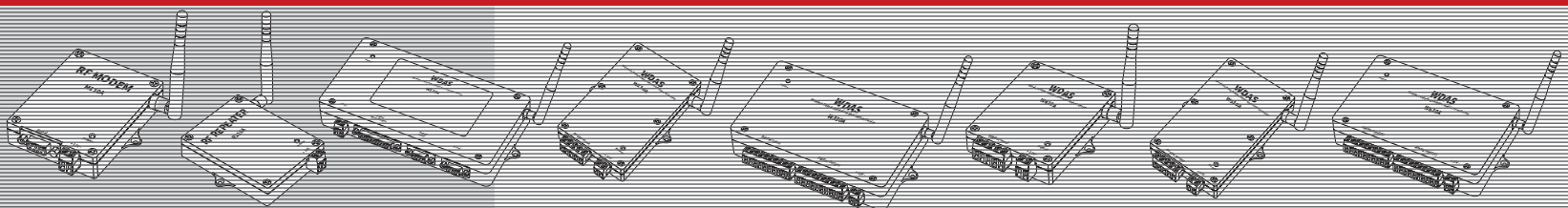


# SEBINE Technology

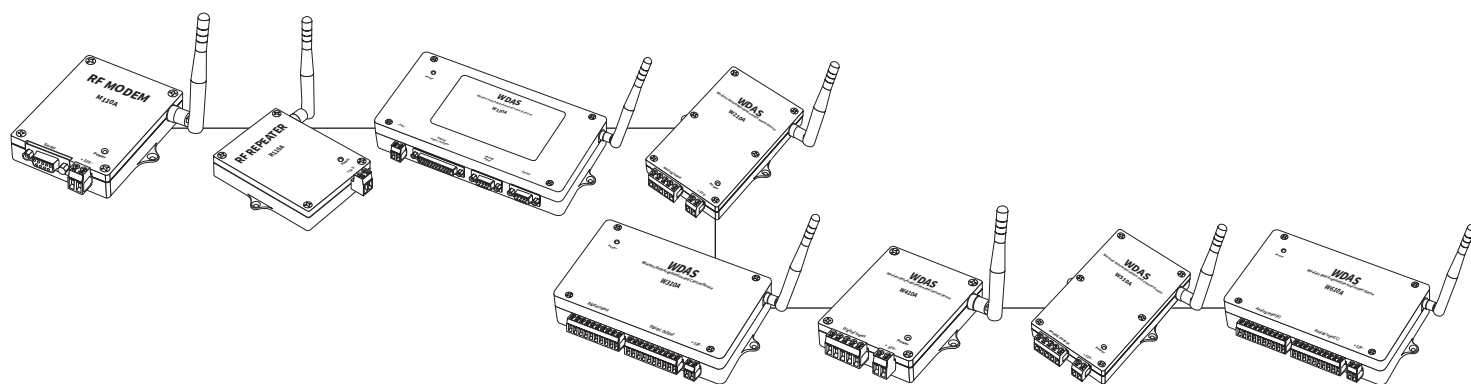
Wireless Data Acquisition and Control Device, WDAS<sup>®</sup>



# Products



# Wireless Data Acquisition and Control Device, WDAS<sup>®</sup>



## Common Specifications

RF Features	Appearance Specifications
<ul style="list-style-type: none"> <li>• Frequency : 433MHz with 25KHz Channel Spacing</li> <li>• Transmitter Power : 10mW</li> <li>• Receiver Sensitivity : -116~-120dBm(-116dBm Typ.)</li> <li>• Modulation : FSK</li> <li>• Bandwidth : &lt; 14KHz</li> </ul>	<ul style="list-style-type: none"> <li>• Operation Temperature : -10°C ~ +60°C</li> <li>• Housing : Aluminum</li> <li>• Reverse Power/Oversvoltage /Overcurrent Protection</li> </ul>
Performance	Application
<ul style="list-style-type: none"> <li>• Expected Line-Of-Sight Range : Up To 1km with <math>\lambda/4</math> Dipole Antenna</li> <li>• RF Data Rate : 4800 Baud, 7200 Baud</li> </ul>	<ul style="list-style-type: none"> <li>• Environment Monitoring, Factory Automation, Remote Control, etc.</li> </ul>

## Product Classification

Product \ I/O Interface	Serial	Analog Input	Analog Output	Digital Input	Digital Output
M110A	RS232 RS485	-	-	-	-
W110A	RS232	5 Channel	-	8 Channel	8 Channel
W210A	-	2 Channel	-	-	-
W310A	-	-	-	8 Channel	8 Channel
W410A	-	-	-	4 Channel	-
W510A	-	-	2 Channel	-	-
W610A	-	8 Channel	-	-	-

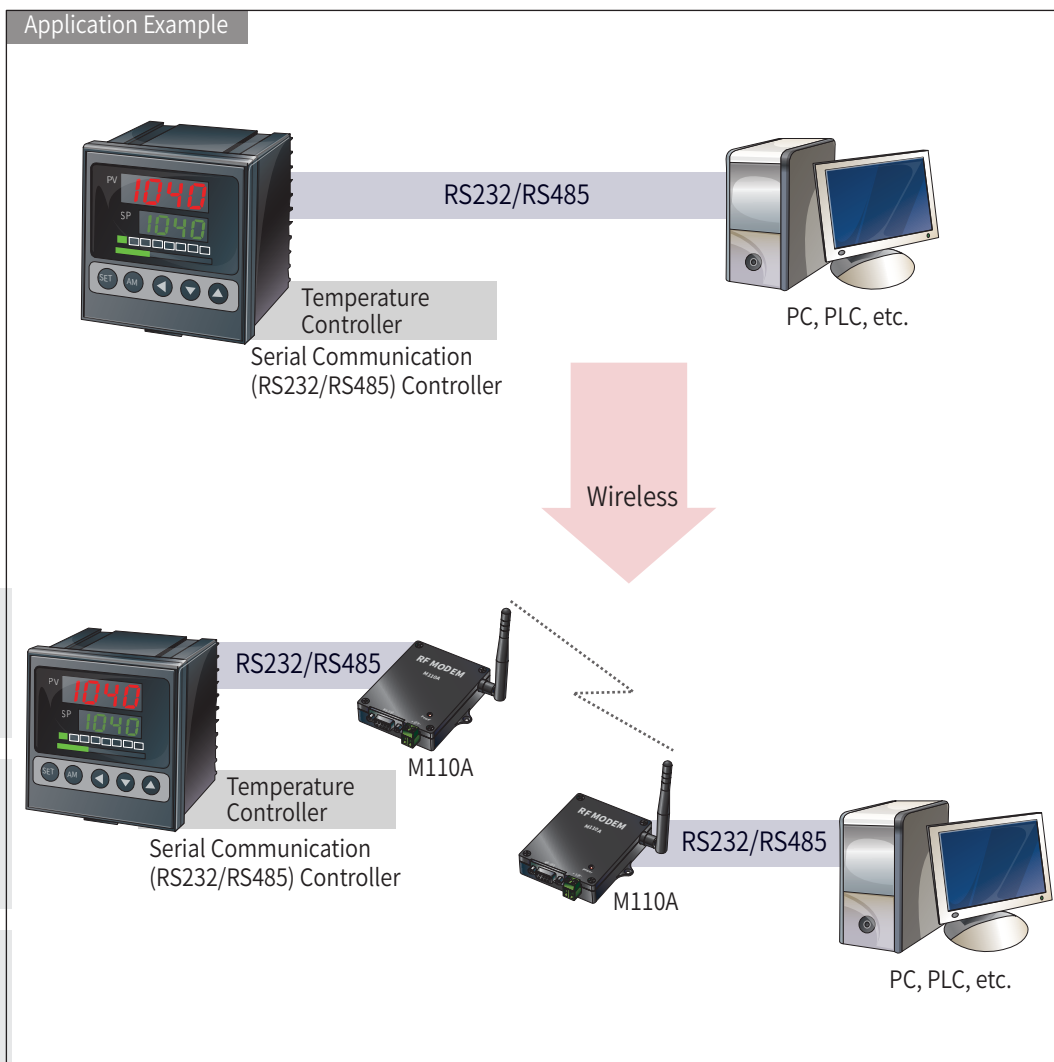
# M110A



## Product Information

- **Wireless Serial Communication**
- **I/O Interface**
  - RS232/RS485 User Selectable
  - Serial Baud Rate User Selectable
  - "point-to-point", "point-to-multipoint" Communication Possible
- **Certification**
  - CE, FCC

