

# Advantech Smart Condition-based Monitoring Solution in Compressed/Clean Dry Air (CDA) System



Location: **Taiwan**

## Background

In a competitive semiconductor industry, where high volume and maximum efficiency mean everything, a high reliable wireless technology used in remote facility monitoring application may be a suitable processing aid.

Compressed/clean dry air (CDA) is employed in fabs to drive pneumatic components of manufacturing process equipment, control valve functioning, or clean materials/equipment. To smooth the manufacturing processes, CDA system must be monitored by facility maintenance department.

## System Requirements

Customer required a plug and play, remote facility monitoring, controlling and inspection wireless solution. To achieve this goal, we provided industrial LoRaWAN solution which includes WISE-2410 vibration sensor for compressor inspection, WISE-4610 LoRaWAN I/O module with its WISE-S617 flexible I/O, and WISE-2200-M LoRaWAN RS-485 I/O module for facility current monitoring on CDA systems in Taiwan semiconductor manufacturing fabs.

## Project Implementation



**WISE-6610**  
Hardened LoRaWAN  
8-Channel Gateway



**WISE-2200-M**  
LoRaWAN RS-485  
I/O Module



**WISE-2410**  
LoRaWAN Wireless  
Vibration Sensor



**WISE-4610**  
LoRaWAN  
IoT Wireless  
Modular I/O



**WISE-S617T**  
2AI/2DI/1DO  
Wireless Modular  
I/O with 1RS-485



**96PD-THS16B**  
Temperature &  
Humidity Sensor



**ICR-4453**  
Ultra High-Speed  
5G Router &  
Edge Computing  
Gateway

## System Description

To build a reliable and cost effective private LoRaWAN network for CDA systems and cooling tower, Advantech leverages LoRaWAN vibration sensor, LoRaWAN I/O modules, and LoRaWAN gateway with detailed functions as below.

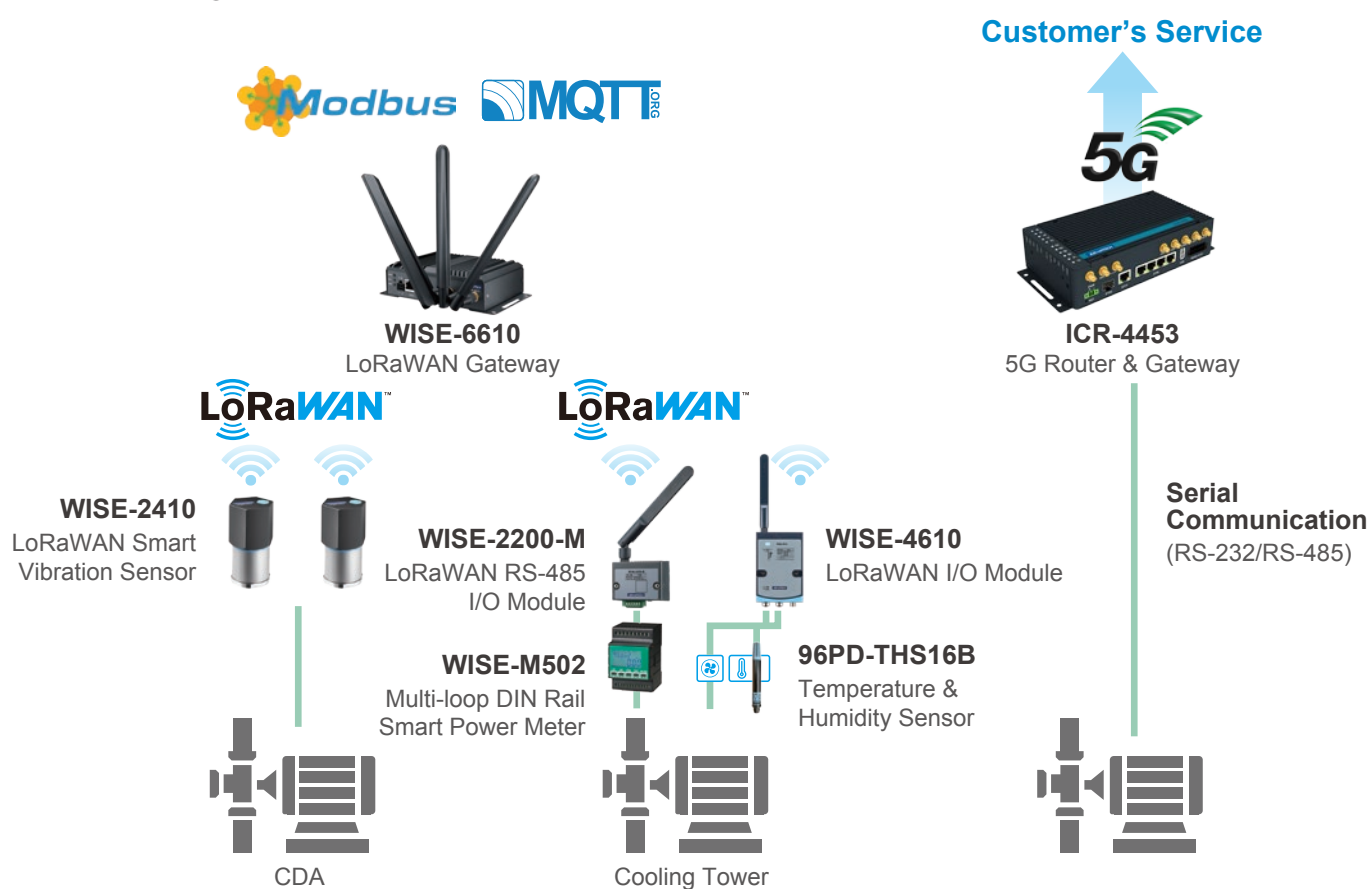
WISE-2410 offers an easy way for rotating facility inspection application by following ISO-10816 standard. Moreover, WISE-2410 also supports 3-axis vibration detection and with IP66 rating, wide temperature design can conquer harsh environment where compressed Clean Dry Air (CDA) system is located.

WISE-2200-M is a plug-and-play LoRaWAN RS-485 I/O module that allows users to easily configure data acquisition settings and capture sensor and meter data via its Modbus/RTU protocol support. Its wide temperature range (-25~70°C) allows the device to operate in extreme industrial environment.

WISE-4610 with its' WISE-S617 flexible I/O solution fulfill different kinds of remote facility monitoring and controlling application. It has DO for switch control and has AI/DI/RS-485 channels for sensor and PLC connection.

WISE-6610 is a LoRaWAN gateway which supports Modbus TCP protocol connecting to the SCADA system in the control room.

## System Diagram



## Why Advantech?

Advantech LoRaWAN solution provides an easy, reliable and cost-effective private network for different kinds of facility monitoring application in semiconductor industry. Thanks to the key features such as long-range and high penetration of LoRaWAN technology, combined with the easy installation and flexible configuration offered by WISE series products, users can not only enjoy stable network signals and transmission speeds, but also quickly complete the deployment of facility management with a high cost-performance ratio.