

iFactory

Overall Equipment Effectiveness Solution

Real-time Machine Availability Management
for Maximizing Operational Excellence

Solution
Ready
Package

- ✓ Rapid configuration of OEE solution
- ✓ Intelligent platform improves machine availability
- ✓ Easy data management to optimize production efficiency



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Enabling an Intelligent Planet

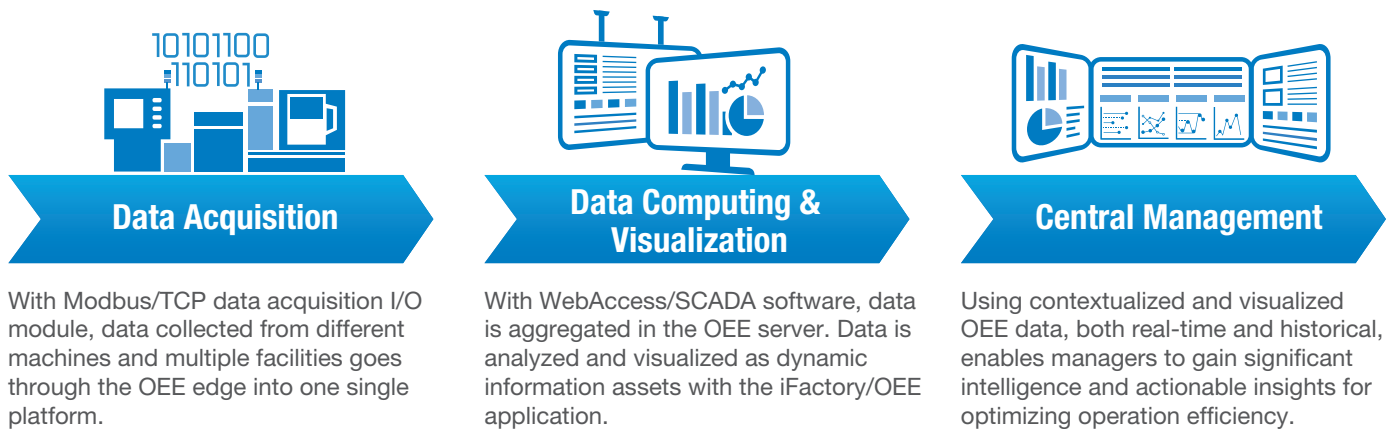
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WISE-PaaS

Overall Equipment Effectiveness Solution

Many manufacturers find it hard to identify those specific losses that contribute to low machine productivity as they are difficult to identify, record, and analyze, so manufacturers are looking for support in making the move toward smart factory transformation. To realize Industry 4.0 does not have to necessitate a major infrastructure overhaul that costs a lot of money. With Advantech's iFactory Solution Ready Package (SRP) that combines hardware and software into integrated industrial applications, manufacturers can adopt a step-wise approach to realizing their intelligent factory. For system integrators, iFactory SRP provides a cost-effective approach to expediting project development with value-added applications that meet the criteria of Industry 4.0.

Overall Equipment Effectiveness (OEE) solution, one of the most vital iFactory SRPs, realizes intelligent factory through data acquisition, aggregation, and analysis of machine availability to improve productivity, reduce loss, and increase profit.

Three Steps to Start Your Industry 4.0 Journey with OEE SRP



Accelerate Your Digital Transformation with OEE SRP

Manufacturers

Avoiding outages and minimizing downtime and interruptions to production is critical for implementing OEE projects in factories.

- **Cost-effective implementation.** The OEE solution can be fast deployed with little set-up time, configured with other iFactory solutions and integrated with 3rd party software and database.
- **Easy maintenance and upgrades.** The configuration template provides intuitive management dashboard, and allows future upgrades and maintenance with new functionalities.
- **Data convergence.** In an integrated OT/IT environment, a more comprehensive picture of real-time data and information helps users make operation and business decisions quickly.

Shortening development time and reducing project cost in deploying OEE application is a win-win.