## Application Example

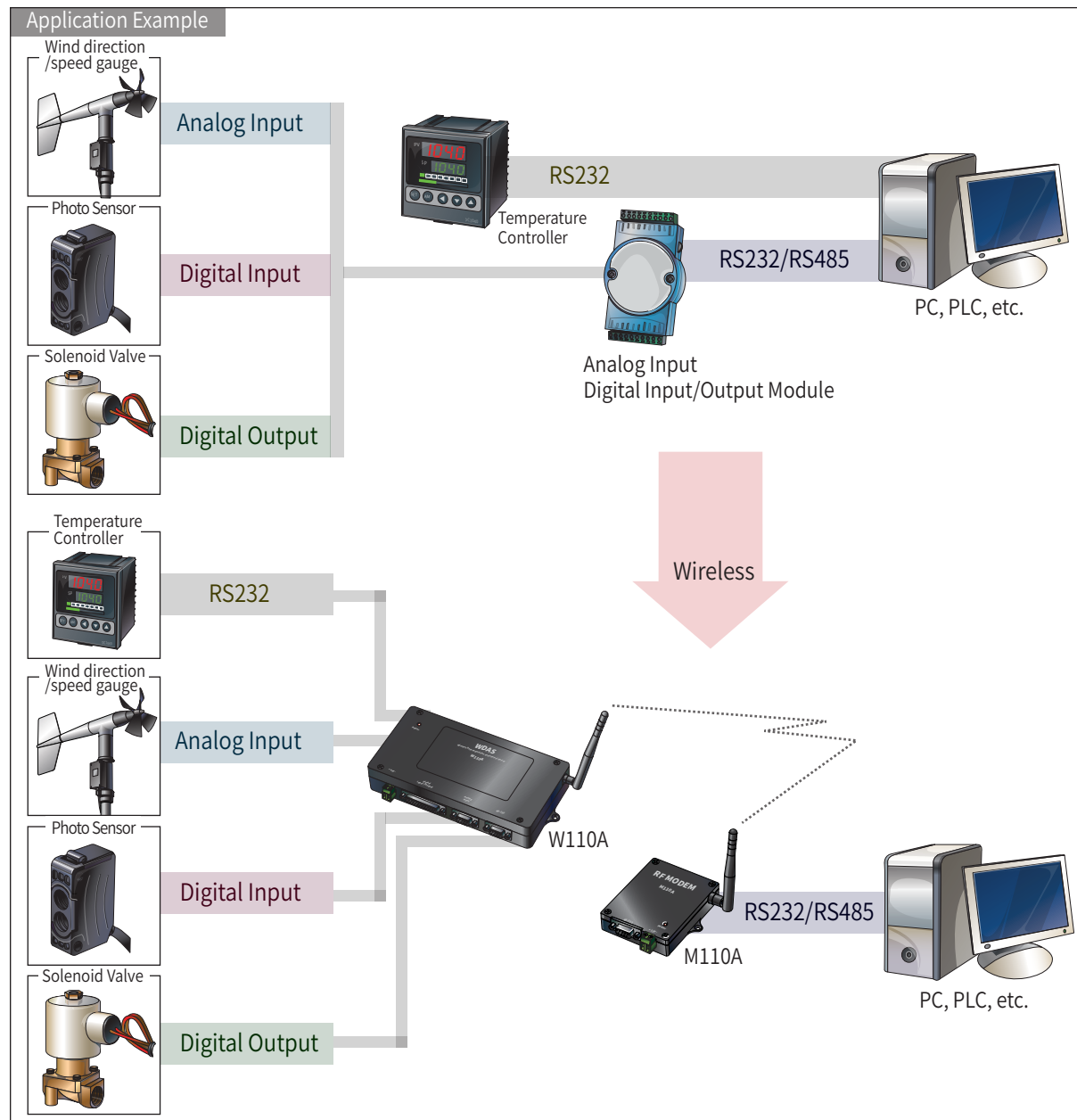


# W110A



## Product Information

- Wireless Digital/Analog/Serial Data Acquisition and Control
- I/O Interface
  - RS232 Communication
  - 8 Ch. Digital Input
  - 8 Ch. Digital Output
  - 5 Ch. Analog Input



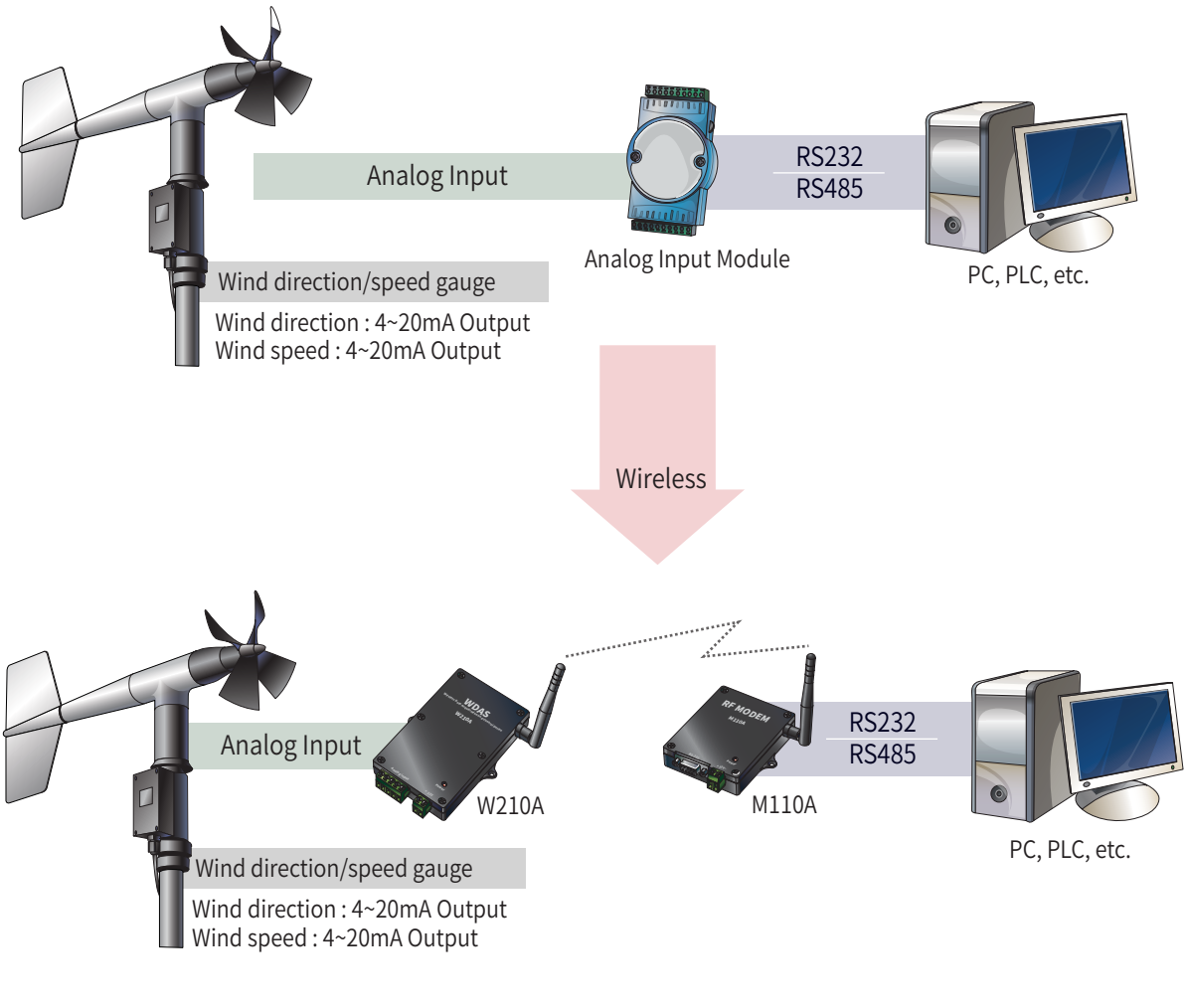
# W210A



## Product Information

- **Wireless Transmission of Analog Output Sensor Signal**
- **I/O Interface**
  - 2 Ch. Analog Input (16Bit Resolution)
  - 0~5V, 0~10V, 4~20mA User Selectable
- **Certification**
  - CE, FCC

