

Advantech Energy Application Kit



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Smart Monitoring Solution for Solar Panels



Location:
Japan



Company:
NWC Network Corporation

Interview with:
Shintaro Magoshi, President &
Representative Director, NWC

“The knowledge gained from using ADAM-3600 and Edgeline has enabled us to propose various IOT and remote management projects.”

Shintaro Magoshi, President & Representative Director, NWC

Overview:

NWC partnered with a client that generates and sells electricity serving residential, commercial, and industrial customers, who needed a wireless gateway solution to communicate between the site and the monitoring center.

Challenges / Requirements:

- Remote monitoring and controlling the amount of electricity produced by solar panels.
- A wireless gateway solution to communicate between the site and the monitoring center.
- The durability under the operating temperature range (-40°C to 70°C)

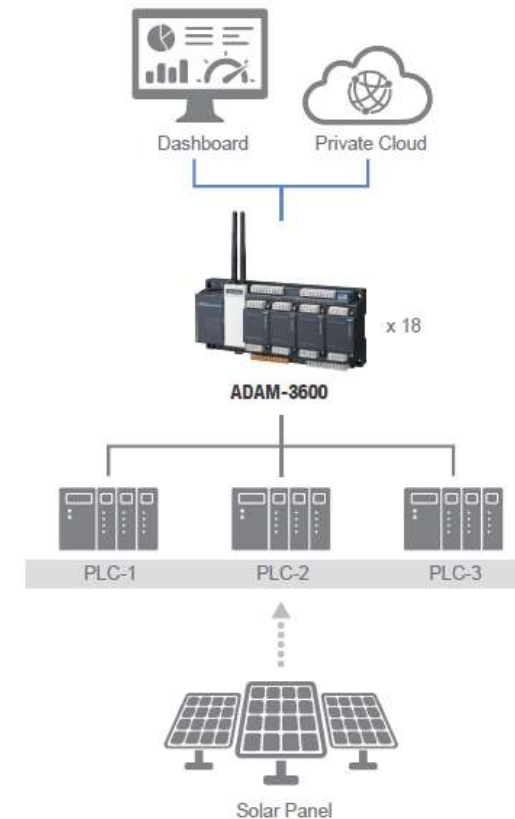
Solution :

The ADAM-3600 monitors the power generated from the solar panels as it met the client's criteria, and collects power generation data from the solar panels and sends the collected data to the cloud using LTE communication.

Benefits:

- More effective real-time monitoring process at a lower operational cost.
- Cost saving of 1 billion yen compared to installing a wired optical network.

System Diagram



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Intelligent PV Plant Monitoring Solution Enhances Operation Management Efficiency

