SRP-ESP315

Distributed Solar Power Station Monitoring and Management Solution

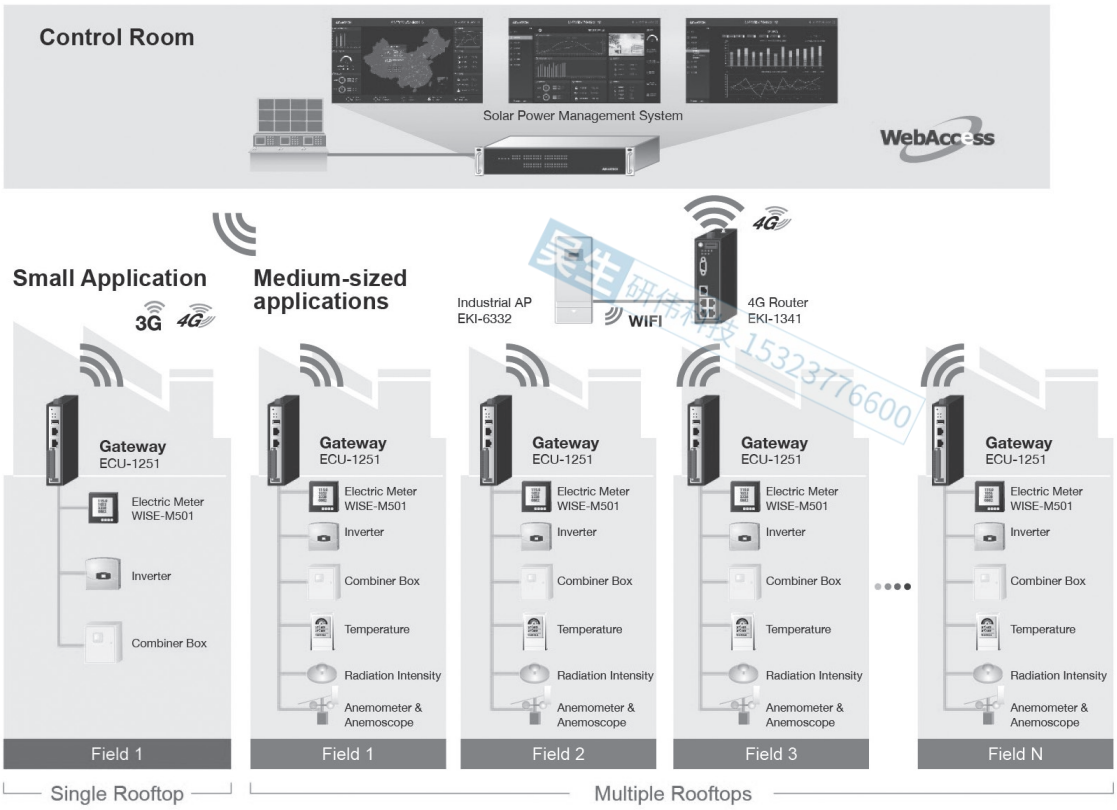
Features

- Highly stable and reliable centralized monitoring and management system for key components
- Real-time efficiency visualization, can be broken down by group, station, inverter
- Smart alarm notification through SMS, e-mail and mobile APP
- Intelligent analysis of power generation data, including performance and loss at each stage
- Intact data guaranteed by store and forward when communication fails
- Over 2GW power stations can be managed with a single system
- Cross browser and platform support powered by the WebAccess Dashboard

Introduction

Solar power management system (SPMS) aims to improve the efficiency of power generation and reduce the cost of operation and maintenance. It optimizes the power station in an intelligent way to effectively enhance power generation. The system integrates hardware and software into one, and adopts an acquisition gateway which supports multi-protocols and multi-network communication to realize the accurate acquisition of power station data. With the help of high-performance application servers for electrical use only, SPMS, the WebAccess Dashboard based system can perform remote visual management and mass data analysis of power stations. Moreover, this system also integrates various monitoring data in a unified maintenance platform, making it ideal for different solar power stations where staff can realize many intelligent monitoring and management tasks, such as daily operations, upper system monitoring, station management, and more.

System Diagram



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System Major Functions

Hierarchical Visualized Monitoring

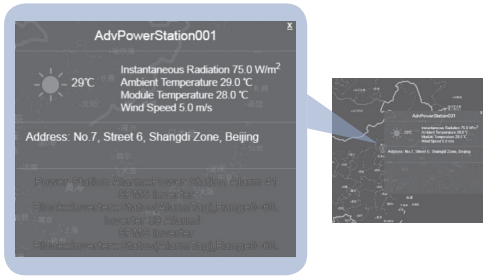
- Hierarchical visualization of Group / Power Station KPI
- Hierarchical visualization of power station and equipment information
- Hierarchical visualization of integrated Web GIS

Operations Management

- Supports Web GIS
- Supports one-click export of Excel reports and automatic sending of emails
- Manual entry of device maintenance information and automatic logging of system logs
- Hierarchical rights management

Smart Alarm

- Supports for real-time warning / alarm and e-mail, SMS and other alarm notification way
- Acknowledge one or all alarms via one-click and provide historical alarm event query functions