## Application Example



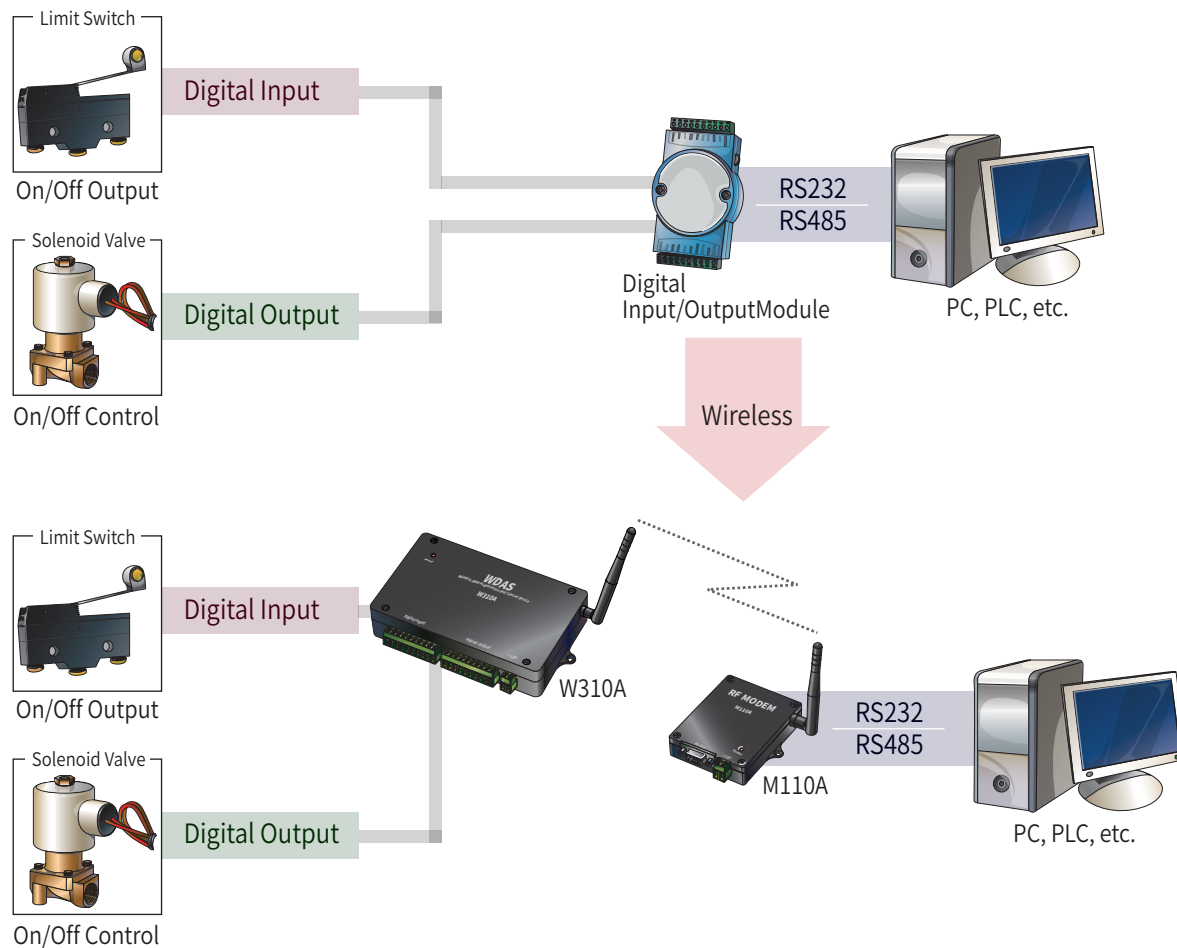
# W310A



## Product Information

- Wireless Transmission of On/Off Status, Wireless On/Off Control
- I/O Interface
  - 8 Ch. Digital Input
  - 8 Ch. Digital Output
- Certification
  - CE

## Application Example



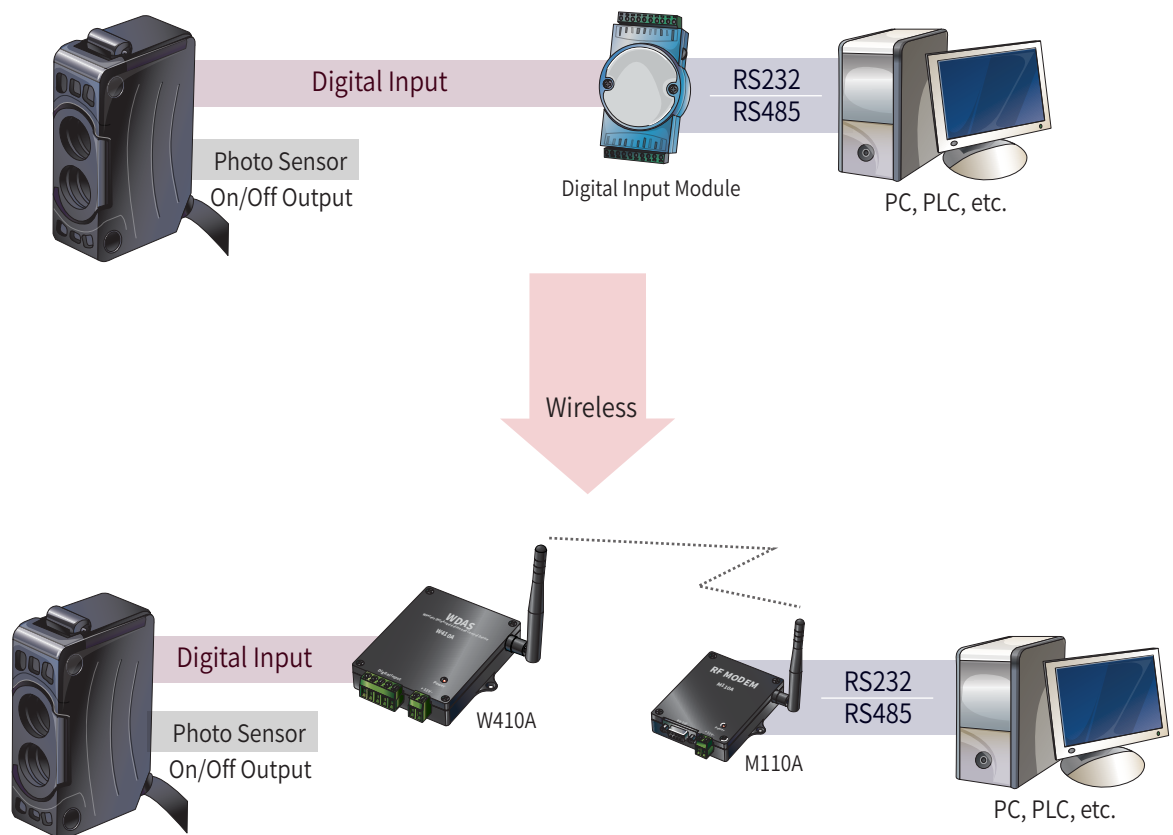
# W410A



## Product Information

- Wireless Transmission of On/Off
- I/O Interface
  - 4 Ch. Digital Input
- Certification
  - CE

## Application Example





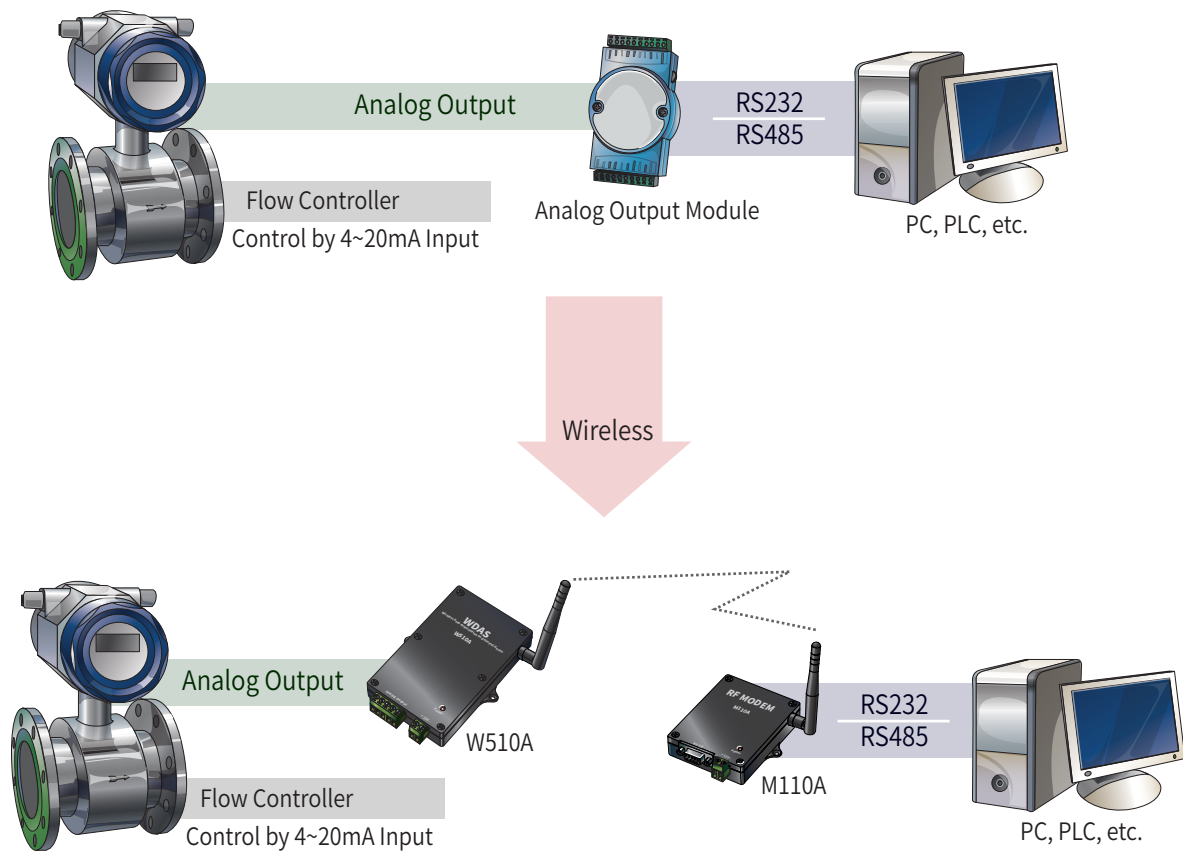
# W510A



## Product Information

- **Wireless Analog Control**
- **I/O Interface**
  - 2 Ch. Analog Output (16Bit Resolution)
  - 0~5V, 0~10V, 4~20mA User Selectable
- **Certification**
  - CE

