

Energy &  
Environment

# Solar Power Management Solution

Transforming Distributed Energy Resources to  
Drive the Growth of the Renewable Energy Market

Solution  
Ready  
Package

- Centralized operation of unmanned remote sites
- Scalable architecture that works in plants of any size
- Analyze and optimize power station efficiency



**ADVANTECH**

*Enabling an Intelligent Planet*

POWERED BY  
**ADVANTECH**  
**WISE-PaaS**

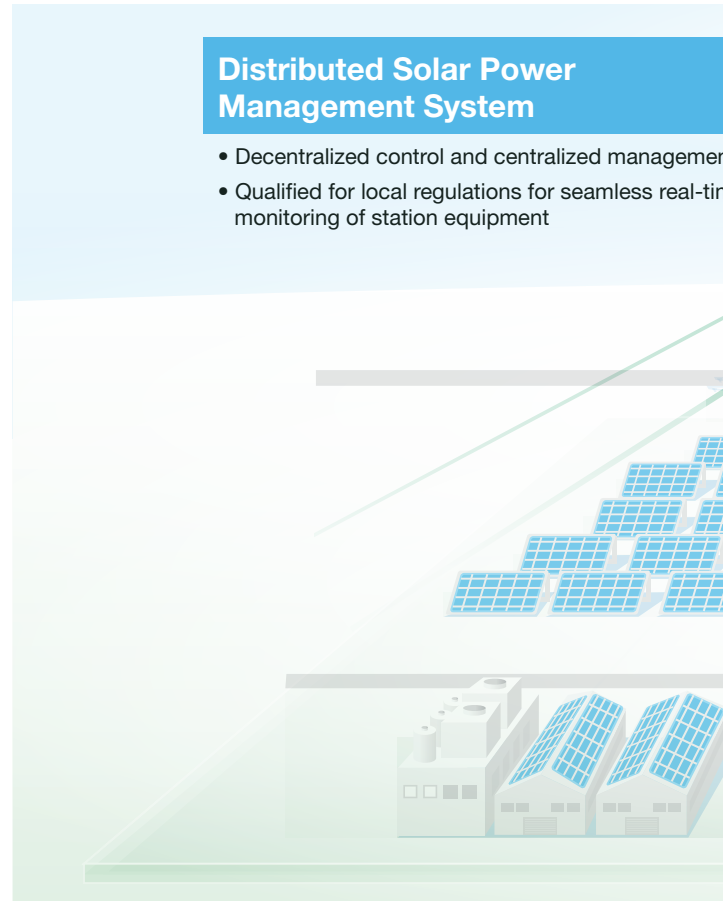
# System Introduction

Due to the ever-growing renewable energy industry, more solar power plants are planned for construction and operation worldwide. Current concerns among power plant owners and grid companies include data accuracy, operation efficiency, and asset management. Advantech's SPMS solution offers a unified monitoring management system, machine-to-intelligence technology, and a solid IoT data framework that can meet most managerial demands.

# Industrial Apps

## Distributed Solar Power Management System

- Decentralized control and centralized management
- Qualified for local regulations for seamless real-time monitoring of station equipment



## Distributed Solar Power Management System



### Field Site Solar Power Management System



### Real-time Equipment Status Monitoring

- Inverter details
- Earnings trend
- Efficiency trend chart



### Distributed Solar Maintenance M



### Station Overview

- Power generation information
- Overall output power/efficiency
- Power generation & amount statistics

