

**Energy &  
Environment**

# Industrial IoT Cloud-Based Monitoring & Operating Platform

Empowering Smart Business Transformation  
with WISE-PaaS/WISE.M<sup>+</sup>

- / Why WISE-PaaS/WISE.M<sup>+</sup>?
- / Business Value of WISE.M<sup>+</sup>
- / Enhanced Engineering Implementation
- / Application Scenarios
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**ADVANTECH**

*Enabling an Intelligent Planet*

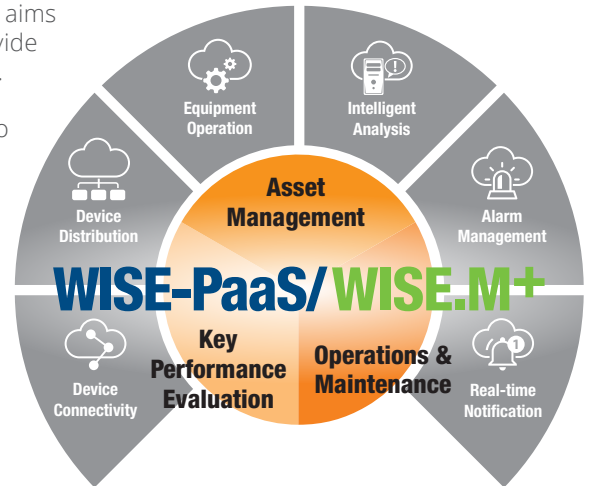
**WISE-PaaS/WISE.M<sup>+</sup>**



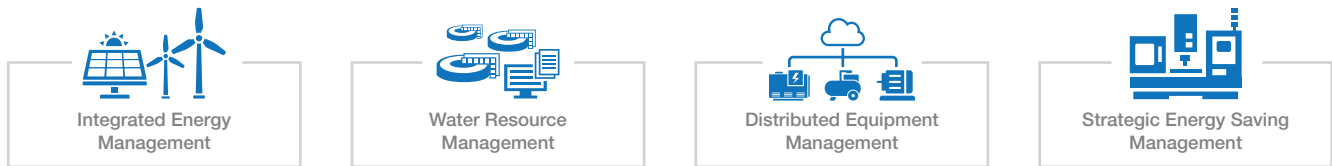
# Realizing Industrial IoT Business Development

## Why WISE-PaaS/WISE.M+ ?

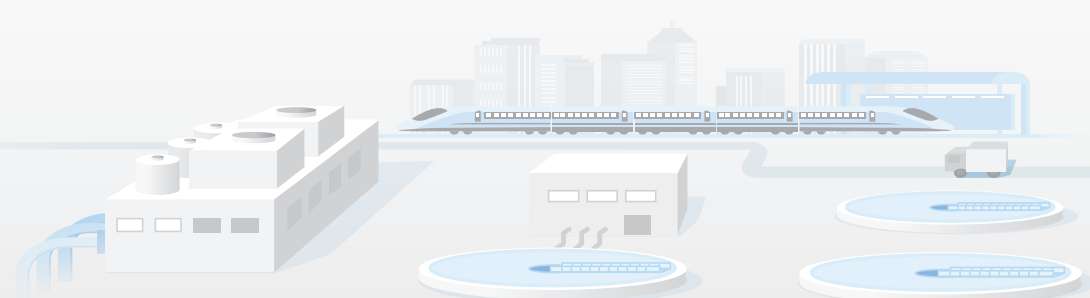
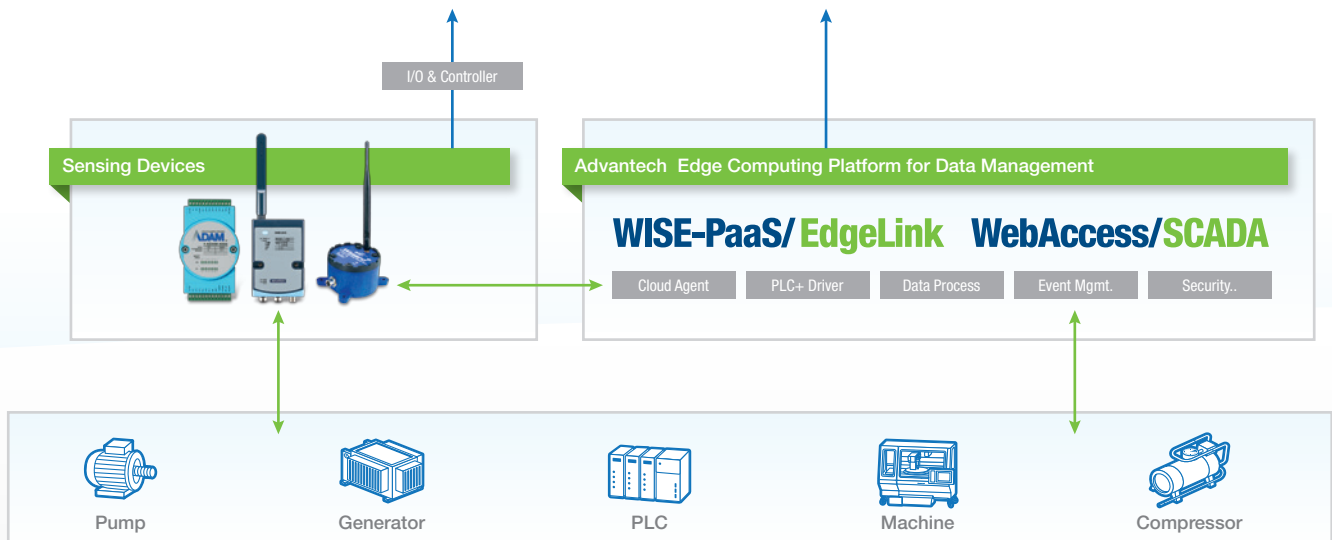
WISE-PaaS/WISE.M+ is an open cloud-based industrial IoT platform that aims for real-time monitoring and optimized operations management to provide smart equipment management that helps businesses enjoy IoT success. Acquiring data, getting devices connected to the cloud, and performing big data management and analysis are all crucial aspects to consider. To achieve this goal, Advantech developed WISE-PaaS/WISE.M+ services to facilitate deployment, configuration, and direct access to these equipment to improve overall performance and efficiency and enable seamless business digital transformation.



