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TJGOPKUJ WTVB05

WitMotion WTVB05 Temperature Vibration Sensor User Manual

Model: WTVB05 | Brand: TJGOPKUJ

1. Introduction

This manual provides detailed instructions for the installation, operation, and maintenance of the WitMotion WTVB05 Temperature Vibration Sensor. The WTVB05 is a robust, IP67-rated sensor designed for precise 3-axis measurement of vibration displacement, speed, amplitude, and frequency, along with temperature, making it suitable for industrial applications such as motor and water pump monitoring.

Key Features:

- 3-axis XYZ vibration displacement, speed, and amplitude measurement.
- Temperature measurement capability.
- IP67 protection for harsh environments.
- Output frequency range: 0Hz ~ 200Hz.
- High measurement accuracy: X/Y axis 0.05 degree, Z axis 1 degree.
- Interface options: RS485/CAN.
- Compact design: 35mm x 29.4mm x 29.4mm.

2. Setup and Installation

2.1 Physical Installation

The WTVB05 sensor is designed for secure mounting on the equipment to be monitored. Ensure the mounting surface is clean and stable to prevent inaccurate readings. The sensor's compact size (35mm x 29.4mm x 29.4mm) allows for versatile placement. Its IP67 rating ensures protection against dust and water ingress, making it suitable for outdoor or industrial environments.



Figure 1: WitMotion WTVB05 Temperature Vibration Sensor. This image shows the compact, cylindrical design of the sensor with its cable connection, highlighting its robust construction.

2.2 Electrical Connection

Connect the sensor to your system using either the RS485 or CAN interface, depending on your model (Wtvb05-485can supports both). Refer to your system's documentation for proper wiring diagrams for the chosen interface. Ensure all connections are secure to maintain data integrity and prevent damage. The sensor operates with a current consumption of less than 25mA.

2.3 Software Installation

For data acquisition and analysis, install the provided PC software. This software facilitates configuration, data logging, and visualization of the sensor's measurements. Detailed instructions for software installation and initial setup are typically included with the software package or available via technical support.

3. Operating Instructions

3.1 Powering On and Initializing

Once physically installed and electrically connected, apply power to the sensor. The sensor will typically undergo a brief initialization sequence. Refer to the PC software interface for status indicators and to confirm successful connection.

3.2 Data Acquisition

Use the PC software to configure measurement parameters and begin data acquisition. The sensor measures 3-axis (XYZ) vibration displacement, speed, amplitude, and frequency, as well as temperature. The output frequency ranges from 0Hz to 200Hz.



Figure 2: WitMotion WTVB05 Sensor with Axis Labels. This image illustrates the sensor with clear markings for the X, Y, and Z axes, indicating its orientation for vibration measurement.

3.3 Measurement Parameters:

- **Vibration Measurement:** 3-axis XYZ displacement, speed, and amplitude.
- **Measurement Angle:** X/Z-axis: ±180 degrees, Y-axis ±90 degrees.
- **Measurement Accuracy:** X/Y axis 0.05 degree, Z axis 1 degree.

- **Output Frequency:** 0Hz ~ 200Hz.

4. Maintenance

The WTVB05 sensor is designed for minimal maintenance due to its robust IP67 construction.

- **Cleaning:** Periodically inspect the sensor for any accumulation of dust or debris. Clean the exterior with a soft, damp cloth. Avoid using harsh chemicals or abrasive materials that could damage the housing or seals.
- **Cable Inspection:** Regularly check the connecting cable for any signs of wear, cuts, or damage. Ensure the cable glands are tight to maintain the IP67 rating.
- **Mounting Security:** Verify that the sensor remains securely mounted to prevent movement that could affect measurement accuracy or lead to damage.

5. Troubleshooting

If you encounter issues with your WTVB05 sensor, consider the following common troubleshooting steps:

- **No Data Output:**
  - Check power supply to the sensor.
  - Verify cable connections for continuity and proper wiring (RS485/CAN).
  - Ensure the PC software is correctly configured for the sensor's interface and address.
- **Inaccurate Readings:**
  - Confirm the sensor is securely mounted and not experiencing external vibrations unrelated to the target equipment.
  - Check for electromagnetic interference from nearby equipment.
  - Ensure the sensor's orientation matches the configured axis definitions in the software.
- **Software Connection Issues:**
  - Restart the PC software and the sensor.
  - Verify the correct COM port or network settings are selected in the software.
  - Consult the software's user manual for specific connection troubleshooting.

For persistent issues, please contact technical support.

6. Specifications

Feature	Specification
Model	WTVB05
Theory	Ultrasonic Sensor
Usage	Vibration sensor
Material	Metal
Volume (Dimensions)	35mm x 29.4mm x 29.4mm
Feature	Vibration measurement
Waterproof Rating	IP67 protection

Feature	Specification
Measuring Capabilities	3-axis XYZ vibration displacement + speed + amplitude + temperature
Measurement Angle	X/Z-axis: ±180 degrees, Y-axis ±90 degrees
Output Frequency	0Hz ~ 200Hz
Measurement Accuracy	X/Y axis 0.05 degree, Z axis 1 degree
Interface	RS485/CAN
Current Consumption	<25mA
Package Dimensions	1.18 x 0.79 x 0.39 inches
Item Weight	3.49 ounces

7. Warranty and Support

The WitMotion WTVB05 sensor comes with lifetime technical support to assist you with any questions or issues you may encounter.

Technical Support:

For technical assistance, software inquiries, or troubleshooting, please contact:
Email: support@wit-motion.com

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