## Application Example



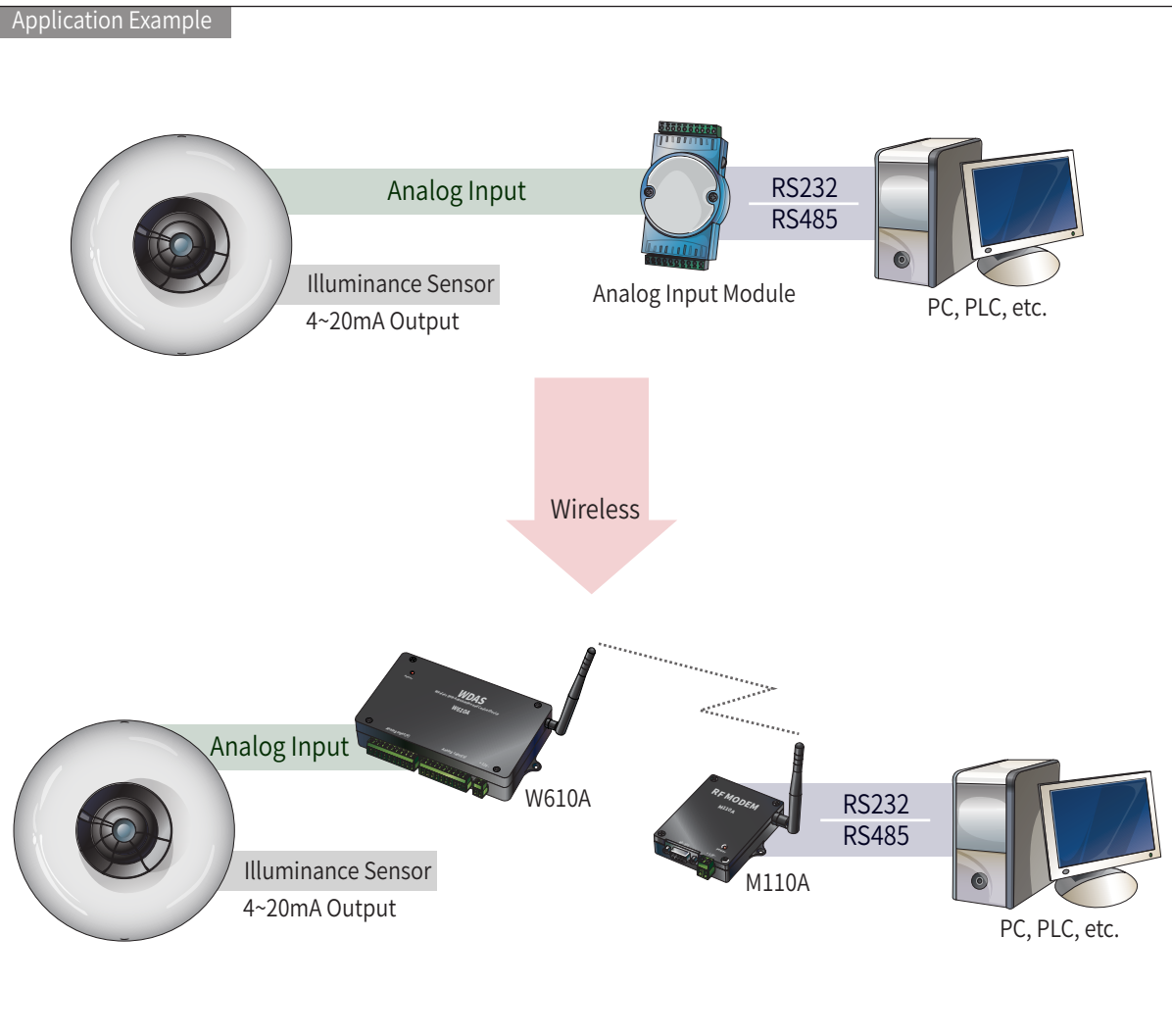
# W610A



## Product Information

- Wireless Transmission of Analog Output Sensor Signal
- I/O Interface
  - 8 Ch. Analog Input (16Bit Resolution)
  - 0~5V, 0~10V, 4~20mA User Selectable

## Application Example



# R110A

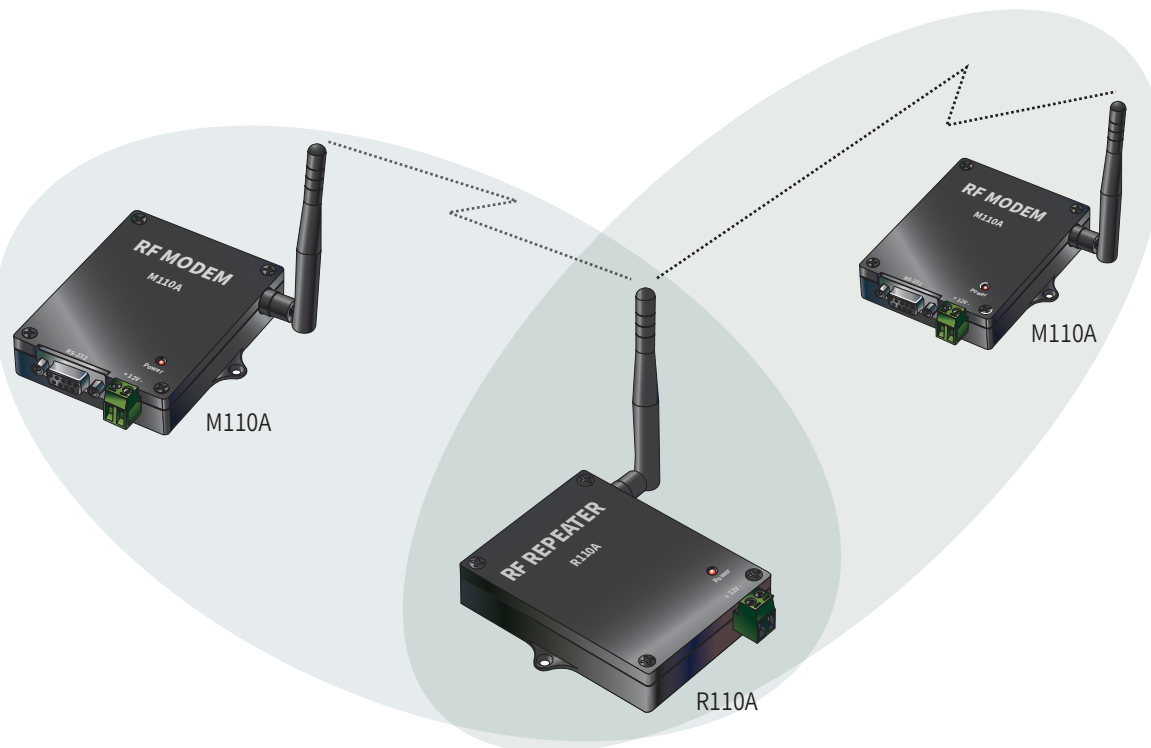


## Product Information

- RF Repeater
- Certification  
- CE

## Application Example

Expansion of Wireless Communication range!!



Expected Line-Of-Sight Range = 1km \* Number of Repeater

# Wireless Sensor

## UHF Temperature/Humidity Sensor (UTH)

### Features

- Real time monitoring of Temperature/ Humidity data at a remote place through UHF(400~470MHz)
- Certification  
- CE, FCC

### Application

- UTH send the Temperature/Humidity data to receiver(M110S) periodically through UHF
- Save a receiving data on a Server
- Real time monitoring use smart phone Application.



# Wireless Sensor

## Wi-Fi Temperature/Humidity Sensor(WTH)

### Features

- Real time monitoring of Temperature/ Humidity data at a remote place through Wi-Fi
- Certification  
- CE, FCC

### Application

- WTH send the Temperature/Humidity data to Server periodically through Wi-Fi
- Real time monitoring use smart phone Application.



# Wireless Weather System, WWS

## Features

- Easy installation
- Real time monitoring of weather data at a remote place
- Various weather sensor support
- Weather Information Type : Wind Direction, Wind Speed, Temperature, Humidity, Rainfall
- Operation Temperature : -20°C ~ +60°C
- Wireless device
  - 1) RF Performance : Up to 3km (Expected Line-of-Sight Range)
  - 2) CE

## Power

- 12Vdc

## Waterproof

- IP66

## Option

- Date Logger
  - 1) Analog Input 8Ch
  - 2) SD Memory Card Slot
  - 3) GPS Receiver
- Solar Power System
  - 1) Power Controller
  - 2) Solar Cell
  - 3) Rechargeable Battery



