

WISE-2410

LoRa/LoRaWAN Wireless Condition Monitoring Sensor

NEW



Features

- LoRa/LoRaWAN wireless connectivity
- Built-in 3-axis accelerometer and temperature sensor
- Statistical Time-Domain Features on Board (e.g VRMS, ARMS, Peak, Kurtosis, Crest factor, Skewness and Standard Deviation values)
- Support battery power supply, no wiring installation needed
- Easy setting with user friendly interfaces on WISE Studio
- Compliant with ISO 10816-3
- Support wide temperature -20 ~ 85 °C
- IP66 enclosure design

Introduction

LPWAN is a type of wireless telecommunication wide area network designed to allow long range communications at a low data rate among IoT applications, such as sensors operated on a battery. Its benefits is to offer multi-year battery lifetime for sensors/ applications to send small amounts of data over long distances a few times per hour suitable for different environments. Private LoRa and LoRaWAN are one of category of LPWAN which belong to the non-cellular LPWAN wireless communication network protocols enables very long range transmissions with low power consumption, operating in the non-licensed spectrum.

Star Topology

The LoRaWAN networks in a star topology have gateway relaying the data between the sensor nodes and the application server. Communication between the sensor nodes and the gateway goes over the wireless channel utilizing the LoRa physical layer, whilst the connection between the gateways and the central server are handled over a backbone IP-based network or over Modbus protocol.

Computing on Board

WISE-2410 is a smart conditional monitoring sensor device integrated with ARM Cortex-M4 Processor, LoRa transceiver, 3-axis accelerometer and temperature sensor. With an ARM Cortex-M4 Processor, WISE-2410 allows to calculate vibration characteristic values inside. Such edge computing capability can balance the loading between sensor, gateway and cloud.

Plug & Play with 2-year Battery life cycle

WISE-2410 supports 2 3.6V/2500mAh AA Li-SOCl₂ battery holder. Along with LPWAN technology, the battery life cycle on WISE-2410 can up to 2 years. WISE-2410 is the great for Low-Power Wide-Area Network (LPWAN) Applications such as Smart Cities, Factory, Transportation, and Devices Monitoring. Based on the deployment, WISE-2410 is easy setting with Advantech's WISE Studio Utility.

Common Specification

Wireless Communication

- **Frequency Band** US 902-928 (MHz)
EU 863-870 (MHz)
TW 920-925 (MHz)
JP 920-928 (MHz)
- **Spreading Factor** 7-12
- **Transmit Power** Up to 20dBm
- **Topology** Star (LoRa/LoRaWAN)
- **Sensitivity** -148dB
- **Data Rate** 50 kbps at FSK mode EU
21.9 kbps at SF7 mode US/TW
5.47 kbps at SF7 mode for JP

General

- **Power Input** 3.6V AA Battery *2pcs (Not included)
- **LED Indicator** Power, Tx
- **Configuration Interface** Micro-B USB
- **IP Class** IP66
- **Mounting** Stud mount, Mounting pad and Adhesives
- **Dimension (H x D)** 84.7 x 48.3 mm
- **Certification** CE (RED), FCC, NCC, TELEC, VCCI, BSMI

Environment

- **Operating Temperature** -20~85°C (USB powered); -20~50°C (Battery powered)
- **Operating Humidity** 10~95% RH
- **Storage Temperature** -25~70°C
- **Storage Humidity** 5~95% RH

3-Axis Accelerometer Sensor

- **Axis** X-Y-Z
- **Frequency Range** 10~1000Hz
- **Amplitude Range** ±2/4/8/16g
- **Statistical Time-Domain** Velocity RMS, Acceleration (RMS & peak), Kurtosis, Crest factor, Skewness, Standard deviation
- **Output Data Rate** 3200Hz
- **Resolution** 10 bit (all g range)
- **Sensitivity (TYP.)** 31.2mg/LSB
- **Noise (MAX. TA = 25°C. 0g)** ±150mg
- **Nonlinearity** ±0.5 %
- **Cross-Axis Sensitivity** ±1 %
- **Sensitivity Change Due to Temperature** ±0.02 %/°C

Temperature Sensor

- **Operating Range** -20~85°C (USB powered); -20~50°C (Battery powered)
- **Resolution** 12 bit
- **Accuracy** ±2°C

Ordering Information

Smart Condition Monitoring Sensor

- **WISE-2410-NA** Wireless Smart Condition Monitoring Sensor - US 902-928 (MHz)
- **WISE-2410-EA** Wireless Smart Condition Monitoring Sensor - EU 863-870 (MHz)
- **WISE-2410-TA** Wireless Smart Condition Monitoring Sensor - TW 920-925 (MHz)
- **WISE-2410-JA** Wireless Smart Condition Monitoring Sensor - JP 920-928 (MHz)

LoRaWAN Gateway

- **WISE-6610-N100-A** LoRaWAN gateway supports up to 100 nodes with 915 MHz
- **WISE-6610-E100-A** LoRaWAN gateway supports up to 100 nodes with 868 MHz

Accessories

- **1760002647-01** Bat.Cylindrical 3.6V/2500mAh AA Li/SOCI2
- **96PD-MC534** Magnet base for WISE-2410 installation