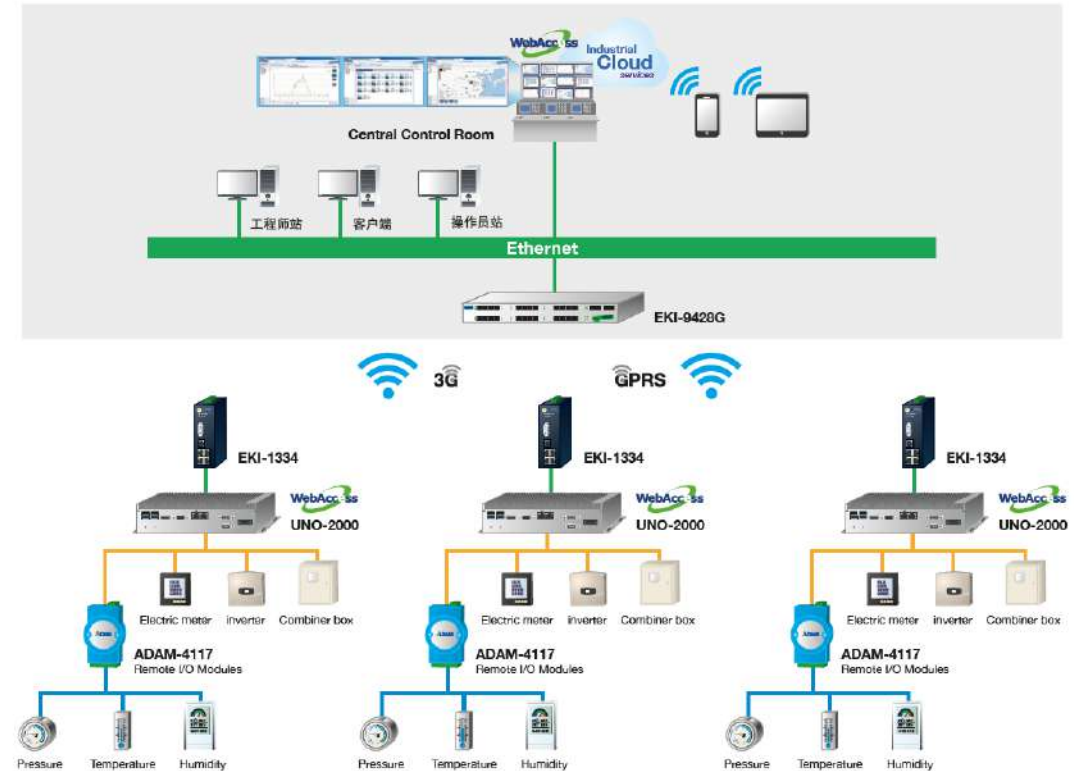


Background

Beijing's air quality is infamous for its lack of breathability. In order to improve public health, the government is encouraging the installation of solar PV (photovoltaic) systems. However, with a growing number and variety of PV installations, centralized management and information integration of each station is increasing difficult to manage.

BOE Technology Group has gradually completed 20 key PV construction projects in the Beijing area. As more and more PV plants come on-line, more manpower and resources are required for regular maintenance and operation management. The company urgently needed real-time monitoring and a unified management platform.

System Diagram

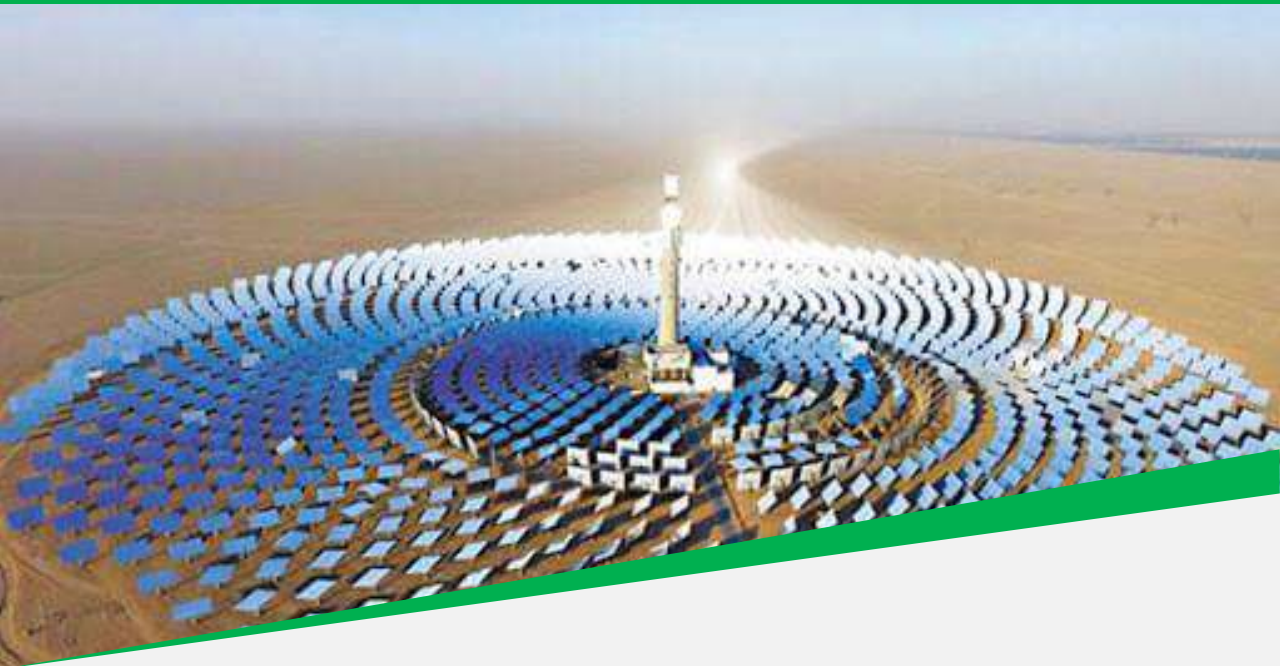


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China Builds Its First Hundred-Megawatt Molten Salt Solar Thermal Power Plant



Background

Project Background & Requirements

- The control center will send instructions to the heliostats arranged in a circular configuration around the tower.
- To fully absorb the maximum amount of solar energy, mirrors are angled according to the sun's movement.
- A highly stable network solution for transmitting control instructions is essential for operation.