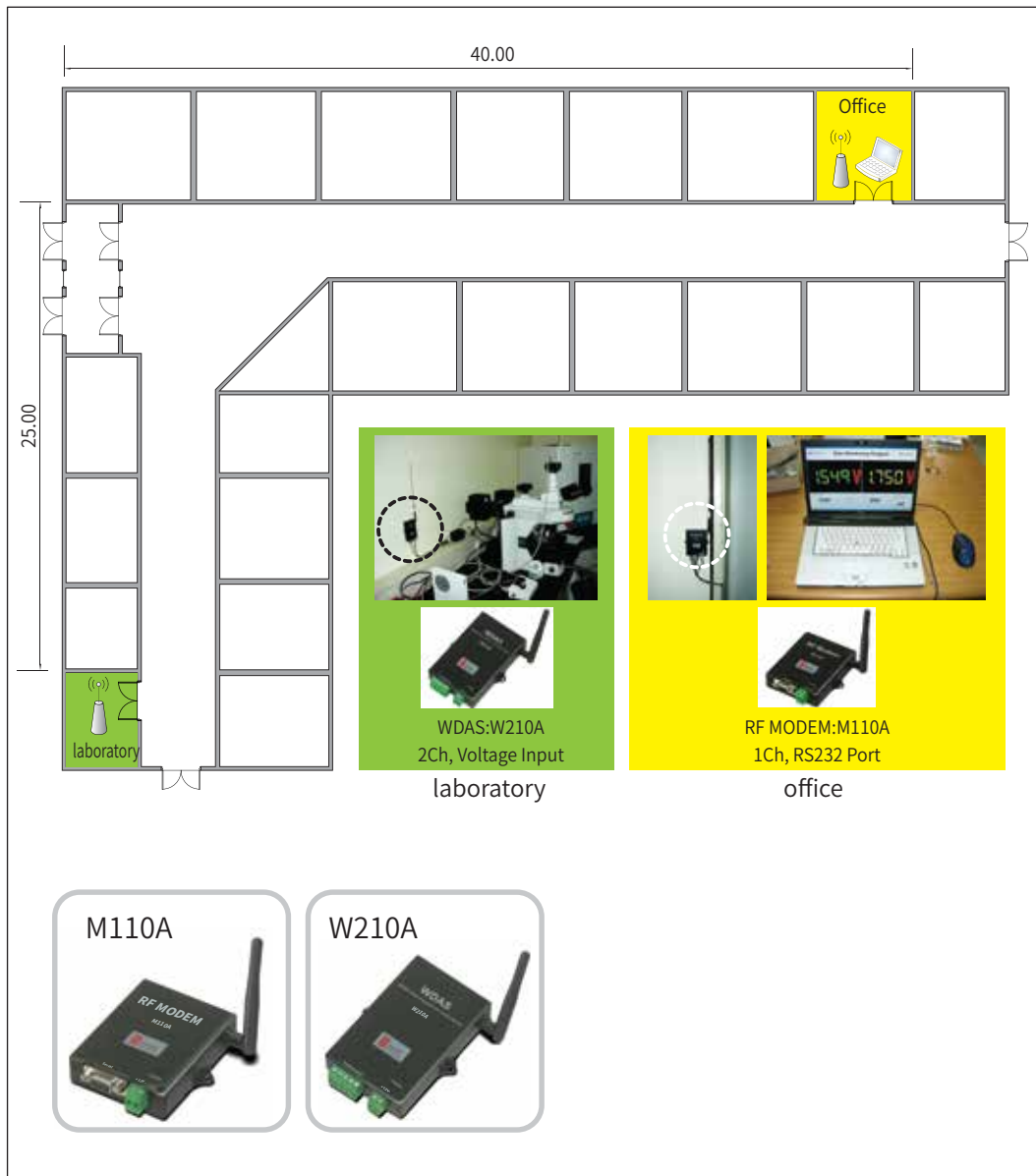
# System Operation Examples



# Real-time monitoring of measurement data

- Data : Measurement data in the laboratory(Voltage signal : 0~5Vdc, 2Ch)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A)
- Data Transmitter : WDAS(SEBINE Technology, Inc., W210A)
- Installation Place : Korea Institute of Machinery & Materials(KIMM)

- Real-time monitoring in the office by wireless for measurement data
- All doors are steel doors
- The office is a sandwich panel plate
- Wireless receiving distance is (40m + 25m)

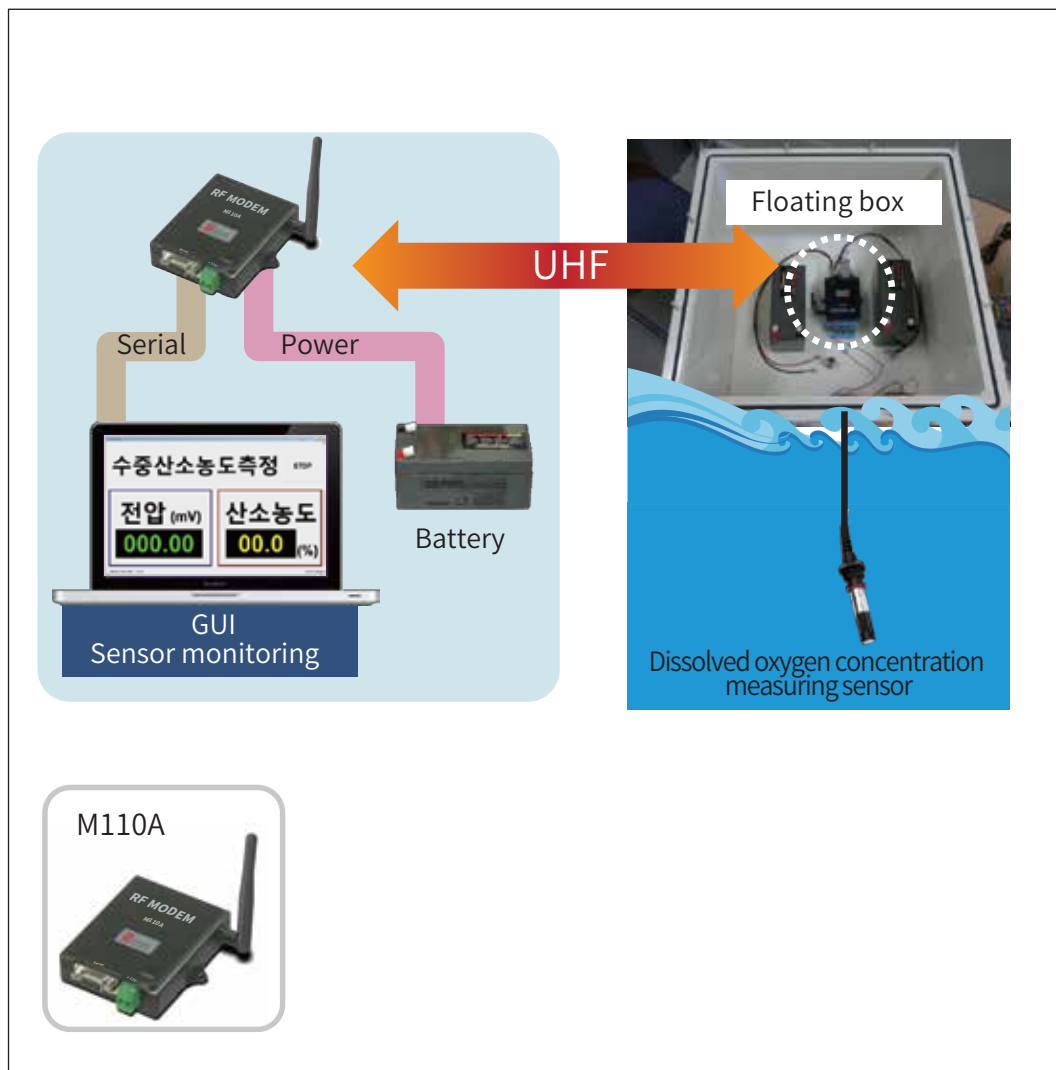




## Real-time monitoring of dissolved oxygen concentration

- Data : Dissolved oxygen concentration measuring sensor (Voltage signal : 0~60mV)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A)
- Data Transmitter : RF MODEM(SEBINE Technology, Inc., M110A)+ ADAM4117(Analog Input Module)
- Delivery : Korea Institute of Machinery & Materials(KIMM)

- Real-time monitoring by wireless for dissolved oxygen concentration measuring sensor data
- M100A, ADAM4117 and Battery installed in the water floating(waterproof) box



## Real-time monitoring of LED lighting conditions

- Data : Serial data(Illumination, Ambient temperature and Power/Voltage/Electric current)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A)
- Data Transmitter: RF MODEM(SEBINE Technology, Inc., M110A)
- Installation Place : Daejeon Gaodong Post office, Jeju International Airport, Climate Energy Center

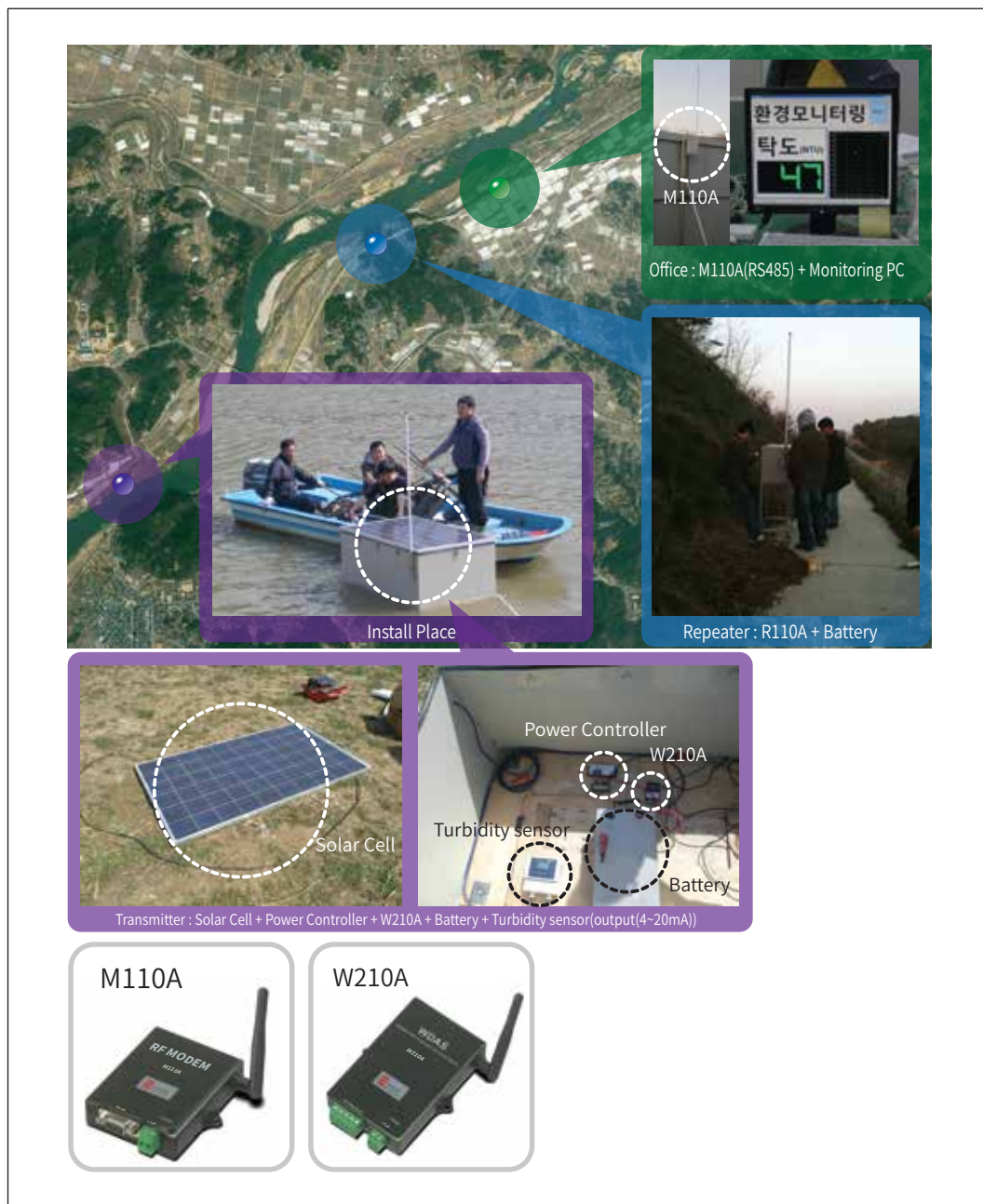
- Real-time monitoring by wireless for LED lighting conditions



