Advantech Industrial LoRaWAN Solution

IIoT LoRaWAN Sensors, I/O Modules and Gateways

- Cloud Integration Architecture of LoRaWAN
- Factory Industrial IoT
- Smart Agriculture
- Oil & Gas
- Energy Management
- Selection Guide

LoRa**WAN**™

WISE-2410

WISE-6610

WISE-4610

WISE-2200-M

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Enabling an Intelligent Planet

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Cloud Integration Architecture of LoRaWAN
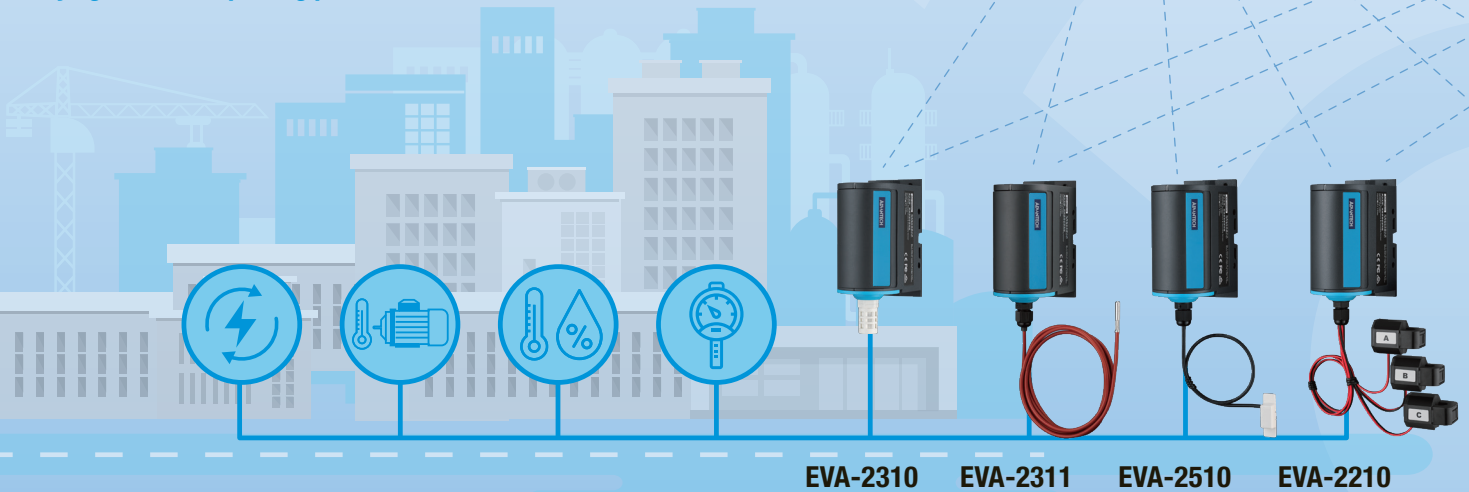
About LoRaWAN

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, users simply plug-and-play without worrying about data parsing processes.

everynet

THE THINGS NETWORK

Actility

ESRP-ACT-UNO2484

LoRaWAN
3rd Party GW

EVA-2310   EVA-2311   EVA-2510   EVA-2210

EVA-2210 — 3-Phase Current Meter with 3 x 75A Clamp-On CT

- 3 x 75A Clamp-On CT
- Battery life up till 3.5 years@25 °C, 60mins interval setting

EVA-2510 — Water Leakage Sensor

- 3.5mm water line diameter
- Battery life up till 5 years@25 °C, 15mins interval setting

EVA-2310 — Temperature and Humidity Sensor

- -20 °C to 55 °C temperature detection range
- 0%RH to 100%RH humidity detection range
- Battery life up till 5 years@25 °C, 15mins interval setting

EVA-2311 — Temperature PT1000 Round Head Probe Sensor

- -70°C to 200°C temperature detection range
- IP67 for PT1000 Round Head Probe Sensor
- Battery life up till 5 years@25°C, 15mins interval setting

Azure

aws

ADVANTECH
WISE-PaaS

WISE-EdgeLink

Node-RED

LoRaWAN
WISE-6610

ESRP-ACT-UNO2484

Intelligent Platform with ThingPark Enterprise

- Supports 2000 LoRaWAN device connections
- Build a multi-gateway, geo-redundant, high-availability LoRaWAN® network with a user-friendly interface and real-time monitoring
- Extend cloud intelligence and analytics to edge devices, with end-to-end infrastructure security, trusted by major telecommunication operators
- Enjoy carrier-grade support and maintenance including 24/7 monitoring of smart IoT platforms
- Seamless inter-operability among smart things

WISE-6610

LoRaWAN Gateway

- LoRaWAN protocol for private and public system applications
- Enhanced memory and build-in Node-Red for hosting custom software applications
- Ethernet and I/O connections for wide array of field assets
- Support Modbus/TCP and MQTT protocol

WISE-4610   WISE-2200-M   BB-WSW

WISE-2410X   WISE-2410

WISE-2410   Vibration Sensor

- Built-in 3-axis accelerometer and temperature sensor
- Total 8 vibration characteristic values on board
- Compliant with ISO 10816