## How Does WISE-PaaS/WISE.M+ Work?



# WISE-PaaS/WISE.M+





## Challenges for Managers

Imagine how many devices and pieces of equipment there are across an entire building. Getting a few devices connected and managed might not sound too difficult. In fact, managing multiple equipment presents numerous challenges. How can we manage these equipment intelligently? Who should be authorized to manage them? How can we maintain them? To address these questions, Advantech's WISE-PaaS/WISE.M<sup>+</sup> was designed to make it simple for businesses to manage connected equipment and help facilitate successful digital transformation.



### Hierarchical Key Performance Index Management

- Straightforward KPI monitoring and comparison
- Clear roles and responsibility (R&R) over equipment management
- Enhance risk assessment control with aid of stacked indexes via dashboard visualization



### Comprehensive Equipment Management

- Concise equipment effectiveness monitoring
- Visualized operation status as well as prompt assignment monitoring
- Proactive decision making over equipment depreciation

## Challenges for Engineers

In order to accelerate IoT development for digital transformation, many new systems and integrated solutions are being rolled out. Trying to understand the implementation process from engineers can be time-consuming with numerous complicated procedures, regardless of whether you are using an existing or new system. Advantech WISE-PaaS/WISE.M<sup>+</sup> aims to take the complexity out of implementation procedures, with a focus on strategy and planning. Engineers can spend less time sifting through raw data and more time improving the reliability and performance of equipment or devices.



### Equipment Status Management

After simple steps to get equipment connected, the equipment status and respective alarm can be monitored in no time, making operation management configuration clear and easy.



### Equipment Profile Management

Profile templates for equipment in terms of customer defined objects can be stored and used over and over upon site setup once equipment is connected.



### Easy Visualization Setup

In practice, visualization of domain focused scenarios become true plug and play. When transmitting data, the domain scenario dashboards obtain data automatically from equipment and objects will be displayed without any extra work.