## Real-time monitoring of river environment conditions

- Data : Turbidity sensor signal (Analog signal : 4~20mA)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A)
- Data Transmitter : WDAS(SEBINE Technology, Inc., W210A)
- Installation Place : GS Engineering & Construction Corp. - Kum River

- Real-time monitoring in the office by wireless for turbidity values of river
- Line of sight 4km, install a repeater(R110A) blocked in the mountains



## Real-time monitoring and control of water supply line

- Data : Serial data(Flow data, Water valve control data(On/Off))
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A)
- Data Transmitter : RF MODEM(SEBINE Technology, Inc., M110A)
- Installation Place : Seosan-si, Chungcheongnam-do, Korea

- Real-time monitoring in the office by wireless for amount of water used
- Enable effective management of the water supply



Valve control + M110A



Flowmeter + M110A





# Real-time monitoring of greenhouse conditions

- Data : Temperature/Humidity
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A) + Panel PC
- Data Transmitter : Temperature/Humidity sensor + RF MODEM(SEBINE Technology, Inc., M110A)
- Installation Place : Perilla leaf green house, Chubu-myeon, Geumsan-gun

- Real-time monitoring in the farmer's house by wireless for greenhouse inside temperature and humidity



## USN composite network in flowmeter calibration center

- Zigbee network : Acquisition data(Temperature/Humidity data, Flowmeter)
- UHF network : Acquisition data(Water lever, Valve opening rate, pressure, Valve on/off, Flowmeter, Temperature/Humidity)
- Wi-Fi network : IP Camera
- Installation Place : Korea water Resources Corporation(K-water) Institute/Flowmeter calibration center

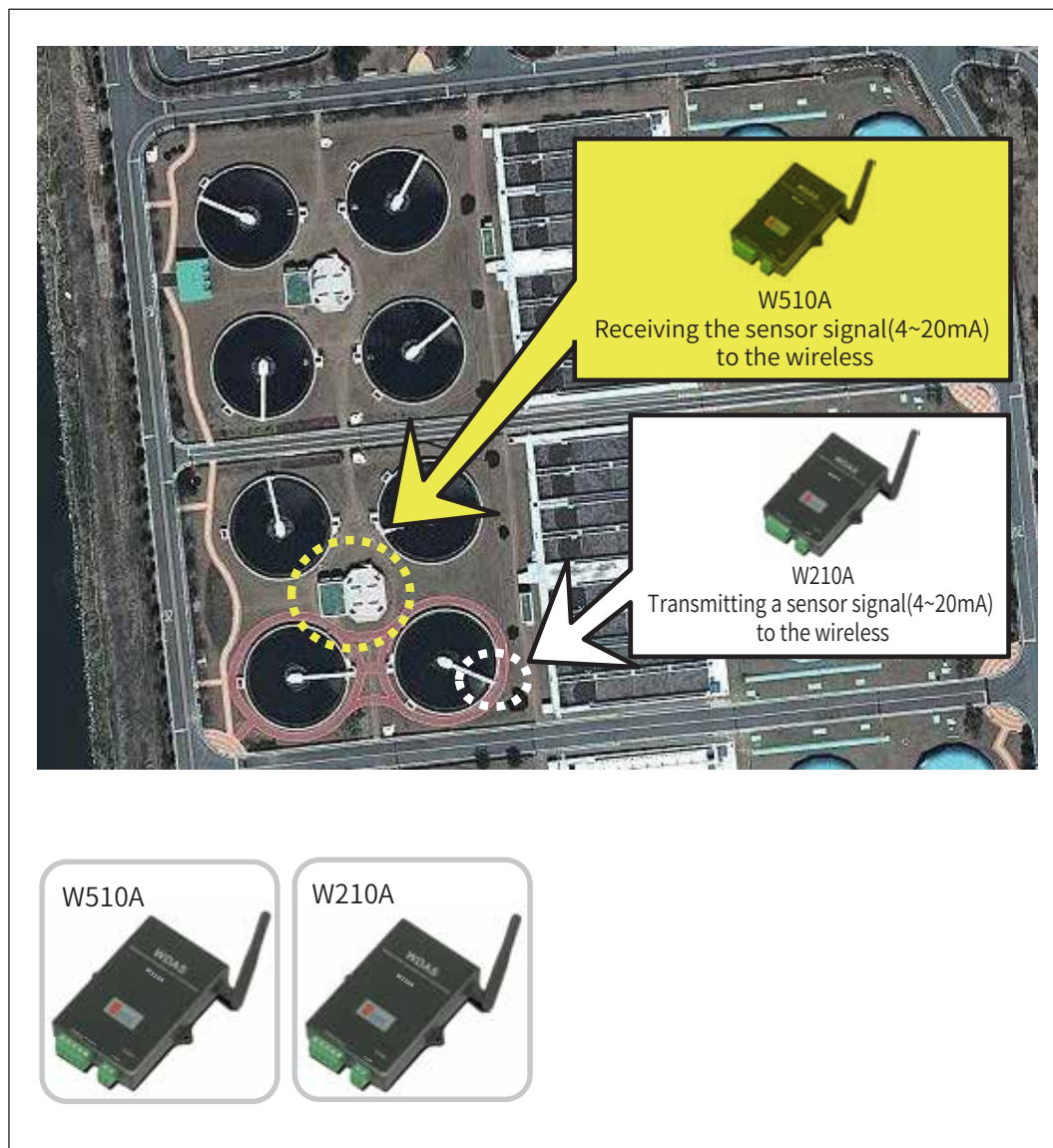
- Real-time monitoring of data and image by internet or smartphone
- Zigbee(2.4GHz) and UHF(433MHz) based system



## Real-time monitoring of sludge depth measurement

- Data : Sludge depth measurement sensor data(Signal signal : 4~20mA)
- Data Receiver : WDAS(SEBINE Technology, Inc., W510A)
- Data Transmitter : WDAS(SEBINE Technology, Inc., W210A)
- Installation Place : First Sewage Treatment Plant in Suwon Environment Affairs Agency

