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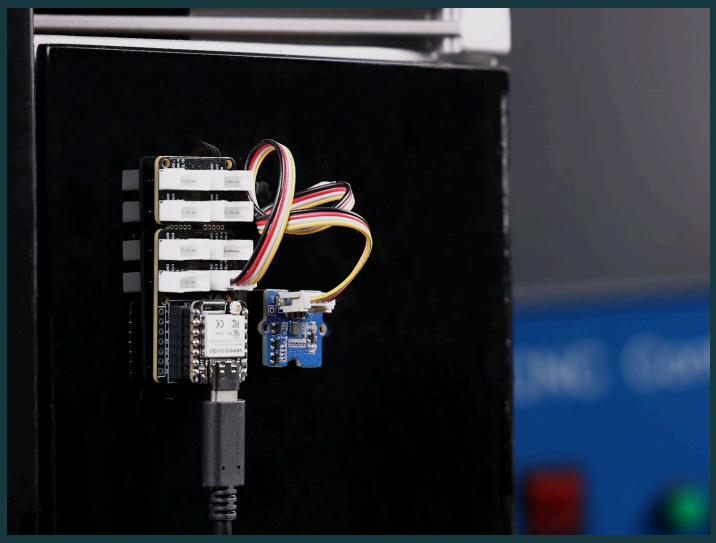
INDUSTRIAL PRODUCT DATASHEET

Vibration Anomaly Detection Kit for XIAO ESP32-S3

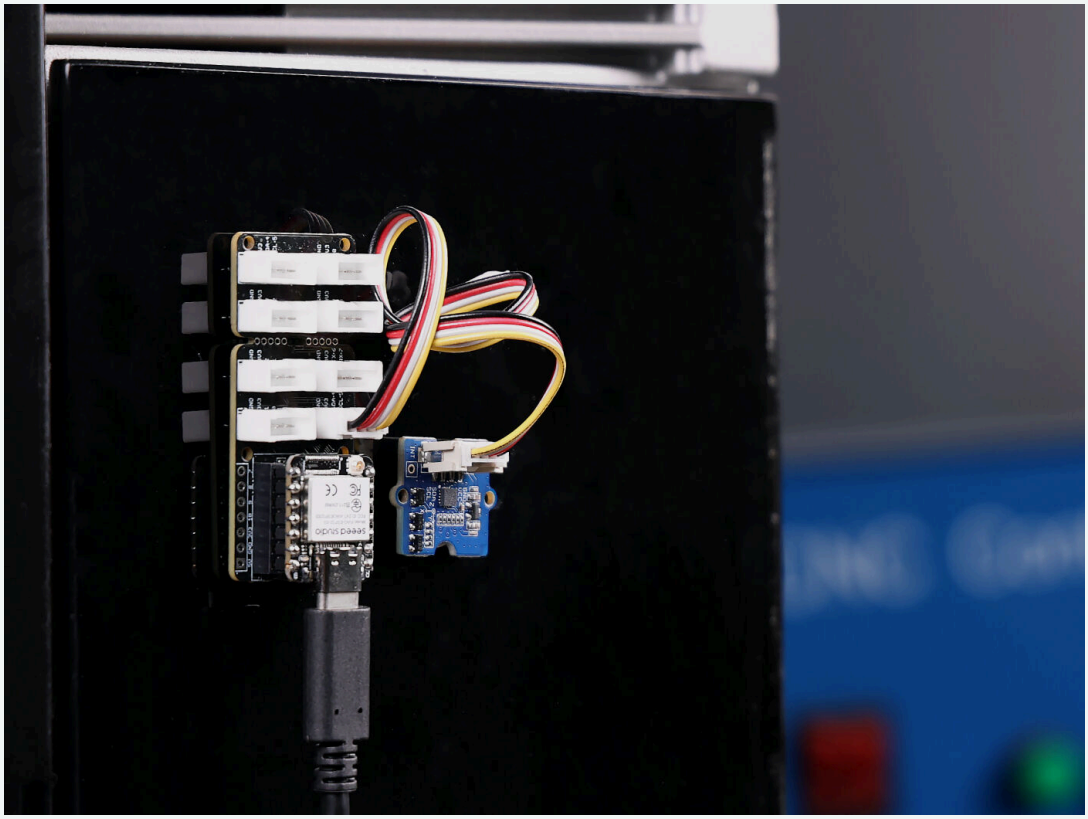
A comprehensive vibration anomaly detection solution for predictive maintenance, structural monitoring, and asset safety using the XIAO ESP32-S3.