Advantech Solution

- Industrial managed switches with backup and management functions are applied for stable and data transmission.
- Network management software updating data to cloud platform enables users to remotely control network devices in real time.

System Diagram



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General Energy Solution (GES) and Advantech Share The Solar Power Monitoring Success with The World



Background

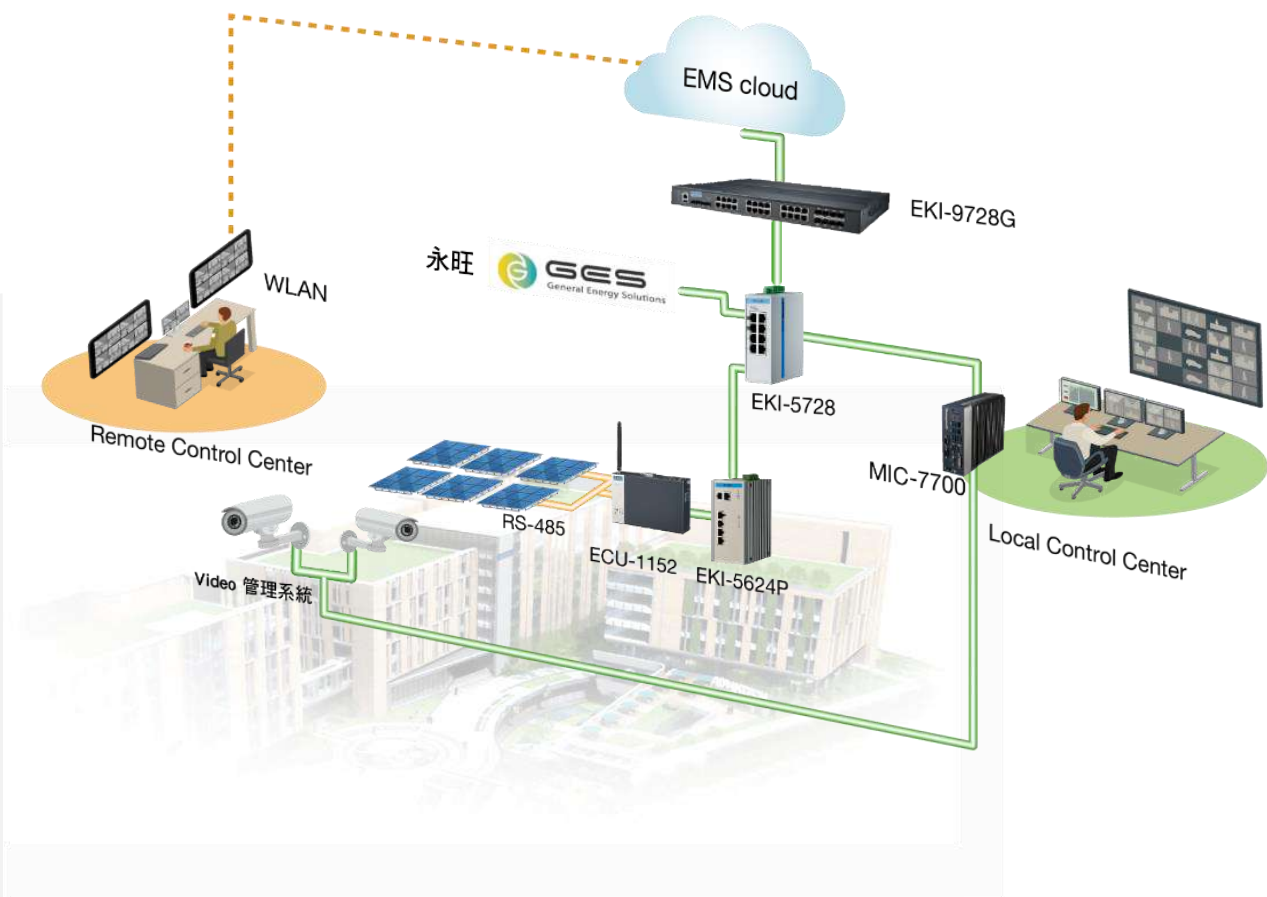
Project Background & Requirements

With many solar generator equipment providers operating in a highly competitive market, communication protocols tend to vary between products. Data collection and transmission thus requires a multi-protocol gateway that unifies energy data on a cloud platform for remote monitoring.

