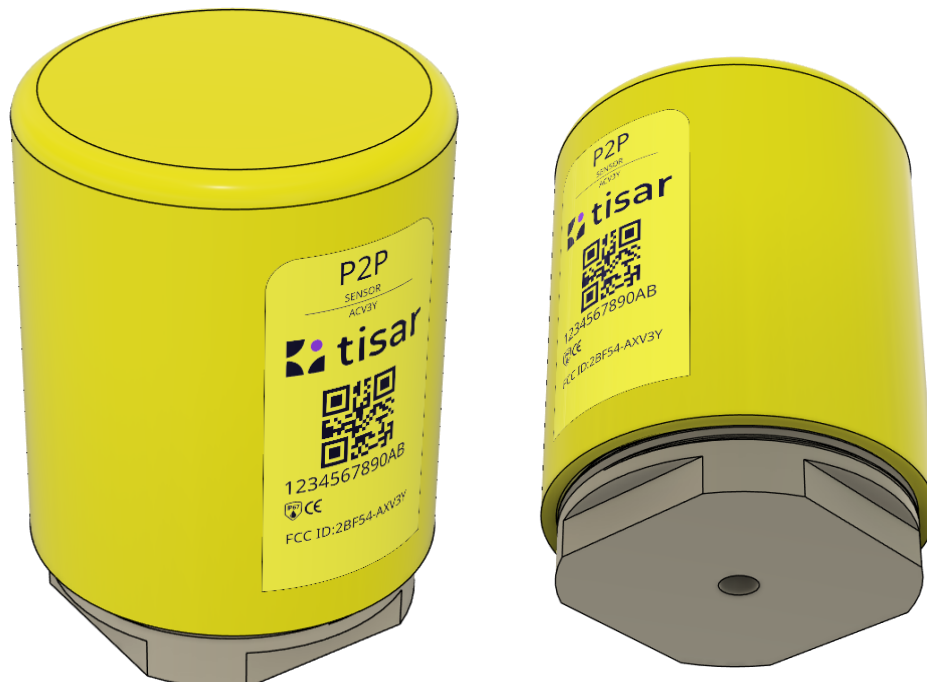




P2P Vibration Sensor

Product Document & User Manual



Introduction

The P2P Vibration Sensor is a compact, lightweight wireless device designed for real-time continuous health monitoring of rotating machinery. It integrates multiple sensors, including vibration, temperature, and magnetic sensors, to provide comprehensive data on the condition of machinery. This sensor is part of TISAR LTD's continuous monitoring solution system, which aims to enhance operational efficiency, reliability, and maintenance practices.

Key Features

Product:

Name: P2P

Type (Product S/N): AXV3Y - #X values are change according to production date

Manufacturer - TISAR LTD

Type of protection:

- IP67

Accelerometer:

- 3-axis accelerometer with $\pm 2g$ to $\pm 16g$ sensitivity
- Dynamic range: 0.5 to 12.5 kHz
- Wake up and back to sleep function with threshold
- Noise floor: $130 \mu g/\sqrt{Hz}$

Temperature:

- Measurement range: $-40^{\circ}C$ to $+70^{\circ}C$
- Accuracy: $\pm 0.1^{\circ}C$

Magnetic Sensing:

- Magnetic field detection for additional machine monitoring capabilities

Connectivity:

- Utilizes ESP32 WiFi module for wireless communication
- Secure connection to a predefined WiFi network
- FCC certified
- IC certified

Environmental Specifications:

- Operating temperature range: -40 °C to +70 °C
- Sealing: IP67 rated for dust and water resistance
- Storage conditions: -40 °C to +30 °C, relative humidity 15%-50%

Electrical Specifications:

- Battery type: Primary lithium-thionyl chloride C -size spiral cell.
- Voltage : 3.6V
- Capacity: 6500mah
- Operating time: Approximately 3 years (depending on operational settings).

Mechanical Specifications:

- Size: 66 X 55 mm
- Weight: 114g
- Case Material: Anodized Aluminum, Durable polyamide (nylon).
- Mounting options: Magnets, epoxy, or other mechanical solutions

Radio Identification

Radio Identification:

- Model: ESP32-WROOM-32
- Manufacturer: Espressif Systems
- Identification Numbers: FCC ID: 2AC7Z-ESPWROOM32, IC: 21098-ESPWROOM32

Threshold Power:

- Transmission Power: +14 dBm (maximum)
- Threshold Power: -98 dBm (sensitivity)

Additional Details:

- Modulation: 802.11b/g/n (Wi-Fi)
- Data Rates: Up to 150 Mbps

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Functional Description

Device Operation:

- **The sensor operates exclusively as part of TISAR's system**, connecting to the network for data transmission.
- Initial setup involves connecting the battery, which powers on the sensor automatically.
- A green LED indicates successful startup.

Data Acquisition and Transmission:

- Upon startup, the sensor measures temperature and attempts to connect to the predefined WiFi network.
- If the connection fails, it defaults to "p2p-network."
- The sensor retrieves operational properties from the company server and stores them in its memory.
- Vibration measurements are taken according to predefined properties and transmitted securely using MQTTS protocol.

Power Management:

- After data transmission, the sensor enters sleep mode to conserve battery life.
- The device wakes up periodically to repeat the measurement and transmission cycle.

Applications

The P2P Vibration Sensor is ideal for:

- Monitoring rotating machinery in industrial settings
- Predictive maintenance to prevent machinery failures
- Enhancing operational efficiency through continuous health monitoring

Safety and Compliance:

- Only specified battery types should be used.
- The sensor must not be disassembled or modified.
- The Sensor should not be used if damaged.

NOTE:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Troubleshooting

- If the sensor does not power on, ensure the battery is properly connected and charged.
 - If the sensor fails to connect to the Wi-Fi network, check the network credentials or the availability of the network.
 - If you have any other technical issues, please contact our customer support team for help.
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Contact Information

For more information about the P2P Vibration Sensor:

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