Installation Guide: NexBot Robotics 342-001 Vibration Sensor, Triaxial, 10 kHz

SKU: NXB-SNS-342-001 | Revision: 1.0 | Category: Sensors & Vision > Temperature & Environment Sensors > Vibration Sensors

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

1. Required Tools & Materials

- Torque wrench with M4 socket
- M12 torque wrench (for connector)
- Digital multimeter
- Wire stripper and crimper (if using unterminated cable)
- Thread-locking compound (medium strength)
- Isopropyl alcohol and lint-free cloths
- Safety glasses and gloves
- Small flathead screwdriver for IO-Link master terminals

2. Pre-Installation Checks

1. Verify the machine is de-energized and locked out according to safety procedures.
2. Confirm the received product is SKU NXB-SNS-342-001 and inspect for any shipping damage.
3. Ensure the mounting surface is flat, rigid, and clean of any grease, paint, or debris.
4. Verify the control system has a compatible IO-Link master with an available port.
5. Check that the power supply provides a stable 24VDC source.
6. Download the correct IODD file for the NXB-SNS-342-001 from the NexBot Robotics support portal.

3. Installation Procedure

Step 1: Prepare Mounting Surface

Thoroughly clean the designated mounting location with isopropyl alcohol and a lint-free cloth. The surface must be perfectly flat and directly coupled to the component being monitored for accurate data transmission.

> **Warning:** An uneven or contaminated surface will dampen vibration signals and lead to inaccurate readings.

Step 2: Apply Mounting Compound

Apply a small amount of medium-strength thread-locking compound to the threads of the mounting bolts. This prevents loosening due to operational vibration, which is critical for consistent sensor performance.

Step 3: Mount the Sensor

Position the 25 x 25 mm base of the sensor on the prepared surface, aligning the axes as required by your monitoring plan. Secure it using the appropriate M4 bolts, tightening them in a cross pattern to the recommended torque specification to ensure even pressure.

> **Warning:** Do not over-torque the mounting bolts as this can damage the sensor housing or sensing element.

Step 4: Connect M12 Cable

Attach the M12 connector of the IO-Link cable to the sensor. Hand-tighten until snug, then use a torque wrench to tighten to the specified value. An improper connection can compromise the IP67 rating.

Step 5: Route Sensor Cable

Carefully route the cable back to the control cabinet, securing it along the way. Ensure the cable is protected from physical damage, sharp edges, and high-temperature sources, and is kept separate from high-voltage power cables to prevent interference.

> **Warning:** Ensure the cable has enough slack to accommodate the full range of motion of any robotic arms or moving parts.

Step 6: Connect to IO-Link Master

Connect the other end of the cable to the designated port on the IO-Link master module. Ensure the port is configured for IO-Link communication mode in your control software.

Step 7: Apply Power

Following all safety procedures, re-energize the machine and control cabinet. The sensor's status LED should illuminate, indicating it is receiving 24VDC power.

> **Warning:** Verify correct polarity and voltage before applying power to prevent damage to the sensor and IO-Link master.

Step 8: Verify Communication

In your PLC or control software, verify that the IO-Link master has established communication with the NXB-SNS-342-001 sensor. The device should be identified correctly and begin transmitting process data.

4. Post-Installation Verification

1. Confirm the sensor's status LED indicates a stable power and communication link (typically solid green).
2. Verify that live vibration data is being received in the control software for all three axes.

3. Check that the reported device identification matches the NXB-SNS-342-001 sensor.
4. Establish and record a baseline vibration reading while the machine is operating under normal, healthy conditions.
5. Perform a final visual inspection of the installation, ensuring the sensor and cable are secure and clear of any moving parts.
6. Update system documentation with the sensor's location, configuration, and baseline data.

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