Advantech Solution

Working together, GES set up distributed solar power generators at the Advantech Linkou Smart Campus as a demo cast. Implementing the energy maintenance system (EMS) Cloud, deploying the ECU-1152 gateway, and installing EKI-5624P and EKI-5728 unmanaged Ethernet switches to transfer data to the MIC7500 central monitoring system enabled remote monitoring with immediately visible data.

System Diagram



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Advantech Wind Turbine Monitoring and PHM Solution Enhances Remote Management for Offshore Wind Farms



Background

Although offshore wind farms rely on remote monitoring systems for managing O&M, many system can only monitor the status of wind turbine and transmit alerts when anomalies occur, and operators must send personnel for repairs after they receive alerts. Therefore, Advantech provides related integrated solutions:

- The edge computing layer: a hardware platform collected wind turbine information and performed data pre-processing and data format conversion before connecting to the IIoT cloud.
- The cloud PaaS layer: an open PaaS layer IoT cloud platform offered convenient access to wind turbine information for software. A data visualization tool allowed the user to design dashboards.

System Diagram



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Integrated Energy System Management Solutions Proves Crucial in Energy Efficiency

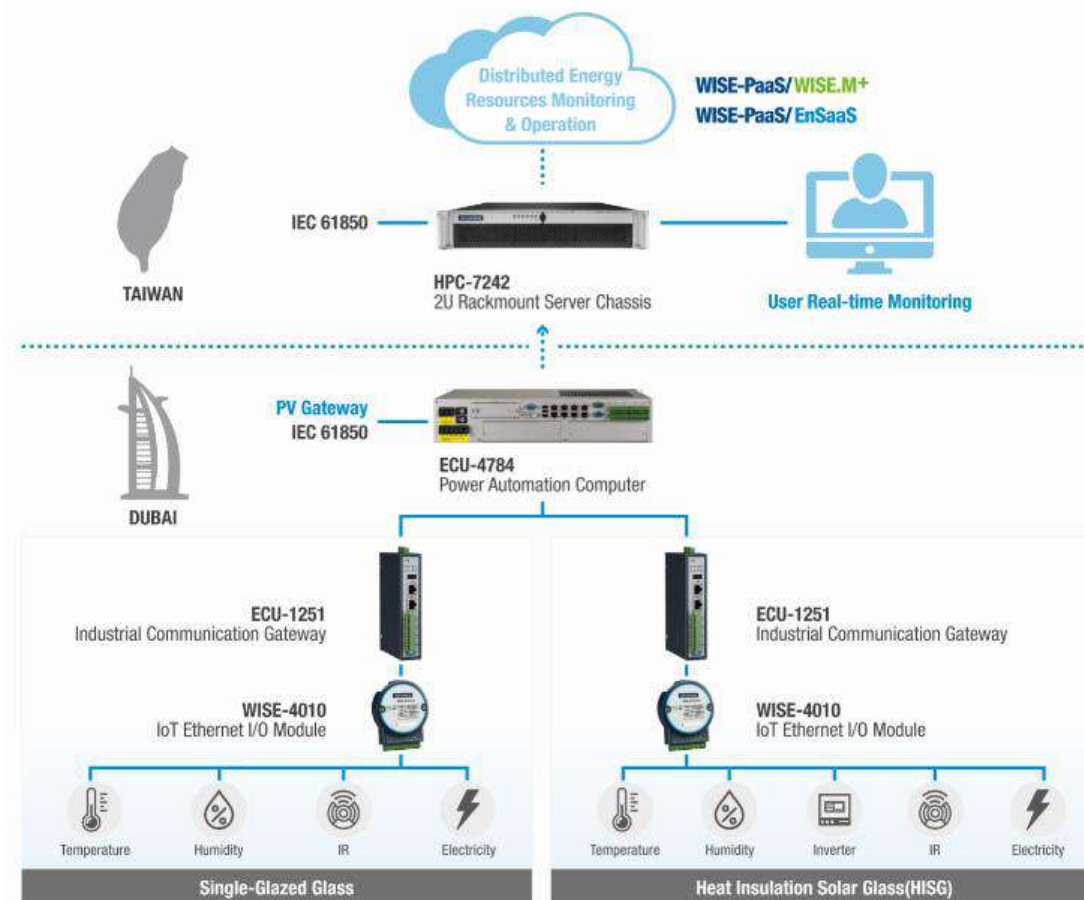


Background

Two display facilities (one equipped with heat insulation sola glass, and another with single-glaze glass) were built for comparison to determine how well they allowed light to penetrate, how much electricity they produced, and how effective they were in blocking heat, in relation to conventional types of glass. To analyze how the experiment proceeded, a monitoring system was adopted to watch the facility remotely while ensuring the system functioned normally in a climate where temperatures could reach as high as 45C. The operator could check the device as it generated power in a timely manner and assess whether it was doing its job properly – in turn reducing electricity usage and costs.

- Cloud remote real-time monitoring
- Shortening the development timeline
- Durable hardware capable of withstanding under hash environment

System Diagram



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Advantech Assists Myanmar Supercenter in Building SCADA Electricity Monitoring System

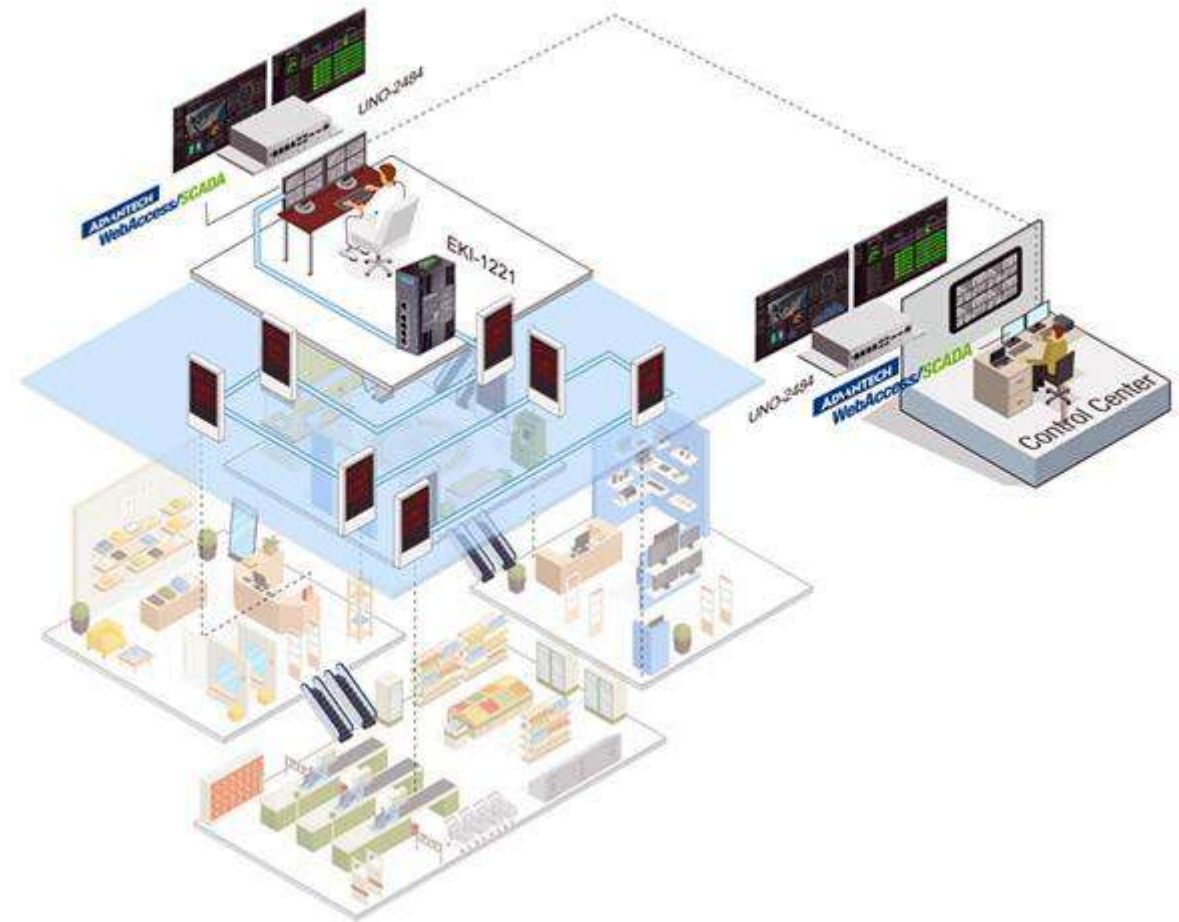


Background

In 2019, the Myanmar government announced universal electricity price increases, and many Myanmar corporations now face bill increases of nearly 50%. Therefore, many traditional Myanmar companies are eager to find solutions to optimize their electricity consumption but they face a big issue—that is, professional know how to integrate industrial software and hardware.