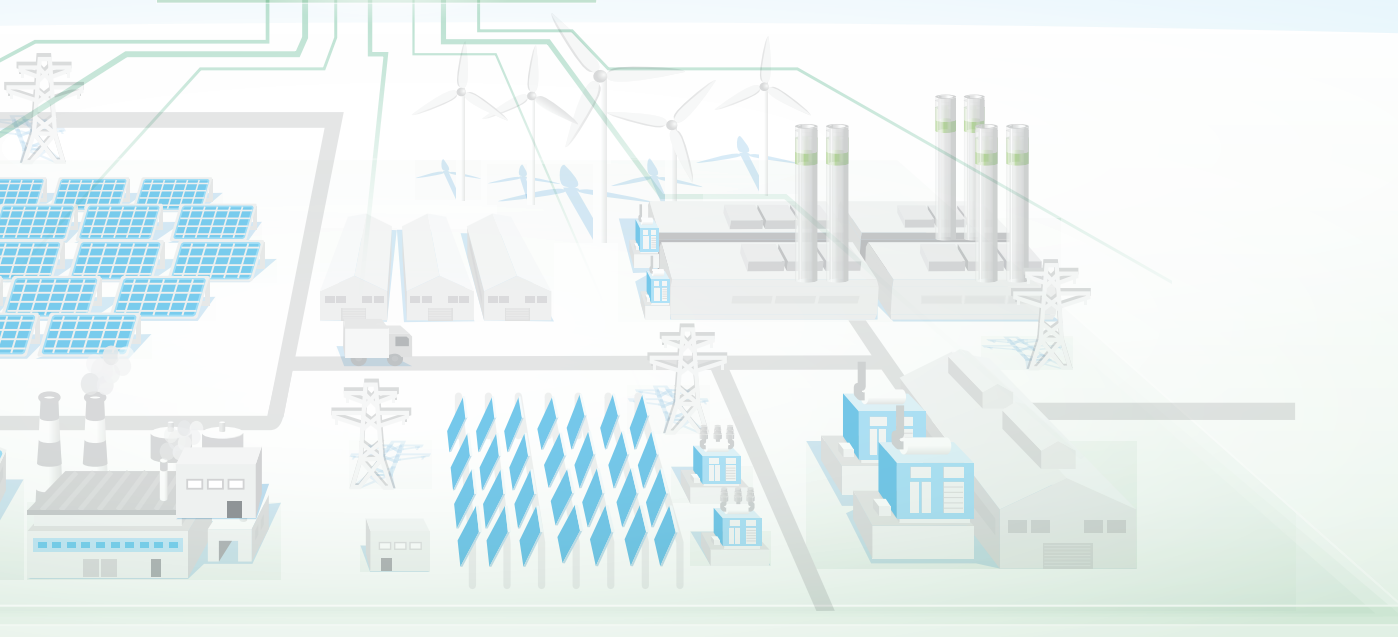


**ADVANTECH**  
**WISE-PaaS**  
 AIoT Solutions & Marketplace



**Centralized Solar Power Operation and Maintenance Management System**

- Centralized operation of unmanned remote sites
- Scalable architecture that works in plants of any size
- Analyze and optimize power station efficiency



**Centralized Solar Power Operation and Maintenance Management System**

**Solar Power Operation and Maintenance Management System**



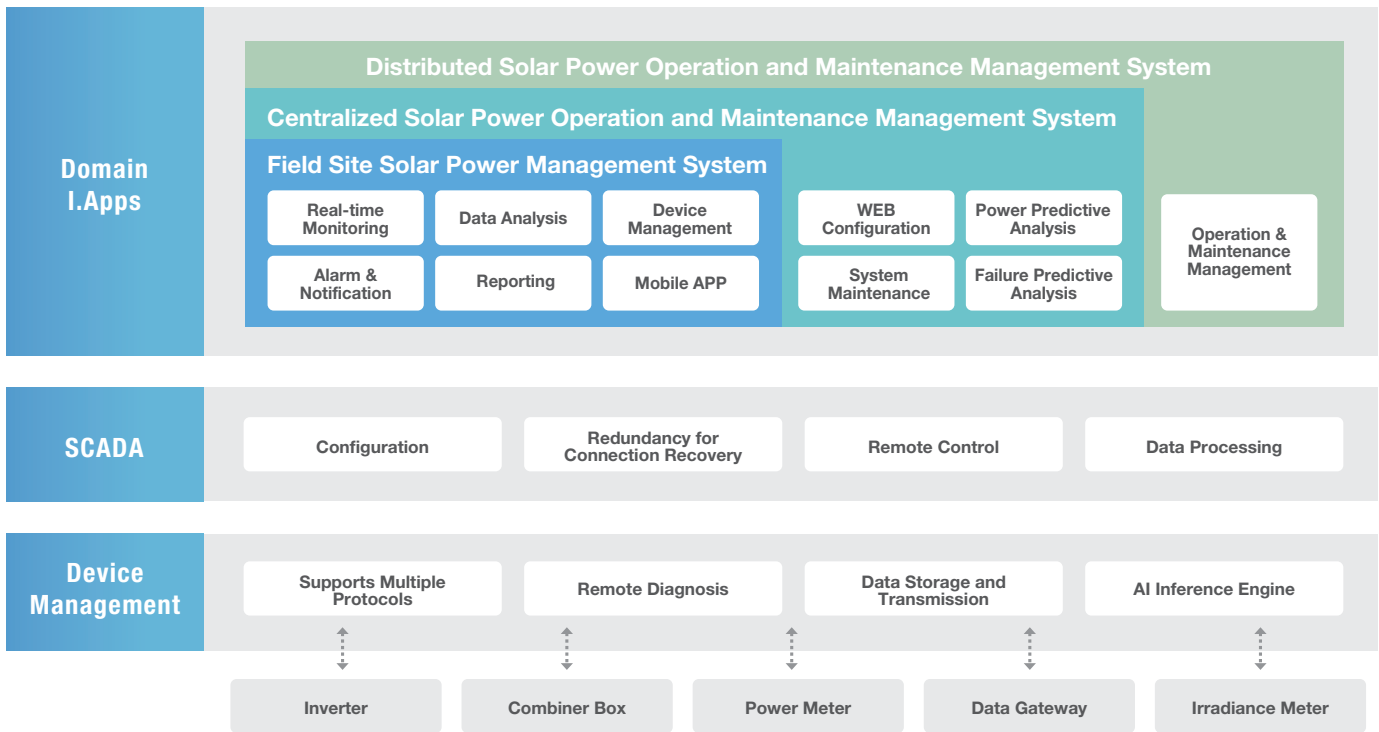
**Centralized Solar Power Operation and Maintenance Management System**



**Situation Room**

- Solar irradiance
- Solar panel temperature and efficiency
- Power generation change chart
- Environmental monitoring

# Software Diagram



# System Diagram



# Feature Highlights

## Complete System Hierarchy

System designed according to the needs of the platform vendor, system vendor, and end user. Corresponds to industry standards and easily managed.