SKU
E25072201

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2025-09-02 08:28:02



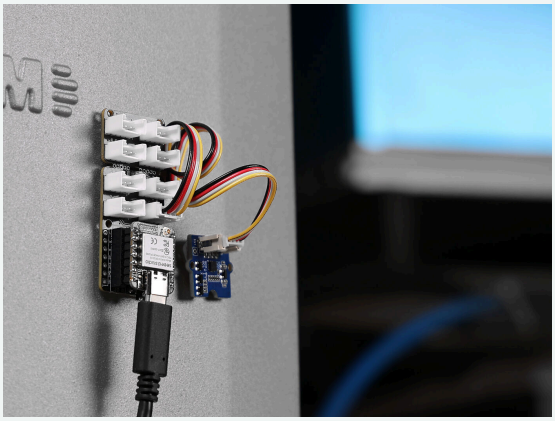
Overview



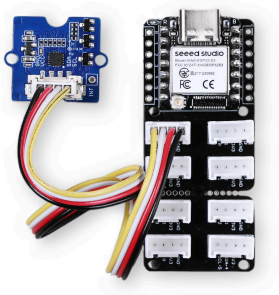
The Vibration Anomaly Detection Kit for XIAO ESP32-S3 enables real-time monitoring and detection of abnormal vibrations across various applications. It is designed for predictive maintenance, smart appliances, structural health monitoring, and asset tracking to provide early warnings and reduce downtime.

Key Features

Product Gallery







Specification

Feature	Specification
Product Name	Vibration Anomaly Detection Kit for XIAO ESP32-S3
Processor	Seeed Studio XIAO ESP32-S3 (Xtensa LX7 dual-core, up to 240MHz)
Wireless Connectivity	2.4GHz Wi-Fi, Bluetooth 5.0 (BLE)
Memory	8MB PSRAM, 8MB Flash
Vibration Sensor	Grove - 3-Axis Digital Accelerometer (LIS3DHTR)
Sensor Interface	I2C
Measurement Range	±2g / ±4g / ±8g / ±16g (Selectable)
Expansion & Power	Grove Shield for XIAO with onboard battery management
Interfaces	1x USB Type-C 2x Grove I2C 1x Grove UART 3x Grove A/D
Power Supply	5V via USB Type-C / 3.7V LiPo Battery
Operating Temperature	-40°C ~ 65°C

Applications

- **Predictive Maintenance for Machinery:** Attach to pumps, motors, and conveyor belts to provide early warnings for bearing wear, imbalance, or structural faults, reducing downtime and preventing costly failures.
- **Smart Appliances & HVAC Systems:** Integrate into washing machines, refrigerators, or air conditioners to intelligently detect abnormal vibrations, triggering maintenance alerts to the user or enabling automatic safety shutdowns.
- **Structural Health Monitoring:** Deploy on bridges, buildings, or historical monuments to continuously monitor structural integrity, tracking vibrations to detect subtle changes caused by stress, fatigue, or environmental factors.
- **Asset & Vehicle Monitoring:** Install in vehicles or on valuable shipped assets to record and identify shock events or unusual operating vibrations during transit, ensuring asset safety and operational compliance.

Resource Links

- https://www.seeedstudio.com/Vibration-Anomaly-Detection-Kit-for-XIAO-ESP32-S3.html

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