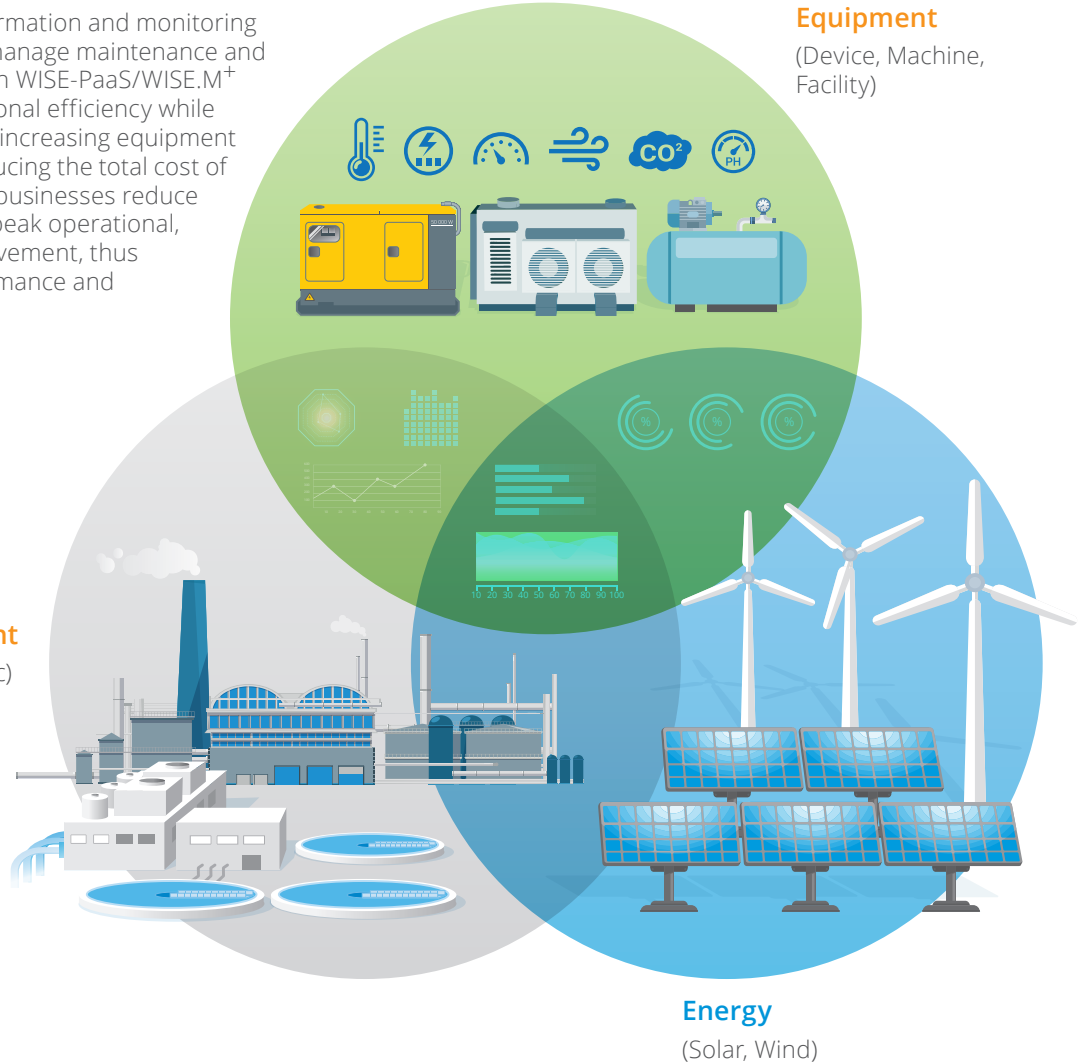
# Creating a More Productive Workforce and Efficient User Experience

## Operation & Maintenance Optimization

Having real-time access to information and monitoring equipment status in order to manage maintenance and operations is critical. Advantech WISE-PaaS/WISE.M<sup>+</sup> is designed to improve operational efficiency while optimizing maintenance costs, increasing equipment reliability and stability, and reducing the total cost of ownership. Our goal is to help businesses reduce unplanned downtime, ensure peak operational, and continuous process improvement, thus maximizing operational performance and maintenance management.

### Distributed Equipment

(Device, Machine, Facility)

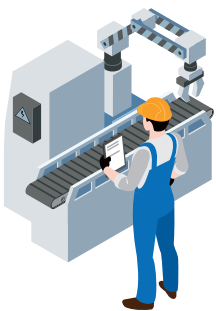


### Environment

(Water, Air, etc)

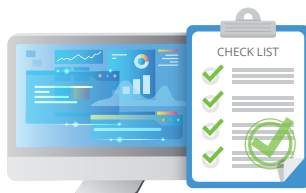
### Energy

(Solar, Wind)



### Operation

- Simplified engineering allows for time savings via cross-functional visibility, consolidated reporting, and improved overall workforce productivity
- Ensure equipment deliver maximum value at minimum cost while operating in a safe and environmentally responsible manner, from operational predictive and prescriptive analytics, to equipment reliability, process safety, and integrity management programs




### Maintenance

- View equipment condition data and trends on the dashboard to analyze and strategically plan inspections and maintenance
- Prognostics and health management for reduced equipment downtime

## Comprehensive Equipment Management

	Manager	Operator	IT Manager
Portal	✓		✓
Dashboard	✓	✓	✓
Organization	✓		



### User Authentication and Hierarchical Organization Management

- Each user ID can have its own unique set of accessible modules, menus, and data entry options. You can also create authorization groups in order to apply the same authorization settings to multiple users.
- Setup your own login verification processes per IP address, business hours, and more. User IDs with a unique set of accessible entry options can be created for multiple users.
- Each company can setup its own login verification process. You can limit access per IP address, business hours, and grant program access to an unlimited number of user IDs.

### Alarm and Event Management

- Real-time monitoring on equipments in WISE.M<sup>+</sup> cloud platform provides early warning alerts and notifications to prevent failure. Businesses will be able to integrate WISE.M<sup>+</sup> front end with their alarm mail servers to provide instant data and alarm events to dedicated owners using the same login portal.