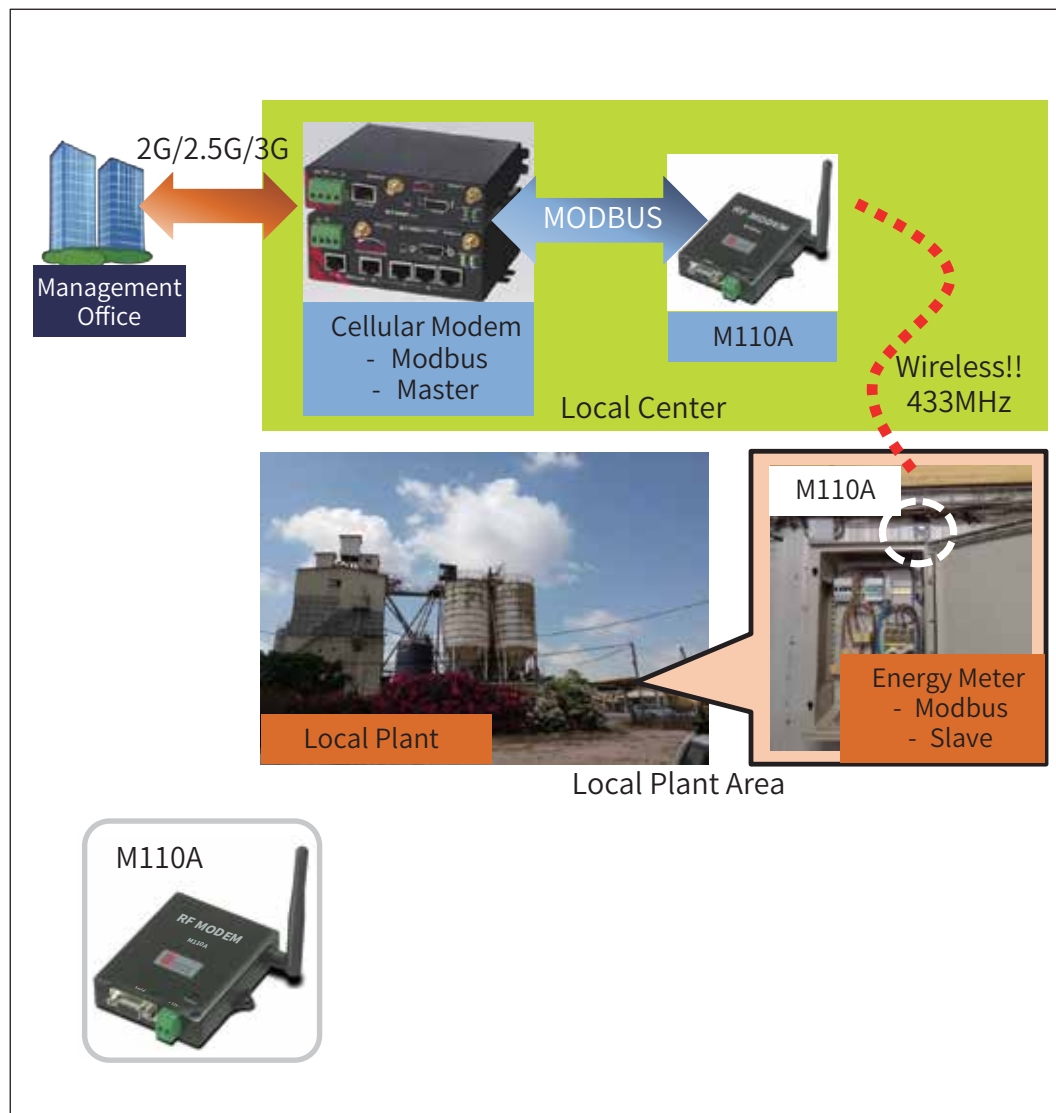
- Real-time monitoring of sludge depth
- Line of Sight 400m



## Real-time monitoring of amount of electricity used

- Data : Serial data(Wattmeter data)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A) + Cellular Modem
- Data Transmitter : RF MODEM(SEBINE Technology, Inc., M110A) + Energy Meter
- Installation Place : North of Israel Area

- Real-time monitoring in management office by wireless for amount of electricity used by the local plant
- The collected local plant electricity used data is sent to the local center via M110A
- The collected data is being transmitted to the Management Office via the 2G/3G network





## Real-time monitoring of docking facility weather conditions

- Data : Wind Direction/Speed sensor(Analog signal : 4~20mA)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A)
- Data Transmitter : RF MODEM(SEBINE Technology, Inc., M110A)
- Installation Place : Docking facility in SK oil refinery

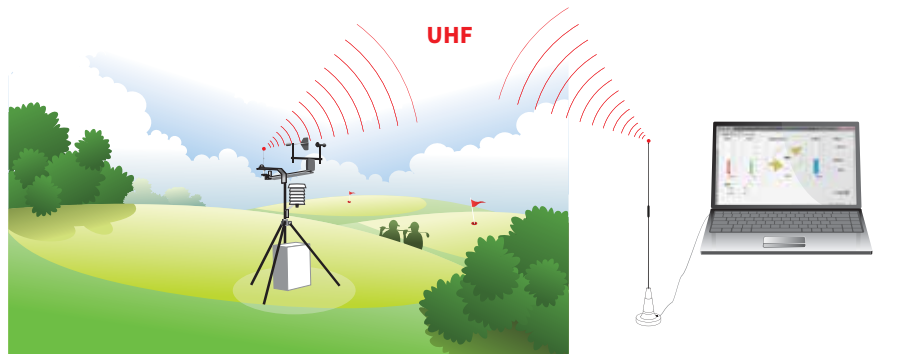
- Real-time monitoring in the office by wireless for docking facility weather conditions
- Lind of Sight 700m



## Real-time monitoring of golf course weather conditions

- Data : Serial data(Wind direction/speed, Rainfall/Snowfall, Solar radiation, Temperature/Humidity)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A)
- Data Transmitter : RF MODEM(SEBINE Technology, Inc., M110A)
- Installation: Anyang benest golf course, Iksan bearriver golf course

- Real-time monitoring in the office by wireless for golf course weather conditions for grass



### Install Place

Anyang benest



Iksan bearriver



M110A



## Real-time monitoring of park weather conditions

- Data : Serial data(Wind direction/speed, Rainfall, Pressure, Temperature/Humidity)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A)
- Data Transmitter : RF MODEM(SEBINE Technology, Inc., M110A)
- Installation Place : Gwacheon National Science Museum Ecological Park

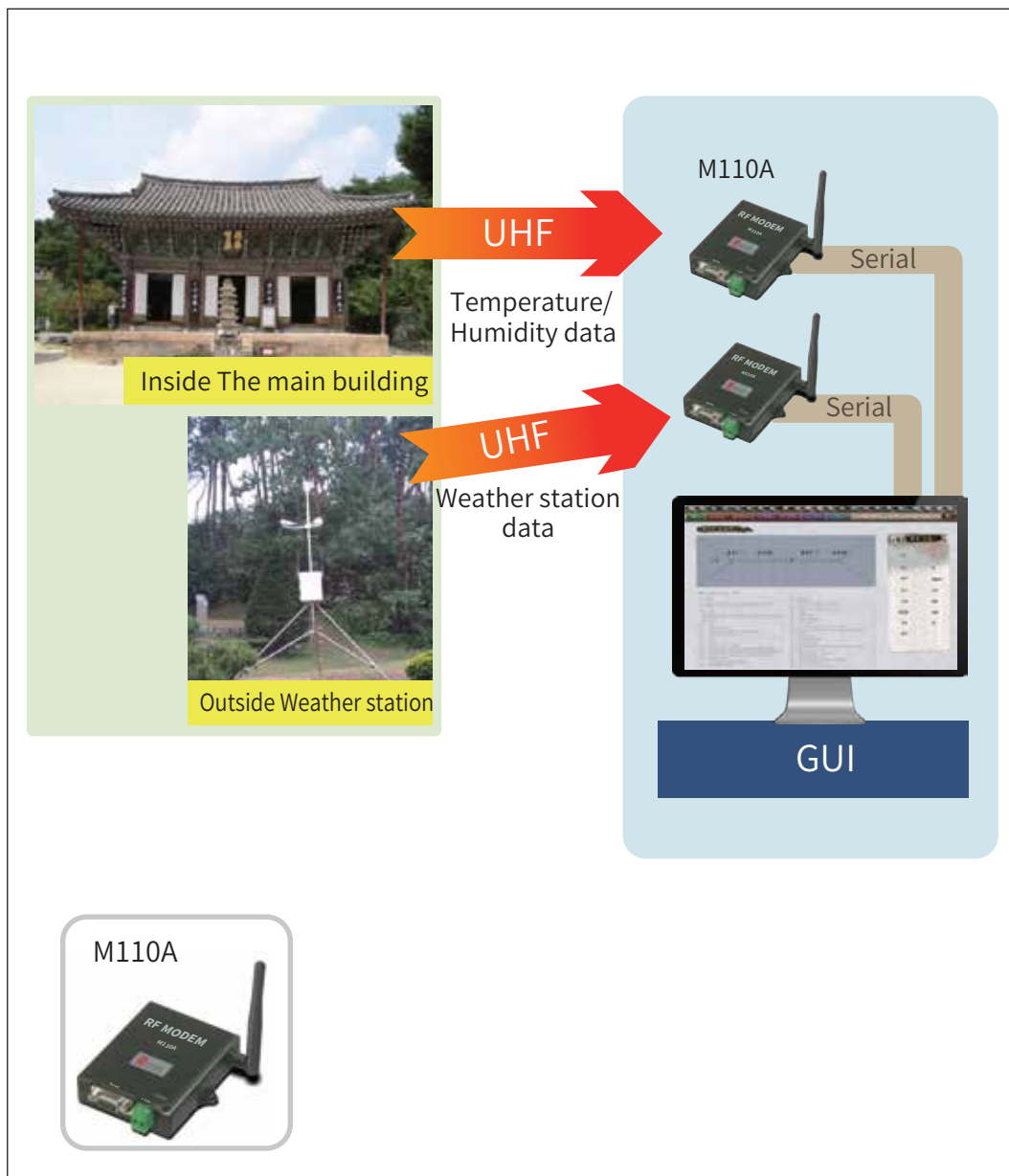
- Real-time monitoring in the museum office by wireless for ecological park weather conditions



## Real-time monitoring of the temple environment conditions

- Data : Serial data(\*Outside→Visibility, Temperature/Humidity, Wind Direction, Wind Speed, Rainfall  
\*Inside→Temperature/Humidity)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110A)
- Data Transmitter : RF MODEM(SEBINE Technology, Inc., M110A)
- Installation Place: The main building of a Silleuksa Temple

