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Enabling an Intelligent Planet

iFactory SRP Solution

Overall Equipment Effectiveness Solution (OEE SRP)

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BDM of iFactory PD

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iFactory Solution Ready Packages 2.0

ADVANTECH WISE-PaaS
IoT Edge Intelligence

iFactory

Overall Equipment Effectiveness (OEE)

- Real-time production and changeover efficiency management
- Machine availability and performance monitoring

Manufacturing Execution System (MES)

- Manufacturing operations visibility and optimization management
- Shop floor management with production traceability

Preventive Maintenance

- Monitor and predict equipment failure to minimize downtime
- Schedule alerts for machine maintenance

Industry 4.0 Situation Room

- Dashboard visualization for real-time management
- Total factory operations management

Factory Energy Management

- Energy consumption overview and KPI management
- Energy efficiency and cost analysis

AI-Enabled Vision

- Cloud-enabled vision application for quality inspection
- AI framework with machine learning

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OEE：智慧工廠的監控基礎

Utilize OEE As Manufacturing Guideline of Factory

Schedule	A Availability		P Performance		Q Quality		OEE (A x P x Q)
20 hrs / 24 hrs	18 hrs / 20 hrs	X	50 pcs / 60 pcs	X	45 pcs / 50 pcs	=	68%

OEE – Overall Equipment Efficiency solution

Instant Monitoring

Tracking & Analysis

Future Prediction

- Total Available Time (calendar day)
- Available Operating Time — Scheduled Break
- Actual Operating Time — Change — Mal-function
- Net Run Time — Idle — P. Loss
- Productive Time — rework — Q. Loss

A: Machine Availability

Monitoring : Real-time machine failure condition
Tracing: Tracking long-term shifting efficiency
Prevention: remark for special SKU for pre-alarming

P: Manufacturing Performance

Monitoring: real time alarm for production error
Tracking: tracing P & Q condition for special SKU
preventive :pre-alarm for special low P SKU

Q: Product Quality

Monitoring: real time notify by Phone
Tracking: Pareto chart for Error frequency
Preventive: focus major resource on critical error

OEE Feature –
Production Efficiency Comparison (A & P & Q)

Production

Tracing different equipment’ s Availability / Performance / Quality by separated shift, digging out the problem to enhance the productivity

Alarm:
Real time tracing A/P/Q

Alarm:
Compare A/P/Q info by shift

OEE Feature： Full Time Equipment Usage

Improve ROI

Calculate machine’s full time utilization to clarify equipment’s financial return, and help to evaluate following investment plan.

Low Full Time Utilization :
Postpone equipment purchase plan

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OEE Feature : Error Condition (Metal & Automotive Industry)

Setup Error category base on specialized error definition by each industry,
Operators can monitor and checking error condition & frequency easily

Standard Error Code

E01. Equipment mal-function
- E0101 Shaper failure
- E0102 un-define failure

E02. Molding change & adjustmen
- E0201 Change molding
- E0202 pre-heating

E03. Un-Loading & Idle
- E0301 Material Shortage
- E0302 Machine cleaning & exam

E04. Down-speed production
- E0401 new labor

E05. Quality Failure & Re-work
- E0501 Yield rate by re-work time
- E0502 Scrapped rate by working time

E06. new product launching loss
- E0601

E07. Scheduled break
- E0701 schedule maintenance
- E0702 resting

Customized Error Code

EX: E010001

Major Classification | Sub Classification | Series number

E010001 → Repair team 1

E010102 → Repair team 2

E010103 → External Repair

MQTT

iFactory Rest API

External ERP & MES

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OEE Feature : Quality Defect

Setup quality defect category base on general production defect definition,
Operators can monitor and checking error condition & frequency easily

Standard Defect Code

QA Appearance Failure

- QA0101 Impurity
- QA0102 Scratch
- QA0103 Uneven Painting
- QA0104 Crushed

QF Function Failure

- QF0101 OS Failure
- QF0102 Screen Failure
- QF0103 IO port Failure
- QF0104 LED light Failure

Customized Error Code

EX: E010001

Major Classification | Sub Classification | Series number

- E010001 → Repair team 1
- E010102 → Repair team 2
- E010103 → External Repair

MQTT

iFactory Rest API

External ERP & MES

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Check in-out Touchable HMI

- Check in & out Software (client)
- WOP2070T with flash
- Barcode Scanner (1D)
  (P/N: SRP-IFS-235-W20B)

Capability & Volume Chart

Quality Pareto Chart

- Check in-out
- Work order loading

- finished Qty loading
- Defected Qty loading

- Quality defect loading

- Machine error loading

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Total Dashboard

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iFactory SRP offering for Factory Evolution