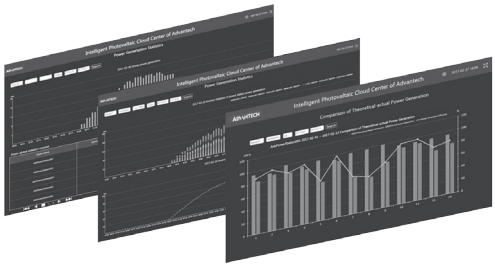


System Customization

- Customization of monitor screen and data report
- Customization of customer system information
- Customization of power station and equipment information

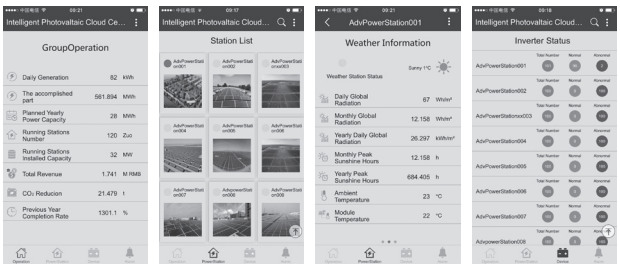
Intelligent Analysis

- Supports diversified comparative analysis of power generation data, such as power generation statistics, the comparison of power generation efficiency and theoretical-actual power generation, and the daily load curve
- Supports multi-granularity report statistics, to provide power station integrated power generation and power generation statements and other functions



Mobile Operation and Maintenance APP

- Master the overall operation of the group / power station / inverter
- Real-time intelligent alarm
- Power generation statistics



SPMS Software Specifications

General

- **Database** Microsoft SQL Server 2012 (Exclusive from the package)
- **Report Export Format** Excel
- **Display Resolution** 1920 x 1080 (Optimal)
- **Cross Browser and Platform** Yes
- **Browser** Internet Explorer: IE 11
Chrome: Version 50 or above
Safari: Version 7 or above
- **APP Client** 100

Data Refresh and Response Time

Items	Refresh	Response
Group/Power Station/ Device Alarm	10 s	< 5s (Affected by the network channel delay and controlled equipment)
On-line Map	10 s	< 5s (Affected by the network channel delay and controlled equipment)
Real-time Power Data	10 s	< 5s (Affected by the network channel delay and controlled equipment)
Device Communication Status	10 s	< 5s (Affected by the network channel delay and controlled equipment)
Weather Information	10 s	< 5s (Affected by the network channel delay and controlled equipment)
Energy Saving and Emission Reduction Data	10 s	< 5s (Affected by the network channel delay and controlled equipment)
Real-time Data of Inverter and Power Meter	10 s	< 5s (Affected by the network channel delay and controlled equipment)
Historical Data	15 mins	< 5s (Affected by the network channel delay)

Capacity

- **Maximum Number of I/O Tags** 200000
- **Maximum Power Plant Capacity** 2GW
- **Maximum Number of Data Acquisition Gateway** 15000

Mobile APP Resolution

- **Android** 1280 x 720, 1920 x 1080, 2560 x 1440
- **iOS** 1334 x 750, 1920 x 1080

Platform Specifications

SPMS Application Server

- **CPU** Intel Hasewell Core i7 4650U dual-core
- **Memory** 16GB
- **Storage** 1 x 2.5" SATA HDD 500GB
- **Ethernet Port** 8 x 10/100/1000 Base-T RJ45 ports
- **Operating System** Windows Server 2008 R2 or above
- **Framework** .Net Framework 4.5
- **Web Server** IIS7

Data Gateway

- **CPU** TI Cortex A8, 800MHz
- **Storage** 1GB Micro-SD card for system storage
- **Ethernet Port** 2 x 10/100 Base-T RJ-45 ports ECU-1251
- **Wireless (Optional)** Interface: 1 x Mini-PCIe (Full-size, signal: USB)
- **Configuration Tool** Advantech TagLink Studio
- **Protocol Support** Modbus, IEC-60870-104(slave)

Ordering Information

- **SRP-ESP315-M0A** 10 x ECU-1251 with Advantech TagLink, 1 x ECU-4784 with Intel Hasewell Core i7 1.7GHz, 16GB RAM, 500GB SATA HDD, Windows Server 2008 R2, WebAccess Pro. Unlimited tags, SPMS

Wireless AP

- **EKI-6332GN** IEEE802.11 b/g/n Wi-Fi AP/Client

Wi-Fi Solution

- **9656EWMG00E** Half to full-size Mini PCIe bracket pack
- **EWM-W150H02E** Half-size mini card, supports 802.1 1bgn
- **1750006043** SMA(M) cable, 15cm
- **1750000318** 2dBi antenna for testing, 11cm

Storage Solution

- **96FMMSDI-8G-ET-AT** ATP 8G MICRO SD CARD I-GRD SLC(G)

Extension Solution

- **ECU-1251-R10AAE** TI Cortex A8 Industrial Communication Gateway with 2 x LAN, 4 x COM, 1 x Mini-PCIe