Advantech Industrial LoRaWAN Solution

IIoT LoRaWAN sensor, I/O module and gateway

- ✓ Cloud Integration Architecture of LoRaWAN
- ✓ Factory Industrial IoT
- ✓ Smart Agriculture
- ✓ Selection Guide

LoRaWAN™

WISE-4610

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Cloud Integration Architecture of LoRaWAN

About LoRaWAN

Advantech LoRaWAN solutions provide a device-to-cloud solution by simply sending collected data through the LoRa gateway to the cloud. With Edgelink inside the gateway, it also helps users simply plug-and-play without worrying about data parsing processes.

LoRaWAN 3rd Party GW

WISE-2410

WISE-2410   Vibration Sensor

WISE-2410 is a LoRaWAN wireless vibration sensor integrated with ARM Cortex-M4 Processor, LoRa transceiver, 3-axis accelerometer and temperature sensor. Battery life cycle is 2 years with IP66 enclosure.

- Built-in 3-axis accelerometer and temperature sensor
- Computing total 8 vibration characteristic values on board
- Compliant with ISO 10816
- IP66 with battery-powered, no wiring installation needed
- Easy setting with user friendly interfaces on WISE Studio
- Support wide temperature -20 ~ 85 °C

LAN/4G LTE

Azure

AWS

ADVANTECH WISE-PaaS

LoRaWAN
WISE-6610

WISE-EdgeLink

WISE-4610

WISE-6610
LoRaWAN Gateway

The WISE-6610 plays a key role in connecting sensor devices to the cloud. With network service providers like "The Things Network" or WISE-PaaS EdgeLink, the WISE-6610 utilizes data collection to perform intelligent Internet of Things applications.

- LoRaWAN protocol for closed and public system applications
- Redundancy-enhanced functions for continuous data transmission
- Enhanced memory for hosting custom software applications
- Low power consumption for solar and battery power applications
- Ethernet and I/O for connecting a wide array of field assets with DIN rail or wall mounting
- RED compliance

WISE-4610 **I/O Module**

WISE-4610 features a wireless sensor node based on LoRa network technologies targeting outdoor applications. Not only does it provide wireless communication coverage of 5 kilometers, it also has a long battery life due to the low power consumption of the LoRa network.

- Support LoRaWAN wireless frequency with external detachable antenna
- Application-ready I/O combination with optional M12 connectors, IP65
- Wide voltage power input with 10 ~ 50VDC
- Longer communication range
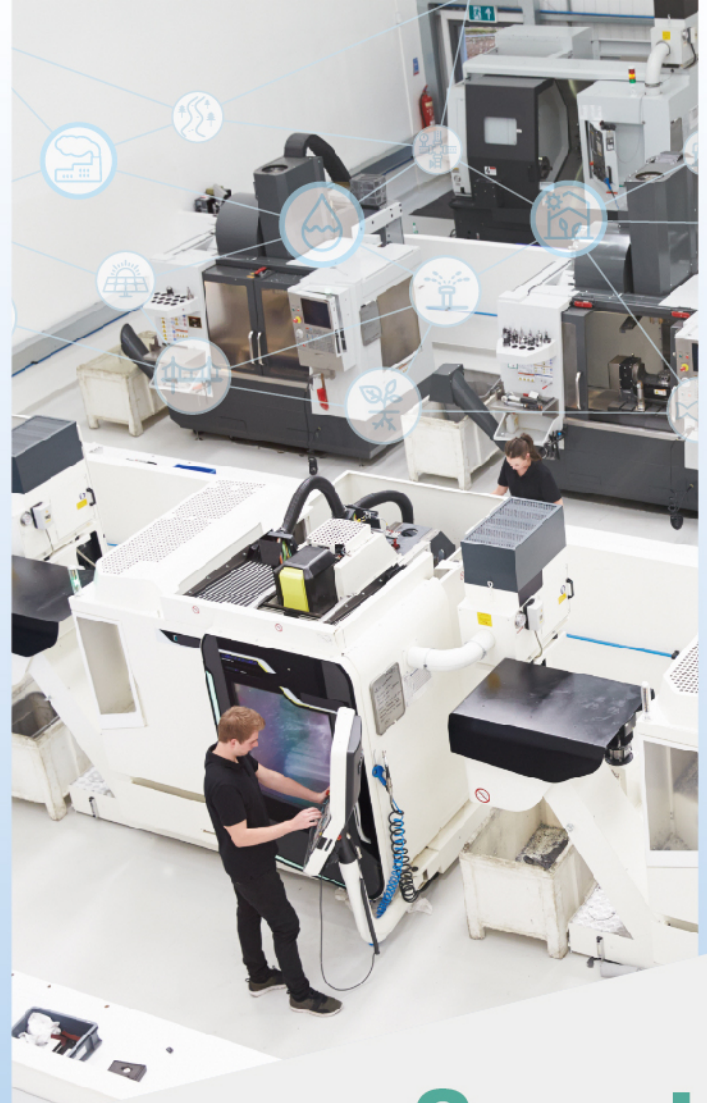- Better penetration through concrete and steel

Factory Industrial IoT

The point of IIoT (Industrial Internet of Thing) is to deploy many types of sensors in a factory to collect vast quantities of information and send the corresponding data to the control center. Users can not only set the threshold for the system but also get in-time alerts to ensure safety control and maximize productivity. The primary benefit of using the Advantech WISE-4610 outdoor LoRa/LoRaWAN I/O node and WISE-2410 vibration sensor in a factory is that users do not need to worry about signal penetration issues and/or tangled and complex wiring. Using vibration, humidity and temperature to monitor warehouses and storage environments through the control center offers an efficient alternative to the traditional one-by-one inspection. With WISE-2410 vibration sensor and other sensors paired with a WISE-4610 analog input I/O board, alerts can be triggered when the pressure levels (water pressure, oil pressure, gas pressure…) are abnormal. This increases safety and improves production quality by controlling the material usage in the manufacturing process.