WISE-2410X   Explosion Proof Vibration Sensor

- IECEx Zone 2, Zone 21, ATEX2 certified
- Built-in 3-axis accelerometer and temperature sensor
- Total 8 vibration characteristic values on board

WISE-4610   I/O Module

- Supports LoRaWAN wireless frequency with external detachable antenna
- Application-ready I/O communication with optional M12 connectors, IP65

WISE-2200-M   I/O Module

- Less interference with high penetration capability
- Supports Modbus/RTU communication protocol
- Supports max. 128 address and 30 rule settings

BB-WSW   I/O Node

- Rugged, IP66-rated, fiber-reinforced polyester PBT enclosure
- Provides connectivity to industry-standard analog or digital sensors
- Support 2AI, 2DI, 1DO channels

Factory Industrial IoT

In Factory Industrial IoT, the core objective is deploying diverse sensors to gather extensive data for analysis at a control center. Users set system thresholds and receive timely alerts for safety and productivity. The Advantech WISE-4610 LoRa/LoRaWAN I/O node, along with WISE-2410 vibration sensors, ensures strong signal penetration without complex wiring. Integrating the EVA-2311 LoRaWAN Temperature PT1000 Round Head Probe Sensor enhances this network. Together, they monitor warehouses using vibration, humidity, and temperature sensors, providing an efficient alternative to manual inspections. With WISE-2410 vibration sensor, EVA-2000 PT1000 sensor, and other sensors paired with a WISE-4610 analog input I/O board, alerts can be triggered when pressure levels (water pressure, oil pressure, gas pressures etc.) are abnormal. This increases safety and improves production quality by controlling resources in the manufacturing process.

- **Higher Penetration**
- **Lower Power Consumption**
- **No Wiring Needed**
- **Increased Productivity**
- **Enhances Factory Safety**
- **Control Factory Resources**
- **Automatic Alerts**

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- **Upgra**
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- **Cost e**

Engineering
Innovation Building
929 West Taylor St
BLDG 629 EIB

Oil & Gas

Oil refineries are very large industrial complexes that involve many different processing units and auxiliary facilities. These facilities are dispersed over a vast industrial complex, and some of them are in hazardous environments or nearly inaccessible locations, making maintenance extremely difficult. The WISE-2410X, an ATEX2 and IECEx (Zone 2 and Zone 21) certified vibration and temperature sensor, can be installed in hazardous environments to monitor the conditions of rotating equipment like fans and pumps. By integrating with Actility's ThingPark Enterprise IoT platform and AWS IoT SiteWise, Advantech's LoRaWAN vibration sensing device can automatically and remotely monitor systems, making them a perfect facility monitoring solution for refining systems.

- **Explosion proof certified to withstand harsh environments**
- **Long distance transmission and low power consumption**
- **Allows remote inspection and predictive maintenance**
  - **Improve productivity**
  - **Enhance safety**
  - **Cost effective**

Energy Management

Advantech LoRaWAN solution enables smart campus energy management, which collects energy data and monitors power consumption in real-time. The LoRaWAN technology not only provides long-range wireless communication but also provides deep indoor coverage to easily cover multi-floor buildings. Advantech builds the LoRaWAN network with its EVA-2210 3-phase current meter with 3 x 75A clamp-on CT, WISE-2200-M I/O modules and WISE-6610 LoRaWAN gateways to transmit the data from power meters to the cloud. EVA-2210 measures diverse equipment currents like pumps, compressors, and more. WISE-2200-M is a LoRaWAN Modbus read/write communication device, which supports a maximum 128 addresses and a 30 rule setting and can easily connect to Modbus sensors and meters for different kinds of applications. Because of its plug-and-play functionality, EVA-2210 and WISE-2200-M can be quickly and flexibly installed to facilitate network construction.

- **Plug-and-play applications**
- **Less interference with high penetration**
- **Network can be quickly deployed with fewer gateways**
- **No wiring required**
- **Save energy costs**

WISE-2410(X) Series
(LoRaWAN Intelligent Vibration Sensor)

Model Name		WISE-2410	WISE-2410X-A02	WISE-2410X-E21	WISE-2410X-C12
Frequency Range		WISE-2410X-A02EA for EU868, RU868 only WISE-2410X-A02NA / WISE-2410X-E21NA for other frequency 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	94.7 x 48.3 mm		
Battery type		2 x 3.6V AA lithium battery (not included) (WISE-2410, WISE-2410X-A02, WISE-2410X-C12) 1 x 3.6V AA lithium battery (not included) (WISE-2410X-E21)			
Operating Temperature		0°C ~ 70°C (Depends on Battery Spec)			
IP Rate		IP66	IP65		
Explostion-proof certification		N/A	IECEx Zone2, ATEX2	IECEx Zone 21	C1D2

EVA-2000 Series
(LoRaWAN Sensors)