- **Easy customization and expansion.** With industry-standard interfaces, easy configuration tools, and expandable software platform, OEE solution enables customizable KPI dashboards and incremental applications.
- **Future ready.** With rapid project implementation, more IT resources can be invested to provide further value-added services for business transformation.

System Integrators



Feature Highlights

Real-time OEE KPI Management

OEE KPI allows production performance to be measured and compared for real-time management. It also provides immediate customizable notifications so that appropriate people can be alerted in an unexpected factory floor condition or event.

OEE Dashboard Visualization

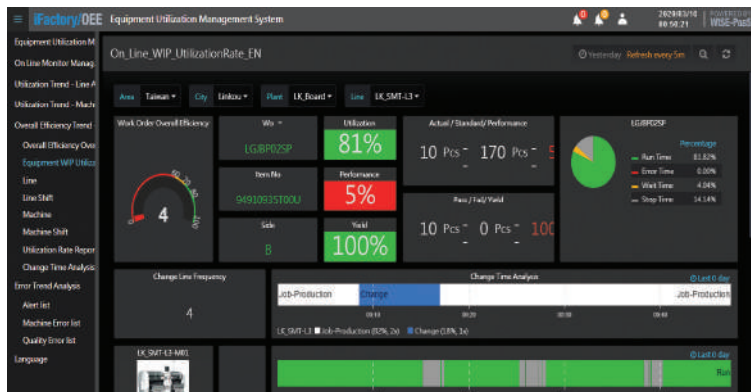
User-centric, custom OEE dashboards provide a quick overview on factory operational KPIs. The dashboard visualizations include trends, graphs, diagrams and process displays. It also allows users to view real-time and historical data in tables for tabular analysis and reporting.

Remote Access, Anytime Anywhere

Mobile access to OEE dashboard empowers operators to view data and get insights proactively. It also supports managers to ascertain business intelligence, make decisions, and determine appropriate actions to take.



Dashboard Management



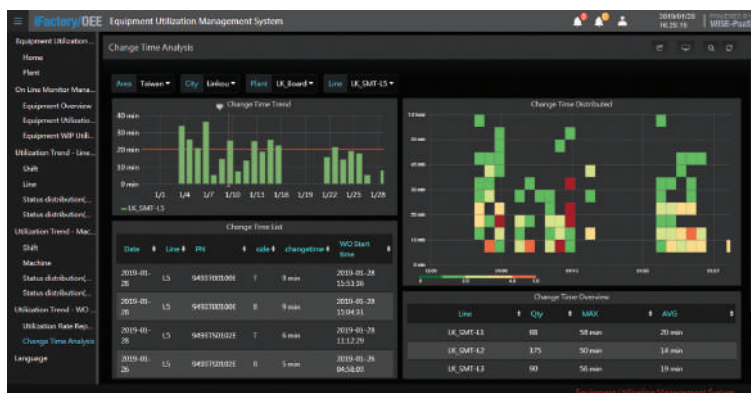
Availability, Performance and Quality

OEE application software is embedded with standard dashboards showing availability, performance, and quality management, which allows detailed monitoring.



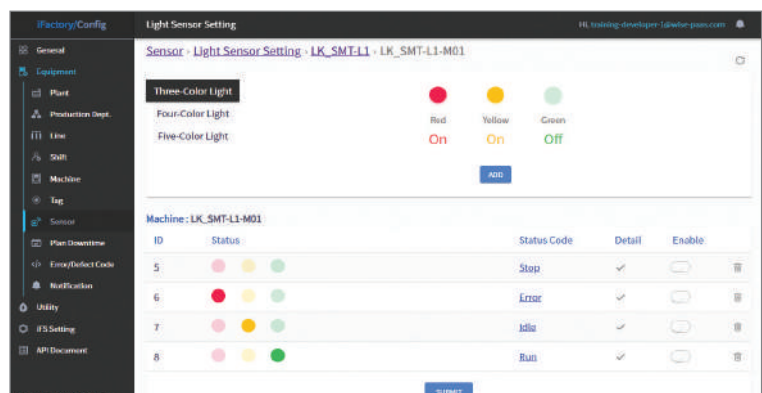
Error Trend Analysis

Standard machine and quality errors can be recorded in different categories for trend analysis. This also allows users to customize the dashboards for different on-site production conditions.



