Factory Energy Management Solution
Centralized Monitoring and Data Management for Energy Efficiency Optimization

- Rapid configuration of FEMS solution
- Intelligent platform improves energy saving
- Easy data management to optimize energy efficiency
Factory Energy Management Solution

In today’s harsh economic climate, most manufacturers are seeking ways to save cost. Best-in-class manufacturers are already road mapping plant strategies to implement energy management in the factory for decreasing energy consumption per unit production. For this Factory Energy Management Solution (FEMS), Advantech’s iFactory Solution Ready Package (SRP) integrates hardware and software within industrial applications where typically a 7-10% energy saving can be achieved in facilities, compared to where FEMS SRP is not used. Based on real-time data obtained from smart meters, FEMS SRP allows users to monitor energy consumption information, accurately evaluate energy costs, and optimize energy efficiency, aiding business intelligence strategies for energy management.

Three Steps to Enhance Your Factory Energy Saving with FEMS SRP

![Data Acquisition](Image)

**Data Acquisition**

With WISE-PaaS/EdgeLink edge data acquisition software, data collected from different machines and multiple facilities goes through FEMS edge into one single platform, either on-premises or in the cloud platform.

![Data Computing & Visualization](Image)

**Data Computing & Visualization**

With WebAccess/SCADA software, data can be aggregated in the FEMS server, or directly transmitted into the WISE-PaaS cloud platform. Data is analyzed and visualized as energy management assets with the iFactory/FEMS application.

![Central Management](Image)

**Central Management**

Using contextualized and visualized FEMS data, both real-time and historical, in the Industry 4.0 Situation Room, supports managers to have continuous energy saving activities by PDCA cycle and visualization management.

Digitizing Energy Management with FEMS SRP

**End Customers**

Energy management combined with production management is crucial for centralized operation optimization and control.

- **Easy deployment and maintenance.** Single platform for automation and energy management allows fast implementation, easy scalability, user-friendly maintenance, and seamless integration with 3rd party software and database.
- **Data integration.** The digitally enabled convergence of information technology and operation technology provides the infrastructures to navigate the energy management landscape for operation excellence.

**System Integrators**

- **Reducing project lead time and providing value-added services is important for future-ready business.**

- **Customizable and expandable service.** Simple, intuitive interface with easy configuration tools and tailor-made dashboards enable high reliability and flexibility to develop value-added services with reduced project time, risk and costs.
- **New business opportunities.** With rapid project implementation and value-added services, competitive advantage and new business opportunities can be earned today to comply with tomorrow.
Feature Highlights

Real-time Data Management
Energy consumption and cost of utilities can be measured on the basis of hour, day, month, or year, by individual, aggregated departments, or corporate level. By setting benchmarks and comparing current performance with set targets, it is easy to analyze the use of energy and utilities to support energy efficiency improvements.

Dashboard Visualization
Performance calculation, data displays and reports can be easily visualized using dashboard tools. The navigation menu and dashboard displays can be customized from the user interface, including trends, graphs, diagrams and tables. It also provides KPI and alarm management functions.

Dashboard Management

Energy Consumption Overview
An overview of past energy profiles and current energy consumption data provides a systematic approach to identify problem areas and prime targets for energy reduction.

Energy KPI Management
KPI settings allow users to measure and review energy usage and efficiency of each department, reducing energy waste and improving energy efficiency.

Energy Consumption and Cost Analysis
Production is usually the largest energy consuming part of a factory. Energy consumption data and costs can be analyzed and compared with utility bills to help improve energy efficiency and wastage.

Machine Utilization and Energy Efficiency
Production-integrated energy management enables machine availability tracking with machine energy consumption, to enhance operational efficiency and allow preventive maintenance.
Benefits

Improve Efficiency
- Visualize factory energy data
- Prevent low performance operation of equipment
- Improve energy cost per unit
- Enhance KPI tracking and management

Reduce Waste
- Enable transparency on energy usage
- Ascertain the cause of unusual energy consumption
- Eliminate routine waste
- Improve stand-by operation

Increase Profit
- Reduce energy cost
- Cut down unnecessary waste
- Improve productivity and management
- Enhance awareness of energy efficiency improvement

Application Story

Keep One Step Ahead of the Competition with Factory Energy Management

Overview
Founded in 1984, Gigatek is a global, full-service Electronics Manufacturing Services (EMS) provider and Original Equipment Manufacturing (OEM) company based in Taiwan, with additional facilities in China and the United States. Over past few years, Gigatek has worked more closely with green supply chains as the environmental focus shifted.

Challenge
Gigatek found a big increase in its electricity bill, and its monthly expenditure went up continuously. Gigatek wanted to reduce energy consumption, but suffered from a lack of detailed energy usage information needed for future improvements. Additionally, the management wanted to know the energy consumption status of each department for further management, and requested to set up a management KPI and alarms if deviations led to huge bills.

Solution
Gigatek turned to Advantech for a reliable factory energy management solution, and invited Snetech, its subsidiary company that works as system integrator, to implement energy management systems in its buildings and factories.

- Customizable and scalable platform allows future upgrades and maintenance with new functionalities.
- Factory energy management dashboard for analyzing energy usage and costs resulting in data-driven actionable insights.

Benefits
With Advantech’s factory energy management solution, energy efficiency of Gigatek has been effectively improved.

- Quick project implementation that runs smoothly and reduces cost and maintenance effort.
- Reduced energy costs due to reduced energy consumption and production waste.
Solution Ready Package

Industrial Application Package

On-Premises Computing & Visualization

FEMS Lite Server
- FEMS lite server: SRP-IFS420-M77F01A
- Industrial application solution for iFactory/FEMS: 32OTLFEM0001A0

Spec
- MIC-7700 with i7-7700T
- Win10 + PostgreSQL + Office
- WebAccess 8.3 5000 tags
- iFactory/FEMS application with a maximum of 200 devices supported

FEMS Enterprise Server
- FEMS enterprise server: SRP-IFS420-H82F01A
- Industrial application solution for iFactory/FEMS: 32OTLFEM0002A0

Spec
- HPC-8212 with Xeon Silver 4110 8 Core
- WinSvr2016 + PostgreSQL + Office
- WebAccess 8.3 unlimited
- iFactory/FEMS application with a maximum of 2000 devices supported

FEMS Cloud Service
- Industrial cloud solution for iFactory/FEMS: 9803WPEM01

Spec
- Cloud service in WISE-PaaS/EnSaas cloud-based software platform
- iFactory/FEMS application with unlimited devices supported

Value Added Package

Central Management

FEMS Edge for Production Equipment
- FEMS Edge: SRP-IFS210-D36TAE

Spec
- IEC61131 programming language
- Built-in edgelink function
- Periodic logger for data buffering on SD card
- Linux Kernal 3.12 RT
- Zigbee/Wi-Fi/3G/4G
- Built-in AI/DI/DO

FEMS Edge for Factory Facilities
- FEMS Edge: SRP-IFS420-E12TAE

Spec
- IEC61131 programming language
- Built-in edgelink function
- Periodic logger for data buffering on SD card
- Linux Kernal 3.12 RT
- Zigbee/Wi-Fi/3G/4G
- 2x RS- 485 isolated serial ports

Industry 4.0 Situation Room

FEMS Edge: SRP-SR-100-BTO

Spec
- 86“ LCD x1 + 55“ LCD x2
- Server DS-980
- Control panel UTC-520
- WISE-PaaS/SignageCMS

Edge Package

Data Acquisition

SRP Package
- FEMS Edge: SRP-IFS210-D36TAE

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Cloud Computing & Visualization

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