- Higher Penetration
- Lower Power Consumption
- No Wiring Needed
- Increase Productivity
- Enhance Factory Safety
- Control Factory Resource Usage
- Automatic Alerts

Smart Agriculture

The architecture of the Advantech LoRaWAN solution in smart agriculture connects WISE-2410 vibration sensor and other sensors with the WISE-4610 outdoor LoRa/LoRaWAN I/O node. They further send data through a WISE-610 LoRaWAN gateway to the cloud. In this use case, the application collects temperature, humidity, vibration and soil PH data to better understand the environmental situation. WISE-4610 is designed with an IP65 enclosure and M12 connectors to offer an optimal fit for outdoor applications. WISE-2410 is a LoRaWAN wireless vibration sensor integrated with ARM Cortex-M4 Processor, LoRa transceiver, 3-axis accelerometer and temperature sensor. The WISE-6610 is a high-performance LoRaWAN gateway with reliable connectivity options for industrial environments and LoRaWAN protocol support for building LoRaWAN private and public networks.

- Flexibility of deployment without worrying about signal coverage
- No monthly payment by using LoRa network
- Solar powered or solar rechargeable battery to make the device more independent
- Allows farmers to minimize resources such as water and fertilizers
- Upgraded data collection process helps with wireless monitoring and control
- Cost effective

WISE-2410 Series
(LoRaWAN Intelligent Vibration Sensor)

		WISE-2410-NB	WISE-2410-EB	WISE-2410-BTO
Frequency Range		US 902-928(MHz)	EU 863-870(MHz)	RU 864-870 MHz / AU 915-928 MHz / TW 920-923 MHz / AS 919-924 MHz / TH 920-925 MHz / JP 920-928 MHz
3-axis Accelerometer	Amplitude Range	± 2 / 4 / 8 / 16 g		
	Freq. Range	10 Hz ~ 1 kHz		
	Sampling Rate	6600Hz		
Temperature Sensor	Range	-20°C ~ 85°C		
Dimension (H x D)		84.7 x 48.3 mm		
Battery type		2 x 3.6V AA lithium battery		
Operating Temperature		0°C ~ 70°C(Depends on Battery Spec)		
IP Rate		IP66		

WISE-4610 Series
(Advanced Industrial LoRaWAN I/O Module)

Model Name	WISE-4610-NA	WISE-4610-EA	WISE-4610-JA
Frequency Range	US 902~923 MHz	EU 863~870 MHz	AS 923~923.5 MHz
Function	Wireless Board		
Positioning	GPS / Galileo / BeiDou / GLONASS		
Power Input	4000 Lithium Rechargeable Battery 10~50Vdc External Power 17-21.6Vdc Solar Panel		
Configuration Interface	Micro-B USB		

IP 65 I/O Module

Model Name	WISE-S614-A	WISE-S615-A	WISE-S617-A	WISE-S672-A	WISE-S600
Spec	4AI & 4DI	RTD	2AI, 2DI, 1DO & 1RS-485	6DI, 1RS-485 & 1RS-485/232	Upon Customization Request *MOQ required

WISE-6610 Series
(LoRaWAN Gateway)

Model Name	WISE-6610-A500	WISE-6610-E100	WISE-6610-E500	WISE-6610-N100	WISE-6610-N500	WISE-6610-A100
Wireless Communication	LoRaWAN	LoRaWAN	LoRaWAN	LoRaWAN	LoRaWAN	LoRaWAN
Frequency	923MHz	868MHz	868MHz	915MHz	915MHz	923MHz
Support Node	500	100	500	100	500	100
Antenna Number	1	1	1	1	1	1
Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)	-40 ~ 75°C (-40 ~ 167°F)
Mounting	Wall	Wall	Wall	Wall	Wall	Wall
Power Input	9 ~ 36 VDC	9 ~ 36 VDC	9 ~ 36 VDC	9 ~ 36 VDC	9 ~ 36 VDC	9 ~ 36 VDC
Power Connector	4-way Molex mini-fit connector	4-way Molex mini-fit connector	4-way Molex mini-fit connector	4-way Molex mini-fit connector	4-way Molex mini-fit connector	4-way Molex mini-fit connector
Power Consumption	4W	4W	4W	4W	4W	4W

Regional Service & Customization Centers

China Kunshan 86-512-5777-5666	**Taiwan** Taipei 886-2-7732-3399	**Netherlands** Eindhoven 31-40-267-7000	**Poland** Warsaw 00800-2426-8080	**MCA** Milpitas, CA 1-408-519-3898	

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