## Key Performance Evaluation



### Group Key Performance Overviews and Management Scorecard

- Achievement rates and detailed performance index for efficiency and effectiveness
- Cost information and power consumption on key equipment
- Managers are able to clearly understand the key indicators of each project on multiple sites

### Excellent Equipment Performance and Digital Transformation

- Strategic business decisions based on real data analytics
- Combinations of microservices to extend customized management platform to accelerate business partnerships
- Optimize the performance of devices and equipment and maximize the value of business investment

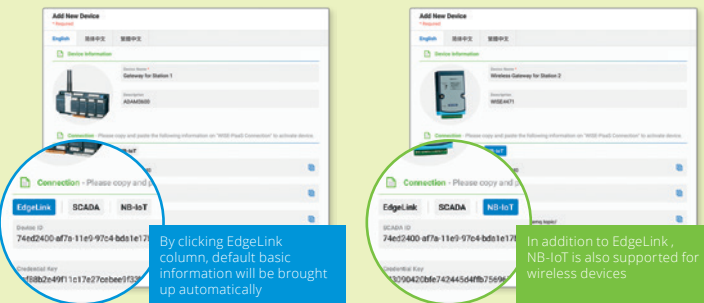


# Enhanced Engineering Implementation

For implementation, there are often requirements to couple with fundamental infrastructure that pose challenges to businesses. WISE-PaaS/WISE. M<sup>+</sup> helps solve engineering issues and shortens the learning curve while connecting key data to cloud services. WISE. M<sup>+</sup> offers a simple way to assist industries in building up their own data relational hierarchies, from scratch, with user-friendly interfaces that allow for status monitoring and visualization as soon as equipment is connected to the network.

## Plug & Play Equipment Connectivity

Whenever a business wants to make their equipments or objects available online for cloud management, complex configuration setup is unavoidable before actual management takes place. WISE.M<sup>+</sup> eliminates complex setups by offering built-in options:



## Make Connectivity Easier Than Ever

Allows business to manage everything from a single piece of equipment to complicated machinery and systems, like a group of generators.



Easy Cloud Connection



Easy Visualization, Configuration, Monitoring, and Management



Easy DFIS Configuration and Operation

## Reduce the Complexity in IoT Deployments

From designing, connecting, and managing equipment, to streamlining integration of data with enterprise data — all with the goal of helping businesses gain actionable insights faster.

- Easy to integrate traditional SCADA & edge devices
- Seamless integration of WISE-PaaS IoT cloud platform

## Object Connectivity & Integrated Service



Data acquisition from factories and sites are scattered at points across the shop floor. They are discrete and the data is meaningless to humans. While engineers configure edge devices, other engineers connect hubs and points to data gateways, which is just a connection of lines over the database or information system. From manager's perspective, these points or lines represent an object. Let's take a pump as an example, the clear simple graphic shows that the object is a pump instead of meaningless dots and lines and this highlights what the WISE.M<sup>+</sup> platform is about. The focus is on simplifying management and the status of the pump, but not the points and lines across the sites.

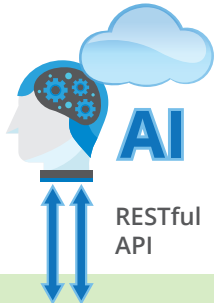


## High Scalability of Devices Connection and Management

Automatically or manually setup the objects via profile templates while configuring edge connections. The profile templates can be configured as public or private templates for administrators to use or reuse, or create more templates based on existing profiles.

## Flexible of Configurations: Events x Grouped Notifications

Alerts can be managed in a variety of ways, and each alert event is also directly linked to a graphical trend for that equipment that shows the event data when the values are in alarm. Relevant users and groups are notified in real time if an equipment is in alert status through WISE-PaaS/WISE.M<sup>+</sup> customizable email notification capabilities.



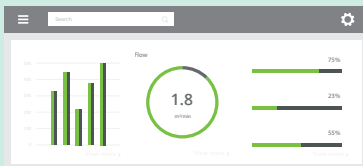
## Dashboard - Data Visualization is Priceless

Data visualization is a way for managers to quickly gain an overview of operations and resource status at all times. WISE.M+ not only provides visualized data output for smart management, but also offers an instinctive user interface with a variety of built-in ready vertical market themes and templates.

### Dashboard Wizard

WISE.M+ allows administrators to directly choose the objects they want to monitor using the dashboard wizard interface. Connecting equipment is easy as shown below with only 2 steps required.