DigiNET, a famous Myanmar technology company, decided to employ Advantech's hardware and software services. They chose the EKI-1221 gateway and WebAccess / SCADA software platform to create an electricity monitoring system in the DGSK mall. This allowed City Properties to better supervise electricity consumption at each of their shopping centers and helped them meet their energy efficiency targets.

System Diagram



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Lighting Monitoring Improves Energy Conservation and Efficiency

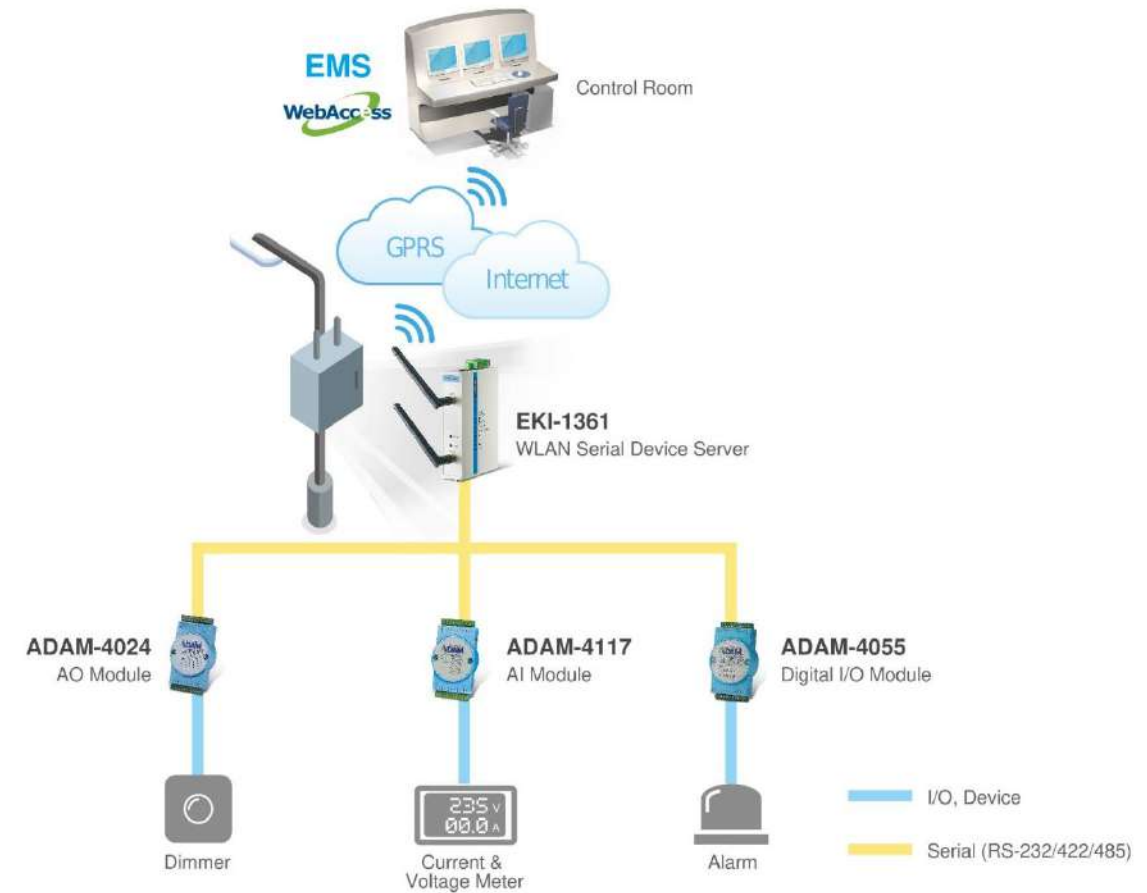


Background

Rapid urbanization in China has improved the social economy and people's living standards. Without exception, such developments bring greater demand for city street lighting, which, in addition to enhancing the image of the city and improving the urban environment, results in a substantial increase in energy consumption.