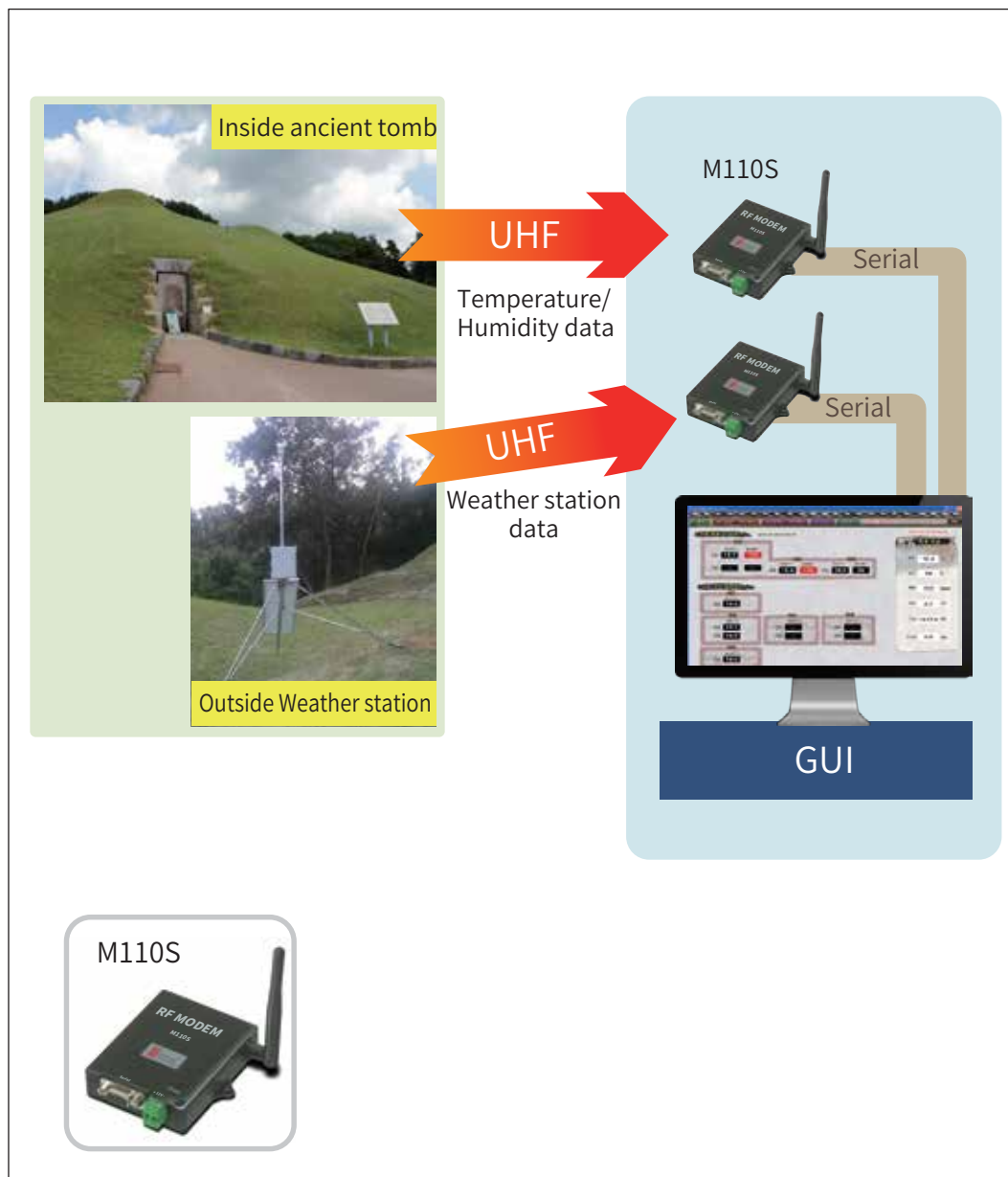
- Real-time monitoring in the office by wireless for temples outside environment conditions
- Real-time monitoring in the office by wireless for the main building of a temple internal Temperature and humidity conditions



## Real-time monitoring of the ancient tomb environment conditions

- Data : Serial Data(\*Outside→Temperature/Humidity, Wind Direction, Wind Speed, Rainfall  
\*Inside→Temperature/Humidity)
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110S)
- Data Transmitter : RF MODEM(SEBINE Technology, Inc., M110S)
- Installation Place : Goahri Tombs(Goryeong), Neungsanri Tombs(Buyeo), Songsanri Tombs(Gongju)

- Real-time monitoring in the office by wireless for ancient tomb outside environment conditions
- Real-time monitoring in the office by wireless for ancient tomb internal environment conditions



## Real-time monitoring of cultural assets environment conditions

- Data : Temperature/Humidity
- Data Receiver : RF MODEM(SEBINE Technology, Inc., M110S)
- Data Transmitter : UHF Temperature/Humidity Sensor(SEBINE Technology, Inc., UTH)
- Installation Place : Haeinsa Temple Janggyeong Panjeon, the Depositories for the Tripitaka Koreana Woodblocks

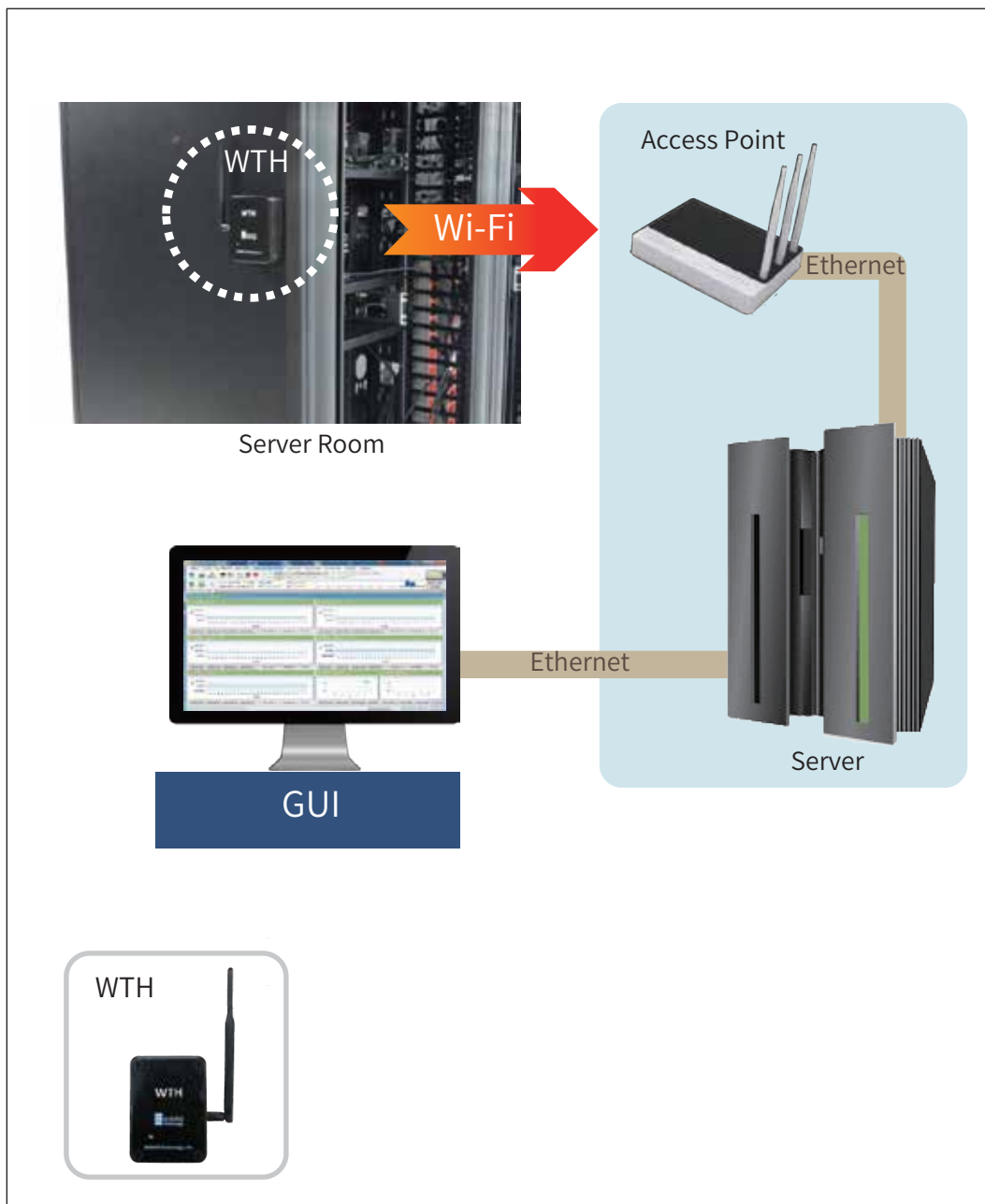
- The UTH transmit the temperature/humidity data of the internal Panjeon periodically to M110S  
- Temperature/Humidity data is stored in the server, the real-time data displayed on a Web page



## Real-time monitoring of server room environment conditions

- Data : Temperature/Humidity
- Data Receiver : Access Point(IpTime)
- Data Transmitter : Wi-Fi Temperature/Humidity Sensor (SEBINE Technology, Inc., WTH)
- Installation Place : Server Room, Patent Court Of Korea

- The WTH transmit the temperature/humidity data of the server room periodically to Access Point
- Display temperature/humidity data stored on the server







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