Changeover Efficiency Management

Average changeover times can be calculated to analyze daily efficiency. To understand the differences, accurate scheduling changeovers at precise times can improve operation efficiency.



Tower Light Configuration

The tower light sensor graphical UI is an easy to set up and configure GUI. With it you can simplify tower light condition acquisition and monitoring.

Benefits



Improve Productivity

- ✓ Unlock hidden production capacity
- ✓ Increase machine availability
- ✓ Maximize production output
- ✓ Improve production value per employee



Reduce Loss

- ✓ Minimize unplanned downtime
- ✓ Reduce product defects
- ✓ Eliminate process bottlenecks
- ✓ Prevent unscheduled maintenance activities and costs



Increase Profit

- ✓ Improve asset utilization
- ✓ Shorten production lead time
- ✓ Optimize product quality
- ✓ Drive a culture of continuous improvement

Application Story

Digital Transformation Begins with Real-time OEE Monitoring

Overview

Founded in 1984, RE-DAI precision tools are one of the leading hand tool manufacturers in Taiwan. Derived from RE-DAI's IT department, IMPELEX data transfer was established in 2013 as an innovative system integrator to foster smart factory implementation. IMPELEX is employing an equipment utilization management system in RE-DAI's Taichung factory. They are also starting planning for a smart factory that RE-DAI wants to build in Chiayi.

Challenge

RE-DAI wanted to prevent sudden outages and improve production stability. At RE-DAI's Taichung factory, production was already largely automated but there are machines of different types, brands, and models. So IMPELEX had to figure out the interconnection to all machines and the overall machine availability to improve real-time management for RE-DAI's staff.

Solution

Advantech provided IMPELEX with an OEE SRP to realize 100% data collection from various machines and real-time availability management at RE-DAI's factory.

- Cloud platform to speed deployments and slash costs.
- Configurable dashboard development toolkit to save customization effort.
- Industry 4.0 Command Center for managers to perform real-time management and data-driven decision making.