	Ordinary manufacturer	Mega Size Group	Single Workstation	Individual Equipment	Small & Medium Factory
Cloud Analysis		Industrial APP in Private Cloud			iFactory WISE-PaaS/ EnSaaS Industrial APP in Public Cloud
Edge Computing	OEE & FEMS	OEE & FEMS	Manufacturing Enabler (With GPU extension)		
Data Acquisition Gateway	SCADA Plus Check in-out HMI light sensor	SCADA Plus Check in-out HMI Light sensor	Check in-out HMI	SCADA Plus Check in-out HMI Light sensor	SCADA Plus Check in-out HMI Light sensor

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iFactory SRP for **Ordinary Factory User**

Ordinary Factory User: Purchasing item

Solution	Feature	HW/SW Portfolio
OEE Enterprise Server + SRP-IF230-H82F01A + 32OTLOEE0002A0 	• Full function of iFactory OEE • Embedded OEE equipment license 100 • MQTT / Restful API to MES/ERP • SW license expansion : 100~1000	• HPC8212 with Scalable Xeon CPU + 32G DDR4 + 4T SAS HDD * 4pcs with Raid5 • Win server 2016 • WebAccess/SCADA 8.4 , unlimited tags • Mongo / Postgre SQL • Built in 100 iFactory Equipment License. • License expandable to 1,000
SCADA PLUS SRP-IFS235-U24G01A SRP-IFS235-U24G02A 	• Full function of WebAccess driver list and dashboard function • Built in Check in-out tag setting • Built in Line / Wechat / Telegram notification tool	• UNO2484 with i3 / i7 CPU + 8G DDR4 + 128G SSD storage • Win10 ENT • WebAccess/SCADA 8.4 • Built in iFactory Equipment License.
Touchable HMI SRP-IFS235-W20B 	• Check in-out Software • Input product defect / machine error • Input work order / finished volume • Link to OEE for visualized dashboard	• Check in & out Software (client) • WOP2070T with 128MB flash • Barcode Scanner (1D)
Tower Light Module SRP-IFS235-SB4WA (WIFI) SRP-IFS235-SB4LA (LAN) 	• Transferring Light signal into DI signal • Link 4 LED tower light • WIFI / LAN linkage option	• WIFI version: WISE-4050 + Tower light sensor • LAN version: WISE-4050/LAN + Tower light sensor

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iFactory SRP for **Single Workstation**

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Single workstation: Purchasing item

Solution	Feature	HW/SW Portfolio
ME edge with 1 license SRP-IFS250-M77F01A 	• Full function of iFactory OEE /FEMS / Check in-out • Optional robot driver • MQTT / Restful API to cloud • SW license expansion : 1 ~ 5	• MIC-7700H with i3-7101E CPU + 16G DDR4 + 128G SSD storage • Win10 ENT • WebAccess/SCADA 8.4 , 150 tags • Mongo / Postgre SQL • Built in 1 iFactory Equipment License. • License expandable to 5
ME edge with 10 license SRP-IFS250-M77F02A 	• Full function of iFactory OEE /FEMS / Check in-out • Optional robot driver • MQTT / Restful API to cloud • SW license expansion : 10 ~ 30	• MIC-7700H with i5-7500 CPU + 16G DDR4 + 128G SSD storage • Win10 ENT • WebAccess/SCADA 8.4 , 1500 tags • Mongo / Postgre SQL • Built in 10 iFactory Equipment License. • License expandable to 30
Touchable HMI SRP-IFS235-W20B 	• Check in-out Software • Input product defect / machine error • Input work order / finished volume • Link to OEE for visualized dashboard	• Check in-out Software (client) • WOP2070T with 128MB flash • Barcode Scanner (1D)

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iFactory SRP for **Small & Middle Size Factory**

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Small & Middle Size Factory User : Purchasing item

Solution	Feature	HW/SW Portfolio
OEE Cloud service	• Full function of iFactory OEE • Embedded OEE equipment license 100 • MQTT / Restful API to MES/ERP	• Support 100 Equipment license for OEE function • Deployed at WISE-PaaS Cloud service, included 3M message , 4GB memory, 50 GB / month.
SCADA PLUS SRP-IFS235-U24G01A SRP-IFS235-U24G02A	• Full function of WebAccess driver list and dashboard function • Built in Check in-out tag setting • Built in Line / Wechat / Telegram notification tool	• UNO2484 with i3 / i7 CPU + 8G DDR4 + 128G SSD storage • Win10 ENT • WebAccess/SCADA 8.4 • Built in iFactory Equipment License.
Touchable HMI SRP-IFS235-W20B	• Check in-out Software • Input product defect / machine error • Input work order / finished volume • Link to OEE for visualized dashboard	• Check in & out Software (client) • WOP2070T with 128MB flash • Barcode Scanner (1D)
Tower Light Module SRP-IFS235-SB4WA (WIFI) SRP-IFS235-SB4LA (LAN)	• Transferring Light signal into DI signal • Link 4 LED tower light • WIFI / LAN linkage option	• WIFI version: WISE-4050 + Tower light sensor • LAN version: WISE-4050/LAN + Tower light sensor

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Go Together,

We Go Far and Grow Big