## Situation Room Key Indicators

Each device has their own situation room icon, which can show critical events and give warnings.

## Remote Control

The most common failure to solar energy systems are circuit breakers (CB) being tripped accidentally. Therefore all CBs must have remote control support.

# Application Stories

## Building solar energy monitoring system for Dubai Al Maktoum International Airport

- End-to-end solution enables real-time monitoring in the solar glass facilities to effectively reduce carbon emissions and operational costs in a smart manner.
- The cloud server directly adjusts equipment temperature in response to local conditions, thereby maximizing energy efficiency.



## Distributed solar power station monitoring system

- Locally qualified for seamless real-time process monitoring of station equipment.
- User-friendly data analysis interface ensures stable and reliable system operation.
- Easy maintenance with unified open-source management software.



## Advantech edge data acquisition solutions improve real-time monitoring efficiency

- Real-time acquisition of data parameters including radiation, temperature, humidity, and wind direction.
- Central data management via Ethernet, Wi-Fi, RS-485, and/or a variety of other interfaces.
- Remote browser-based access optimizes equipment management efficiency.



## Data acquisition solutions for distributed solar power stations

- Based on RISC-technology, industrial IoT gateways provide support for multiple network transmission protocols and are designed to ensure safe operation in harsh environments.
- Automatically resumes data transmission upon network reconnection to ensure data integrity and accuracy.
- Supports hundreds of communication protocols, compatible mainstream brands of inverters, combiner boxes, meters, and more.



# Ordering Information

## IoT PaaS Services



### WISE-PaaS VIP Membership

- PN: 98DPWAP2K - 2000 WISE points



### WISE-PaaS/WISE.M+ Cloud-Based Monitoring & Operating Platform

- PN: 9803EE10000 - IIoT management platform for all industrial scenarios over the cloud platform

## Industrial Apps



### Field Site Solar Power Management System

- PN: SRP-SPMS-S30M - License which supports multiple solar stations and unlimited WebAccess/SCADA I/O tags



### Distributed Solar Power Operation and Maintenance Management System

- PN: 31OTDLSD0001A1 - License for when the amount of gateways doesn't exceed 10
- PN: 31OTDLSD0002A1 - License for when the amount of gateways is between 11 and 20
- PN: 31OTDLSD0005A1 - License for when the amount of gateways is between 21 and 50
- PN: 31OTDLSD00E5A1 - Basic license which supports 50 gateways when the amount of gateways exceeds 50
- PN: 31OTDLSD00A5A1 - An additional license for every 10 gateways when the amount of gateways exceeds 50



### Centralized Solar Power Operation and Maintenance Management System

- PN: 31OTDLSC0001A1 - License for when the installed capacity doesn't exceed 10MW
- PN: 31OTDLSC00E1A1 - A basic license which supports 10MW when the installed capacity exceeds 10 WM but less than 100WM
- PN: 31OTDLSC00A1A1 - An additional license for every 10MW when the installed capacity exceeds 10 WM but is less than 100WM
- PN: 31OTDLSC00EHA1 - A basic license which supports 100WM when the installed capacity exceeds 100MW
- PN: 31OTDLSC00AHA1 - An additional license for every 100MW when the installed capacity exceeds 100MW

## Distributed Solar Power Data Acquisition



### Cloud-Enabled Equipment Protocol Gateway

- PN: ESRP-PCS-ECU1251 - TI Cortex A8 industrial communication gateway with 2 x LAN, 4 x COM ports, 4G SD card and WISE-PaaS/EdgeLink



### Cloud-Enabled Equipment Protocol Gateway

- PN: ESRP-PCS-ECU1051 - TI Cortex A8 industrial communication gateway with 2 x LAN, 2x COM ports, 4G SD card and WISE-PaaS/EdgeLink



### Wireless Intelligent Remote Terminal Unit

- PN: ESRP-PCS-ADAM3600 - ARM Cortex A8 wireless intelligent RTU with 8AI, 8DI, 4DO, 4-Slot expansion, 4G SD card and WISE-PaaS/EdgeLink

## Consulting Services



### Basic Consulting Services

- PN: 9803EECS010 - 15 WISE points



### Standard Consulting Services

- PN: 9803EECS100 - 120 WISE points



### Advanced Consulting Services

- PN: 9803EECS01K - 1200 WISE points

## Advantech Headquarters

No. 1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei, Taiwan 11491  
Tel: 886-2-2792-7818 Fax: 886-2-2794-7301  
www.advantech.com

# ADVANTECH

Enabling an Intelligent Planet

US/Canada: 1-888-576-9668  
Europe: 00800-2426-8080/8081  
Netherlands: 31-40-267-7000  
China: 800-810-0345

Taiwan: 0800-777-111  
Japan: 0800-500-1055  
Korea: 080-363-9494  
Other countries: 0800-777-111



WISE-PaaS Marketplace