**Step 1:** Choose template for your object



**Step 2:** Associate object, click and save



### Industrial APPs for Domain Markets

With the integration of equipment profiles, dashboard profiles, and templates from all sites, a wide range of frame sets for industrial applications can be created within a short time using WISE.M+. Furthermore, the use of combinations among microservices can help extend customized management for unique portals. The platform contains many frontend and backend microservices connected to databases via APIs. This makes extensions and integration with various domains much easier.



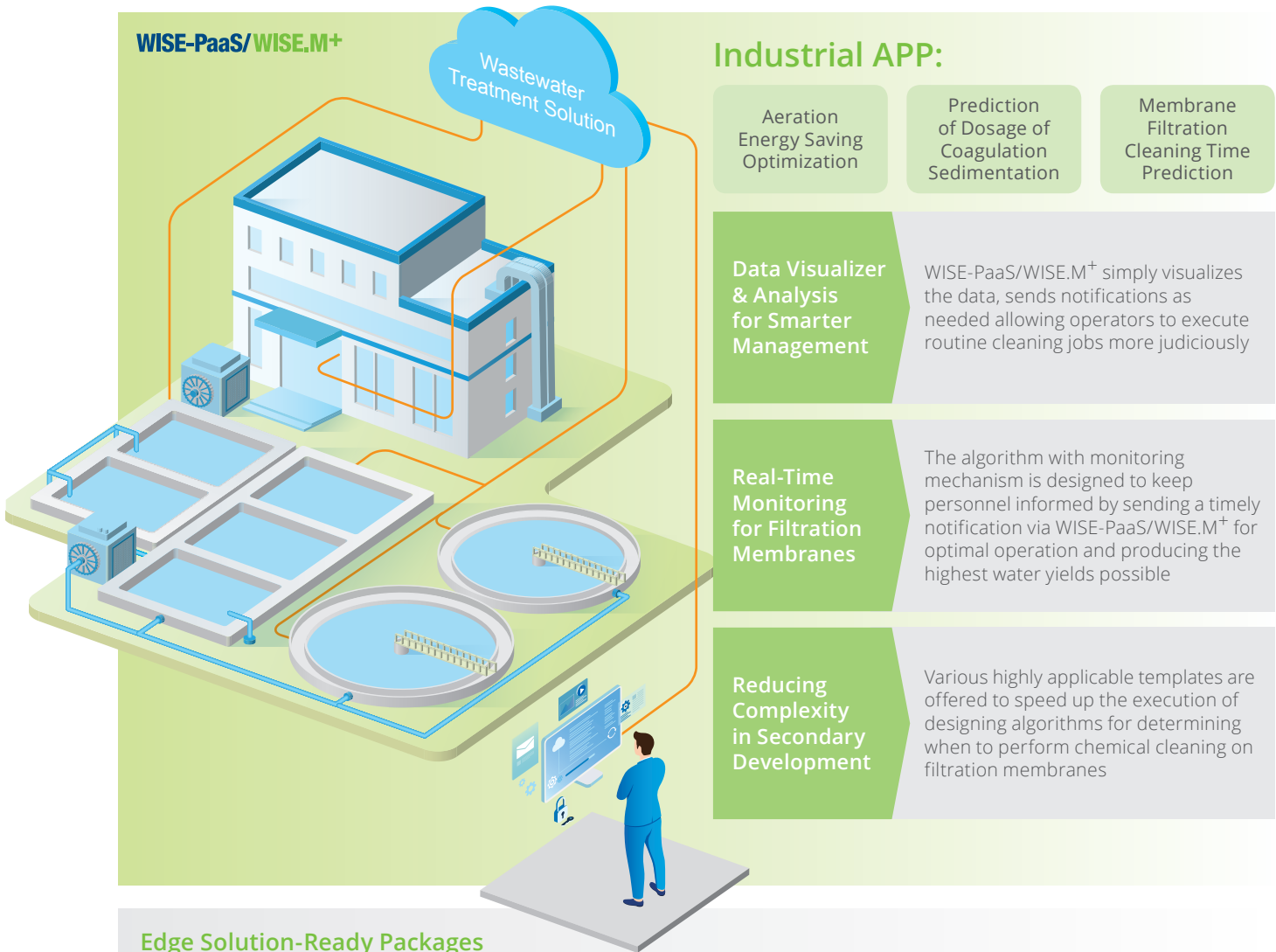
### Customized Menu Information

Create your own menus to manage what you want to see with a clear visual hierarchy and UI design. Prioritizing your work by determining which information is most critical will enhance operations and management efficiency.



# Real-Time Monitoring Improves the Process of Filtering Industrial Wastewater

Chemical cleaning often takes place far ahead of time or well behind schedule—and falling short of times for maintenance. This is often the biggest headache confronting wastewater treatment plant managers. To tackle this problem, an intelligent algorithm capable of determining the optimal times for chemically cleaning filtration membranes was designed. This algorithm was used to develop a system that utilizes both AIoT and a cloud platform to monitor how the membranes are cleaned. The system simply visualizes the data, sends notifications as needed, and enables smarter management—allowing operators to execute routine cleaning jobs more judiciously.