In China, Shenyang City's renovation project for energy-efficient road lighting adopted a contract energy management model. This green lighting project was aimed at replacing high energy-consumption lamps with LED lamps on selected roads and plazas.

System Diagram



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Smart Monitoring System for Taiwan's First Micro-Biomass Power Plant



Location:
Taiwan



Company:
Sunforce Technology Co.,
Ltd

Interview with:
Lo Fu-Chih, General Manager,
SunForce

Overview

Advantech and Sunforce collaborate on a smart monitoring system for micro-biomass power plant

Requirements:

- Reducing labor expenses and equipment failure rates while increasing power generation
- Performing scheduling and cascade control to create standard operating procedures aimed at achieving remote monitoring and real-time management

Solution:

This monitoring system uses several Advantech solutions – ADAM-5560KW (a PAC), IPC-610 (an industrial computer), WebAccess/SCADA (a remote monitoring program), and Advantech cloud-based industrial IoT platform

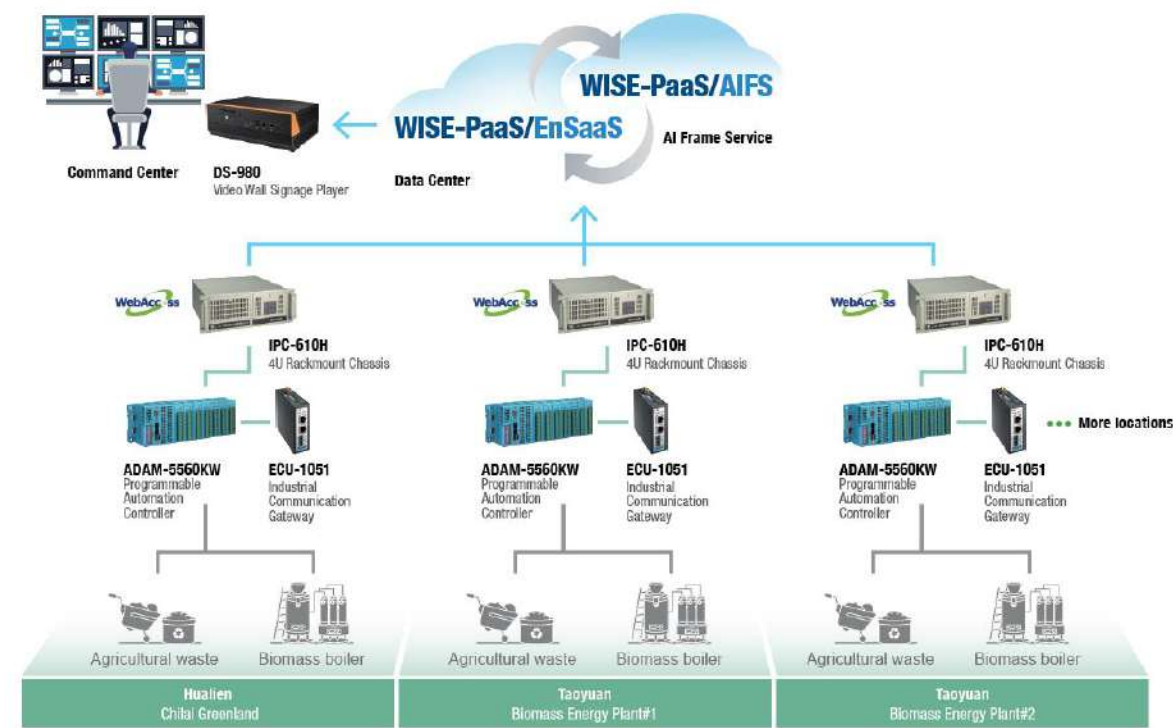
Benefits:

- Reducing the time and labor needed for implementation
- SunForce has used this system to develop more than ten SCADA monitoring systems for other projects

“The quality and comprehensiveness of our services have long been recognized by our clients because we can always exceed their expectations, which also makes us stand out from our competitors. We anticipate our colleagues to strive for superiority – This is our core value and serious commitment to the clients. The demands from our clients are always our priority and the most important driving force for our improvement”

Lo Fu-Chih, General Manager, SunForce

System Diagram



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in Perspective



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