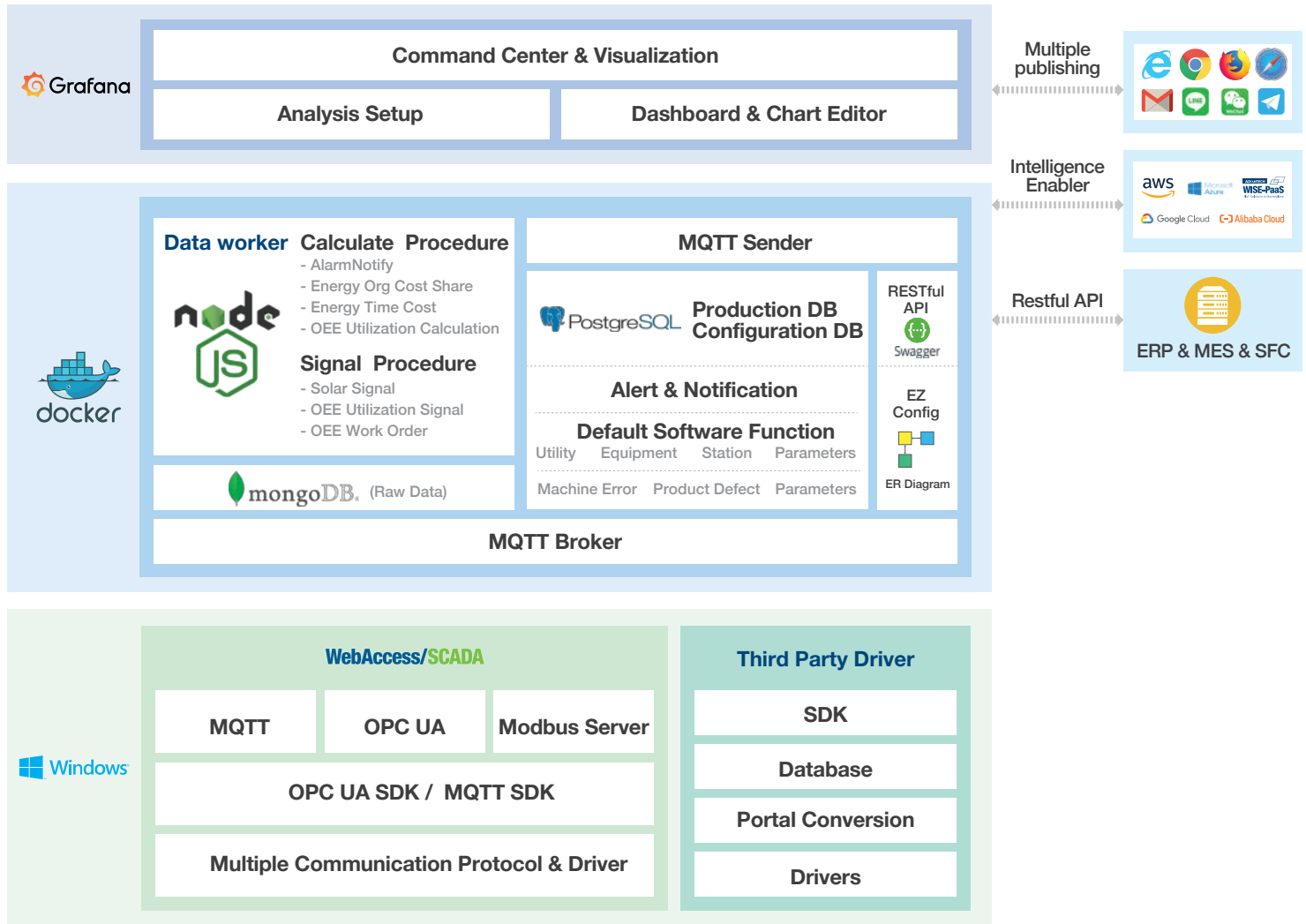
Benefits

With IMPELEX's equipment utilization management system, production efficiency of RE-DAI has been effectively improved.

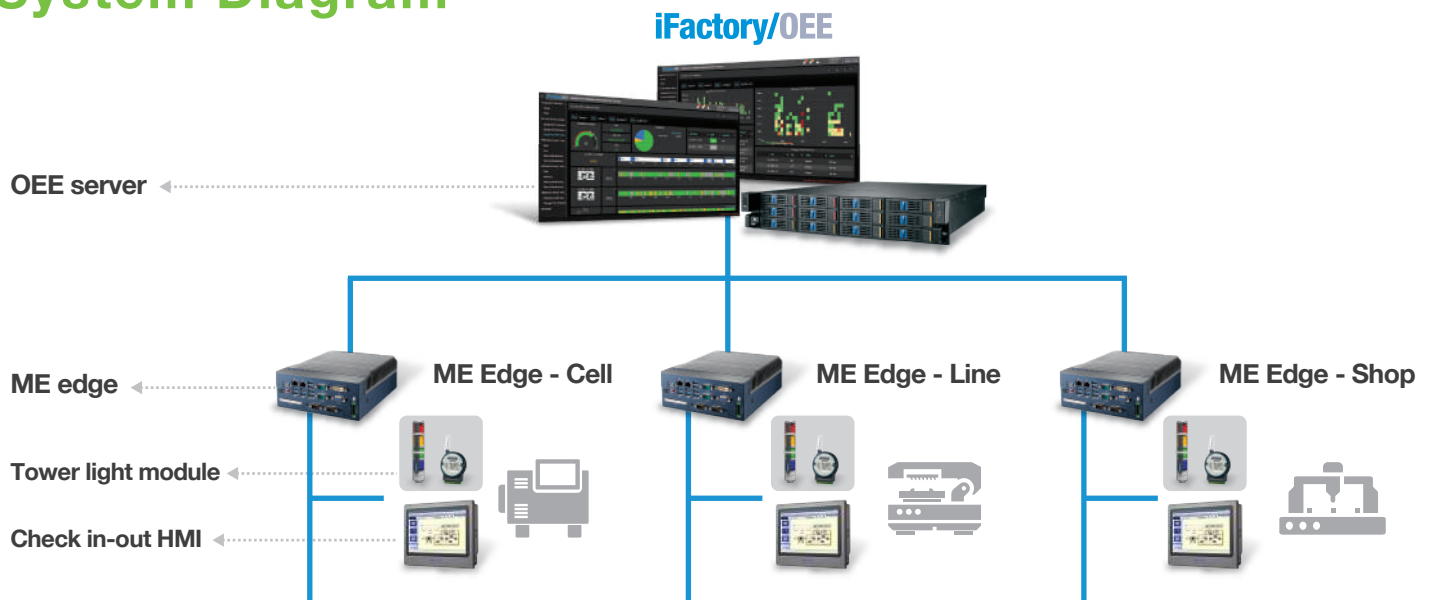
- Production has grown steadily thanks to a 20% improvement in machine availability.
- There has been a 50% labor-cost reduction due to upgrading from manual transcription to real-time, automated monitoring.



