

Installation Guide: NexBot Drives 331-014 Inductive Proximity Sensor

SKU: NXB-SNS-331-014 | Revision: 1.0 | Category: Sensors & Vision > Proximity & Safety Sensors > Inductive Proximity Sensors

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

1. Required Tools & Materials

- 13mm Combination Wrench
- Adjustable Torque Wrench with 13mm Crowfoot Adapter
- Wire Stripper/Cutter
- Terminal Crimping Tool
- Digital Multimeter (DMM)
- Small Flathead Screwdriver
- Safety Glasses
- Loctite 243 (or equivalent medium-strength threadlocker)

2. Pre-Installation Checks

1. Verify the received product SKU matches NXB-SNS-331-014 on the purchase order.
2. Inspect the sensor body, threads, and connector for any signs of shipping damage.
3. Ensure the main power to the control cabinet and robotic cell is de-energized and locked-out/tagged-out (LOTO).
4. Confirm the mounting location provides a clear, unobstructed path for the sensor to detect the intended target.
5. Check that the target material is a compatible metal for inductive sensing.
6. Verify the control system's input is compatible with a 10-30VDC PNP/NPN signal or an IO-Link master.

3. Installation Procedure

Step 1: Prepare Mounting Location

Clean the M12 threaded mounting bracket or hole, ensuring it is free of debris, oil, and old thread-locking compound. Chase the threads with a tap if necessary to ensure smooth installation.

Step 2: Mount the Sensor

Carefully thread the NexBot Drives 331-014 sensor into the mounting location by hand. Use the two provided locknuts to secure its position, ensuring the sensing face is oriented correctly towards the target path.

Warning: Do not overtighten. Excessive torque can damage the sensor housing and internal electronics. Hand-tighten, then snug gently with a wrench.

Step 3: Set Initial Air Gap

Position the sensor to achieve the nominal sensing distance from the target object. A smaller gap provides more reliable sensing, but ensure there is no risk of physical collision during machine operation.

Step 4: Secure with Locknuts

Once the position is set, apply a small amount of medium-strength threadlocker to the sensor threads. Tighten the locknuts against the bracket to secure the sensor firmly in place, preventing movement from vibration.

Warning: Avoid getting thread-locking compound on the sensing face or the connector pins.

Step 5: Route and Connect Cable

Route the sensor cable back to the control cabinet or I/O block, securing it away from high-voltage lines, moving parts, and sources of abrasion. Connect the wires according to the wiring diagram for your specific application (e.g., Brown to +VDC, Blue to 0V/GND, Black to Signal/IO-Link).

Warning: Ensure correct polarity. Reversing the power connections can permanently damage the sensor.

Step 6: Verify Electrical Connections

Double-check all electrical connections for tightness and correctness before applying power. If not using IO-Link, ensure the signal wire is connected to the correct PLC/controller input terminal.

Warning: Verify the power supply voltage is within the 10-30VDC operating range of the sensor.

4. Post-Installation Verification

1. Remove all tools and materials from the work area.
2. Carefully remove the LOTO device and restore power to the machine.
3. Observe the sensor's status LED; it should illuminate according to its configured state (e.g., ON when detecting a target).
4. Manually move the target object into and out of the sensing range to confirm correct and repeatable operation.
5. Verify that the control system or IO-Link master is receiving the correct state change from the sensor.
6. If applicable, check diagnostic data via the IO-Link master to confirm healthy communication.

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