## Edge Solution-Ready Packages



### HPC-7242

2U Rackmount Server Chassis



### ESRP-PCS-ADAM3600

Wireless Intelligent Remote Terminal Unit

### WISE-PaaS/WISE.M+

### WISE-PaaS/WISE.M+

IIoT Cloud-based Management Platform



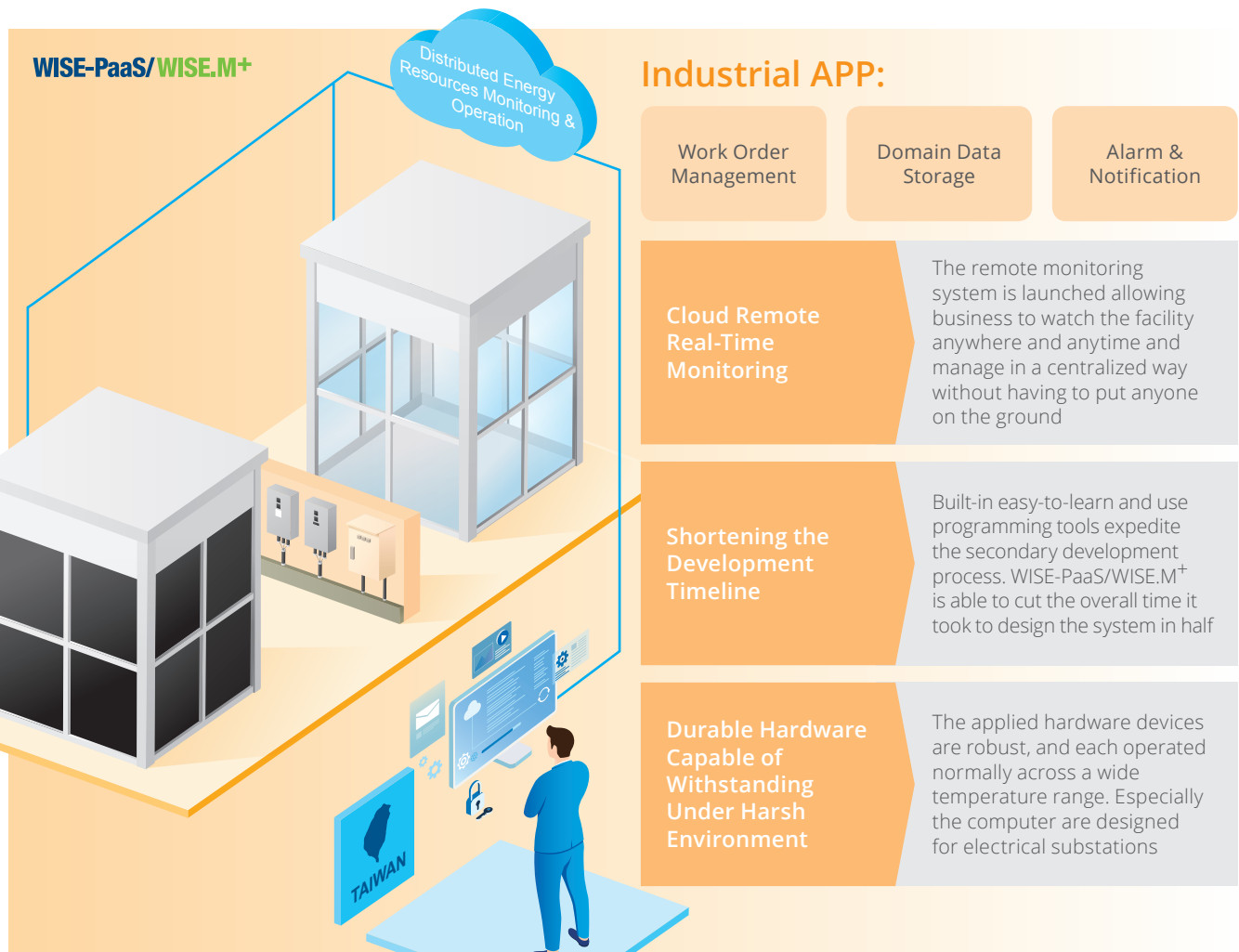
### WebAccess/SCADA

Browser-based SCADA Software Platform



# Integrated Energy System Management Solutions Proves Crucial in Energy Efficiency

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 45 °C. 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.

