

# Advanced Industrial LoRaWAN Wireless I/O Module

IIoT LoRaWAN Wireless I/O Solution

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



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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. It supports both public LoRaWAN and private LoRaWAN solutions. With Edgeline inside the gateway, it also helps users simply plug-and-play without worrying about data parsing processes.

Private LoRa  
WISE-3610

LoRaWAN  
3rd Party GW



## WISE-4610 I/O Module



**Private Server or Public Cloud**  
Modbus RTU or MQTT to WISE-PaaS or The Things Network etc.



**Rechargeable Battery**  
3 Ways Power WISE-4610: Line Power, Solar Panel & Battery



**IP65 Water Proof Enclosure** with M12 Connectors



**Variety I/O Combination**  
AI/DI/DO/RS-485/232



**High Flexibility of Deployment**



**GPS / Galileo / BeiDou / GLONASS**



**Deeper Penetration & Wide Coverage**



**External Detachable LoRa Antenna**



## Introduction

# WISE-6610

In global community networks, routing data between devices and application servers, and connecting things to private cloud or public clouds enables big data analysis. 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.

# LAN/4G LTE

LoRaWAN  
WISE-6610



WISE-PaaS/EdgeLink



WISE-4610

To provide a more complete solution, WISE-4610 features an IP65 enclosure with M12 connectors, solar panel rechargeable battery, and low-power consumption to make it as one of the best applications for outdoor deployment scenarios like smart agriculture and cities.

WISE-4610 is independent; users don't have to worry about the signal coverage of base stations once the gateway deployed. Not only can users build either private networks or public networks, but they also enjoy the high flexibility of infrastructure deployment. The most important feature is that WISE-4610 offers a variety of I/O combinations. We provide device solutions with a wireless interface and added I/O to collect data from monitoring to the servers. With modularization features, you can customize WISE-4610 to any kind of I/O combination for an array of IIOT scenarios.

# Factory Industrial IoT

The point of IIoT (Industrial Internet of Things) 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 in a factory is that users do not need to worry about signal penetration issues and/or tangled and complex wiring. Using 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 the pressure sensor 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. WISE-4610 also measures the current and voltage loading of factory electricity systems.

- 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 LoRa/LoRaWAN solution in smart agriculture connects sensors with the WISE-4610 outdoor LoRa/LoRaWAN I/O node and sends the data through a gateway to the cloud. In this use case, the application collects temperature, humidity and soil PH data to better understand the environmental situation. The WISE-4610 outdoor LoRa/LoRaWAN I/O node is designed with solar panel rechargeable batteries to make the solution more independent. Users can add a solar panel with the WISE-4610 node to fulfill a power source need. WISE-4610 is designed with an IP65 enclosure and M12 connectors to offer an optimal fit for outdoor applications.

- 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-4610 Series

## (Advanced Industrial LoRaWAN I/O Module)



Advanced Industrial LoRa/LoRaWAN Wireless Module						
	Model Name	<b>WISE-4610-NA</b>	<b>WISE-4610-EA</b>	<b>WISE-4610-JA</b>		
	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	<b>WISE-S614-A</b>	<b>WISE-S615-A</b>	<b>WISE-S617-A</b>	<b>WISE-S672-A</b>	<b>WISE-S600</b>
	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	<b>WISE-6610-A500</b>	<b>WISE-6610-E100</b>	<b>WISE-6610-E500</b>	<b>WISE-6610-N100</b>	<b>WISE-6610-N500</b>	<b>WISE-6610-A100</b>	
	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)	-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	

	Model Name	<b>WISE-6610-E100C-A</b>	<b>WISE-6610-E500C-A</b>	<b>WISE-6610-N100C-A</b>	<b>WISE-6610-N500C-A</b>
	Wireless Communication	LoRaWAN/LTE	LoRaWAN/LTE	LoRaWAN/LTE	LoRaWAN/LTE
	Frequency	868MHz	868MHz	915MHz	915MHz
	Support Node	100	500	100	100
	Antenna Number	3	3	3	3
	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)
	Mounting	Wall	Wall	Wall	Wall
	Power Input	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
	Power Consumption	9W	9W	9W	9W



## Regional Service & Customization Centers

<b>China</b>	Kunshan 86-512-5777-5666	<b>Taiwan</b>	Taipei 886-2-2792-7818	<b>Netherlands</b>	Eindhoven 31-40-267-7000	<b>Poland</b>	Warsaw 00800-2426-8080	<b>USA</b>	Milpitas, CA 1-408-519-3898
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## Worldwide Offices

### Greater China

<b>China</b>	
Toll Free	800-810-0345
Beijing	86-10-6298-4346
Shanghai	86-21-3632-1616
Shenzhen	86-755-8212-4222
Chengdu	86-28-8545-0198
Hong Kong	852-2720-5118
<b>Taiwan</b>	
Toll Free	0800-777-111
Taipei & IoT Campus	886-2-2792-7818
Taichung	886-4-2372-5058
Kaohsiung	886-7-392-3600

### Middle East and Africa

Israel	072-2410527
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### Asia

<b>Japan</b>	
Toll Free	0800-500-1055
Tokyo	81-3-6802-1021
Osaka	81-6-6267-1887
Nagoya	81-0800-500-1055
<b>Korea</b>	
Toll Free	080-363-9494/5
Seoul	82-2-3660-9255
<b>Singapore</b>	
Singapore	65-6442-1000
<b>Malaysia</b>	
Kuala Lumpur	60-3-7725-4188
Penang	60-4-537-9188
<b>Thailand</b>	
Bangkok	66-02-2488306-9
<b>Vietnam</b>	
Hanoi	84-24-3399-1155
<b>Indonesia</b>	
Jakarta	62-21-751-1939
<b>Australia</b>	
Toll Free	1300-308-531
Melbourne	61-3-9797-0100
<b>India</b>	
Bangalore	91-80-6814-4600
Pune	91-94-2260-2349

### Europe

<b>Netherlands</b>	
Eindhoven	31-40-267-7000
Breda	31-76-523-3100
<b>Germany</b>	
Toll Free	00800-2426-8080/81
Munich	49-89-12599-0
Düsseldorf	49-2103-97-855-0
<b>France</b>	
Paris	33-1-4119-4666
<b>Italy</b>	
Milan	39-02-9544-961
<b>UK</b>	
Newcastle	44-0-191-262-4844
London	44-0-870-493-1433
<b>Spain</b>	
Madrid	34-91-668-86-76
<b>Sweden</b>	
Stockholm	46-0-864-60-500
<b>Poland</b>	
Warsaw	48-22-31-51-100
<b>Russia</b>	
Moscow	8-800-555-01-50
St. Petersburg	8-800-555-81-20
<b>Czech Republic</b>	
Ústí nad Orlicí	420-465-524-421
<b>Ireland</b>	
Galway	353-91-792444

### Americas

<b>North America</b>	
Toll Free	1-888-576-9668
Cincinnati	1-513-742-8895
Milpitas	1-408-519-3898
Irvine	1-949-420-2500
Ottawa	1-815-433-5100
<b>Brazil</b>	
Toll Free	0800-770-5355
São Paulo	55-11-5592-5367
<b>Mexico</b>	
Toll Free	1-800-467-2415
Mexico City	52-55-6275-2727

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