Software Diagram



System Diagram



Solution Ready Packages

On-Premises OEE Server



OEE Server

- OEE enterprise server: SRP-IFS250-H82F01A

Spec

- HPC-8212 with Xeon Silver 4110 8 core
- WinSvr2016 + PostgreSQL + Office
- WebAccess 8.4 unlimited
- iFactory/OEE application with a maximum of 2000 machines supported

OEE I.App



Industrial App

- Industrial cloud solution for iFactory/OEE: 9803WPOE01

Spec

- Cloud service in WISE-PaaS/EnSaaS cloud-based software platform
- iFactory/OEE application with unlimited machines supported

OEE Additional License

License

Additional License

- Additional 1 device: 32OTDISF0005A0
- Additional 10 devices: 32OTDISF0006A0
- Additional 30 devices: 32OTDISF0007A0
- Additional 100 devices: 32OTDISF0008A0

Edge OEE Computer



ME Edge - Cell

- ME edge: SRP-IFS250-M77F01A

Spec

- MIC-7700 with i3 7101E
- Win10 + PostgreSQL
- WebAccess 8.4 300 tags
- iFactory OEE & FEMS application embedded with 1 license, maximum of 5 licenses supported



ME Edge - Line

- ME edge: SRP-IFS250-M77F02A

Spec

- MIC-7700 with i5 7500
- Win10 + PostgreSQL
- WebAccess 8.4 1500 tags
- iFactory OEE & FEMS application embedded with 10 licenses, maximum of 30 licenses supported



ME Edge - Shop

- ME edge: SRP-IFS250-M77F03A

Spec

- MIC-7700 with i7 7700T
- Win10 + PostgreSQL
- WebAccess 8.4 5000 tags
- iFactory OEE & FEMS application embedded with 100 licenses, maximum of 200 licenses supported

Work Order HMI



Touchable HMI

- Work order HMI : SRP-IFS235-W20C
- Barcode scanner: 96BS-C1DHU-UB

Spec

- Check in & out software (client)
- WOP2070T with 128MB flash
- Barcode scanner (1D)

Tower Light Sensor Module



Sensor Module

- Tower Light: WISE-S235SL
- Optional Wi-Fi module: WISE-4051

Spec

- Transferring light signals into Modbus/RTU

WISE-PaaS VIP



WISE-PaaS VIP

- WISE-PaaS VIP: 98DPWAP2K

Spec

- WISE point: 2,000 points

ADVANTECH

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