for mounting bracket)
- Industrial Wire Stripper and Crimper
- Small Flathead Screwdriver (for terminal blocks)
- Electric Drill with bits for mounting surface
- Laser Level or Plumb Line
- Laptop with NexBot Configuration Software
- Shielded Ethernet Cable (Cat5e or better)

2. Pre-Installation Checks

1. Verify all components listed on the packing slip are present, including the NexBot Robotics 332-001 scanner, mounting bracket, and connection cable.
2. Inspect the scanner's housing and optical window for any signs of damage that may have occurred during shipping.
3. Ensure the chosen mounting location is rigid, free from significant vibration, and provides a clear, unobstructed line of sight for the entire required protective field.
4. Confirm the availability of a stable, regulated 24VDC power source capable of supplying the required current.
5. Plan the routing for power, safety output (OSSD), and EtherNet/IP cables to protect them from physical damage and electromagnetic interference.

6. Verify that the ambient operating environment complies with the scanner's IP65 rating, avoiding direct exposure to high-pressure washdowns or corrosive chemicals.

3. Installation Procedure

Step 1: Securely Mount the Scanner

Fasten the provided mounting bracket to the prepared surface using appropriate hardware. Attach the NexBot Robotics 332-001 scanner to the bracket, ensuring it is secure enough to support its 1.1 kg weight and resist operational vibration.

> **Warning:** Ensure the mounting surface and hardware are rated to support at least four times the scanner's weight as a safety factor.

Step 2: Position and Align the Scanner

Adjust the scanner's position and angle to ensure the scanning plane is parallel to the floor or designated detection plane. Use a laser level for precise horizontal and vertical alignment to prevent gaps in safety coverage.

Step 3: Connect Power and I/O

With the main machine power locked out, connect the 24VDC power supply wires to the appropriate terminals on the scanner's connector. Wire the dual OSSD safety outputs to the machine's safety monitoring device (e.g., safety PLC or safety relay).

> **Warning:** Incorrect wiring or reversing polarity can permanently damage the device. Always de-energize the circuit before making connections.

Step 4: Connect EtherNet/IP Network Cable

Connect a shielded Ethernet cable from the scanner's EtherNet/IP port to the industrial control network. Ensure the connector is fully seated and locked to maintain the IP65 seal.

Step 5: Install Configuration Software

Install the latest version of the NexBot Configuration Software on a laptop or PC. Ensure the computer has a network port available for direct connection or is on the same network as the scanner.

Step 6: Configure Protective and Warning Fields

Establish a connection to the scanner using the configuration software. Define the necessary protective fields and warning fields based on your risk assessment, ensuring they cover all hazardous points within the 5.5m range.

> **Warning:** Protective fields must be drawn to account for the machine's total stopping time and distance to ensure a hazard cannot be reached before motion has ceased.

Step 7: Teach the Environment and Save Configuration

Perform an environmental 'teach-in' so the scanner can learn the static background objects. Once all fields are defined and tested in the software, download the configuration to the scanner and save a backup copy of the project file.

Step 8: Secure Scanner Covers

Disconnect the configuration laptop and securely fasten all protective covers and cable glands on the scanner. This is critical for maintaining the unit's IP65 environmental protection rating.

4. Post-Installation Verification

1. Power on the machine and scanner, and verify the scanner's status indicator shows a green 'OK' state.
2. Perform a trip test by carefully introducing the specified test object into the protective field at various points (near, far, and sides) to confirm the OSSD outputs signal a stop.
3. Verify that the machine's hazardous motion stops correctly and immediately upon a trip test.
4. Test the warning field functionality by entering it and confirming the designated indicator (e.g., a light tower) activates as expected.
5. Check the scanner's status on the EtherNet/IP network to ensure it is communicating correctly with the master PLC or HMI.
6. Place a copy of the configuration backup file and commissioning report in the machine's permanent technical file.

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