Model Name		EVA-2210	EVA-2310	EVA-2311	EVA-2510
Frequency Range		EU 863-870 (MHz) / US 902-928 (MHz) / AU 915-928 (MHz) / AS 919-924 (MHz)			
Sensor	Type	Current Transformer	Temperature & humidity	PT1000	Leakage Detector
	Q'ty	3	1	1	1
	Spec	100mA to 75A (<±1%@300mA to 75A)	-20°C ~ 50°C (±1°C@25°C)	±0.8°C	3.5mm Water Line Diameter (max)
Battery Type		2 x 3.6V AA lithium battery (not included)			
Environment	Operating Temperature	-20°C to 55°C			

ESRP-ACT-UNO2484
(Intelligent Platform with ThingPark Enterprise Software)

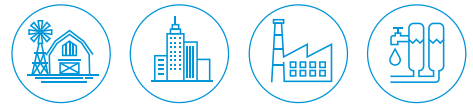| Model Name	ESRP-ACT-UNO2484
Operating System	Linux OS
Application Software	Actility ThingPark Enterprise with 2000 LoRaWAN end-devices connection
Control Software	ThingPark 3 months evaluation license
CPU	Intel® Core™ i3-7100U (2.4GHz)
Memory	16 GB DDR4
Display Size/Type	1 x HDMI, supports 1920x1080 @ 60Hz
	1 x DP, supports 3840x2160 @ 30Hz
Storage	2 x 256 GB SSD
Expansion Slots	1 x Full-size mPCIe slot
Network (LAN)	4 x RJ45
	10/100/1000 Mbps IEEE 802.3u 1000Base-T Fast Ethernet
I/O	4 x RS-232/422/485
	4 x USB 3.0
Power Input (Voltage)	10 ~ 36 V$_{DC}$
Operating Temperature	-20 ~ 60°C (-4 ~ 140°F)
Storage Temperature	40 ~ 85°C (-40 ~ 185°F)
Dimensions (W x D x H)	200 x 140 x 40 mm (7.8" x 5.6" x 1.6" in)
Certification	CE, FCC Class A, UL, CCC, BSMI

WISE-6610 Series
(LoRaWAN Gateway)

Model Name	WISE-6610	WISE-6610-EL	WISE-6610-BTO
Wireless Communication	LoRaWAN		LoRaWAN + LTE
Frequency	EU 863-870 (MHz) / RU 864-870 (MHz) / US 902-928 (MHz) / AU 915-928 (MHz) / AS 919-924 (MHz) / TH 920-925 (MHz) / JP 920-928 (MHz)		
Software Packages	Node-RED, Advantech LoRaWAN Network Server, LoRa Packet Forwarder, Modbus/TCP, Backnet/IP, MQTT	Node-RED, Advantech LoRaWAN Network Server, LoRa Packet Forwarder, Modbus/TCP, Backnet/IP, MQTT, WISE-Edgelink	
Antenna Number	1	1~3 depends on configurations.	
Operating Temperature	-40 ~ 75°C (-40 ~ 167°F)		
Mounting	Wall, Din-rail		
Power Input	9 ~ 36 Vdc		
Power Connector	2pin phoenix connector		
Power Consumption	2W		
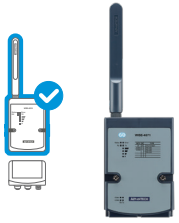
WISE-2200-M Series
(LoRaWAN Single RS-485 I/O Module)

Model Name	WISE-2200-MNA	WISE-2200-MEA	WISE-2200-M-BTO
Frequency Range	EU 863-870 (MHz) / RU 864-870 (MHz) / US 902-928 (MHz) / AU 915-928 (MHz) / AS 919-924 (MHz) / TH 920-925 (MHz) / JP 920-928 (MHz)		
Spec	1RS-485		
Power Input	5~50 Vdc		
Configuration Input	Micro-B USB		

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

Model Name	WISE-4610	WISE-4610P	WISE-4610-BTO
Frequency Range	US 902~923 MHz / EU 863~870 MHz / AU 915-928 (MHz) / AS 919-924 (MHz) / TH 920-925 (MHz) / JP 920-928 (MHz)		
Positioning	N/A	GPS / Galileo / BeiDou / GLONASS	N/A
Power Input	10~50Vdc External Power	4100 Lithium Rechargeable Battery 10~50 Vdc External Power 17-21.6 Vdc Solar Panel	10~50 Vdc External Power
Configuration Interface	Micro-B USB		

IP 65 I/O Module			
Model Name	WISE-S614-A	WISE-S615-A	WISE-S617-A	WISE-S672-A
Spec	4AI & 4DI	4 RTD	2AI, 2DI, 1DO, 2 Power Output & 1RS-485	6DI, 1RS-485 & 1RS-485/232

BB-WSW Series
(Industrial LoRaWAN I/O Node)

Model	BB-WSW
Communication Interface	2AI, 2DI, 1DO
Temp	-40~75°C
Power Input	9~36 Vdc / 2*3.6V AA Batteries
Dimensions (W x H x D)	95 x 116 x 65 mm

Regional Service & Customization Centers

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