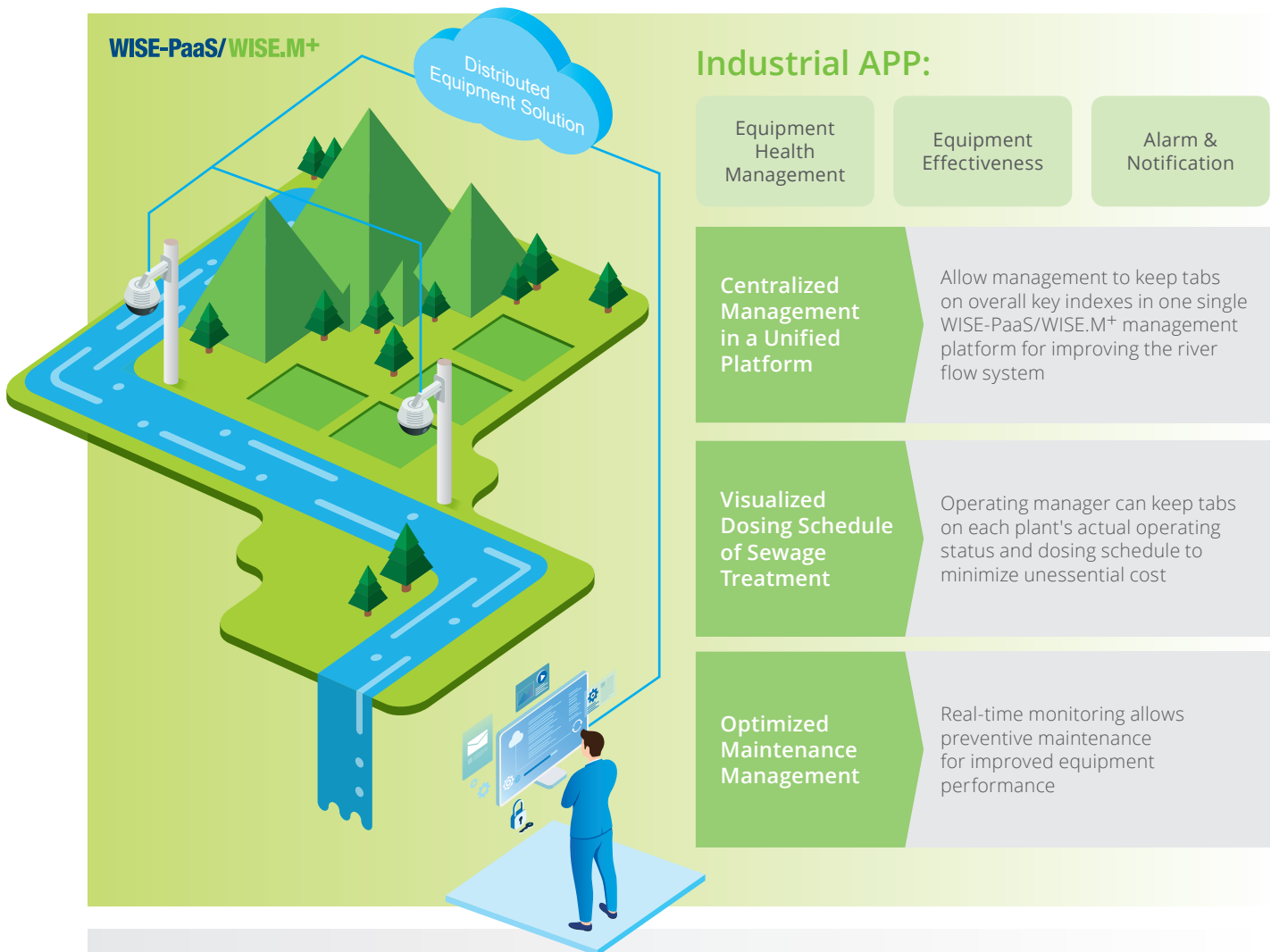


## Edge Solution-Ready Packages

					
<b>HPC-7242</b> 2U Rackmount Server Chassis	<b>ECU-4784</b> Power Automation Computer	<b>ESRP-PCS-ECU1251</b> Edge Intelligent Communication Gateway with WISE-PaaS/EdgeLink	<b>WISE-4220</b> Wi-Fi IoT Wireless Sensor Node	<b>WISE-PaaS/WISE.M+</b> IIoT Cloud-based Management Platform	<b>WebAccess/SCADA</b> Browser-based SCADA Software Platform

# Equipment Monitoring Assures Effective Control On-site Operation and Optimizes Maintenance Management

Water treatment equipment that operates for extensive periods of time is subject to structural damage as well as wear and tear of components. These issues can cause flooding after torrential rain, water outages, and other major incidents. To identify issues and perform repair as quickly as possible, WISE-PaaS/WISE.M<sup>+</sup> is introduced for remote monitoring and operating management system to give complete control over the operating status of distributed water treatment equipments.



## Edge Solution-Ready Packages



**HPC-7242**  
2U Rackmount  
Server Chassis



**ESRP-PCS-ADAM3600**  
Wireless Intelligent  
Remote Terminal  
Unit



**ESRP-PCS-ECU1051**  
Cloud enabled  
Intelligent  
Communication  
Gateway for IIoT  
Application

**WISE-PaaS/WISE.M<sup>+</sup>**

**WISE-PaaS/  
WISE.M<sup>+</sup>**  
IIoT Cloud-Based  
Management  
Platform



**WebAccess/  
SCADA**  
Browser-based  
SCADA Software  
Platform

# Subscription

## How to activate?

Get started with Advantech WISE-PaaS/WISE.M<sup>+</sup> cloud-based management service with only two simple requirements

### 1. Register to WISE-PaaS VIP/Regular member

- Apply inquiry WISE-PaaS VIP Member through Advantech WISE-PaaS Marketplace via official website
- Advantech will contact you directly for more detail information



### 2. Own at least one of the following hardware or software products from Advantech

- WISE-PaaS/EdgeLink enabled products: ADAM-3600, ECU series, certain UNO series models
- NB-IoT Wireless Sensing Solution: WISE-4471
- Software: WebAccess/SCADA



# Solution Offerings

WISE-PaaS/WISE.M<sup>+</sup> offers a comprehensive portfolio of industrial solutions across various vertical markets



### WISE-PaaS/WISE.M<sup>+</sup>

The classic standard package of WISE.M<sup>+</sup>. The device networking solution allows easy upgrades of sensing and communication which simplifies system architectures.



### Distributed Equipment Management

Distributed operations and management to increase capabilities for online monitoring and visualized analysis of facilities.



### Smart Substation Solution

Delivers an integrated system for efficient maintenance and equipment optimization.



### Integrated Energy Management & Power Demand Management

Improves the utilization of energy system while maximizing energy savings for business.



### Distributed Energy Resources Monitoring & Operation

Securing energy reliability through cloud centralized management.



### Wastewater Treatment Facility Management

Real-time water monitoring enhances equipment energy savings and optimizes water dosages.

## 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

### Asia

#### Taiwan

<b>Toll Free</b>	<b>0800-777-111</b>
Taipei & IoT Campus	886-2-2792-7818
Taichung	886-4-2372-5058
Kaohsiung	886-7-392-3600

#### China

<b>Toll Free</b>	<b>800-810-0345</b>
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

### Asia

#### Japan

<b>Toll Free</b>	<b>0800-500-1055</b>
Tokyo	81-3-6802-1021
Osaka	81-6-6267-1887
Nagoya	81-0800-500-1055
Nogata	81-949-22-2890

#### Korea

<b>Toll Free</b>	<b>080-363-9494/5</b>
Seoul	82-2-3660-9255

#### Singapore

Singapore	65-6442-1000
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#### Malaysia

Kuala Lumpur	60-3-7725-4188
Penang	60-4-537-9188

#### Thailand

Bangkok	66-02-2488306-9
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#### Vietnam

Hanoi	84-24-3399-1155
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#### Indonesia

Jakarta	62-21-751-1939
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#### Australia

<b>Toll Free</b>	<b>1300-308-531</b>
Melbourne	61-3-9797-0100

#### India

Bangalore	91-80-2545-0206
Pune	91-94-2260-2349

### Europe

#### Netherlands

Eindhoven	31-40-267-7000
Breda	31-76-523-3100

#### Germany

<b>Toll Free</b>	<b>00800-2426-8080/81</b>
Munich	49-89-12599-0
Düsseldorf	49-2103-97-855-0

#### France

Paris	33-1-4119-4666
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#### Italy

Milan	39-02-9544-961
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#### UK

Newcastle	44-0-191-262-4844
London	44-0-870-493-1433

#### Spain

Madrid	34-91-668-86-76
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#### Sweden

Stockholm	46-0-864-60-500
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#### Poland

Warsaw	48-22-31-51-100
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#### Russia

Moscow	8-800-555-01-50
St. Petersburg	7-812-332-5727; 7-921-575-1359

#### Czech Republic

Ústí nad Orlicí	420-465-524-421
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#### Ireland

Galway	353-91-792444
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### Americas

#### North America

<b>Toll Free</b>	<b>1-888-576-9668</b>
Cincinnati	1-513-742-8895
Milpitas	1-408-519-3898
Irvine	1-949-420-2500
Ottawa	1-815-433-5100

#### Brazil

<b>Toll Free</b>	<b>0800-770-5355</b>
São Paulo	55-11-5592-5367

#### Mexico

<b>Toll Free</b>	<b>1-800-467-2415</b>
Mexico City	52-55-6275-2727

### Middle East and Africa

Israel	072-2410527
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# ADVANTECH

Enabling an Intelligent Planet

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