Advantech iMachine Smart Machine Management System

A Future of AI-Enabled Machines

9806IMSAS01, 9806IMSAD01, 9806IMSAD11

iMachine 24h

Machine digitalization management

iMachine PHM

Machine AI predictive maintenance

ADVANTECH

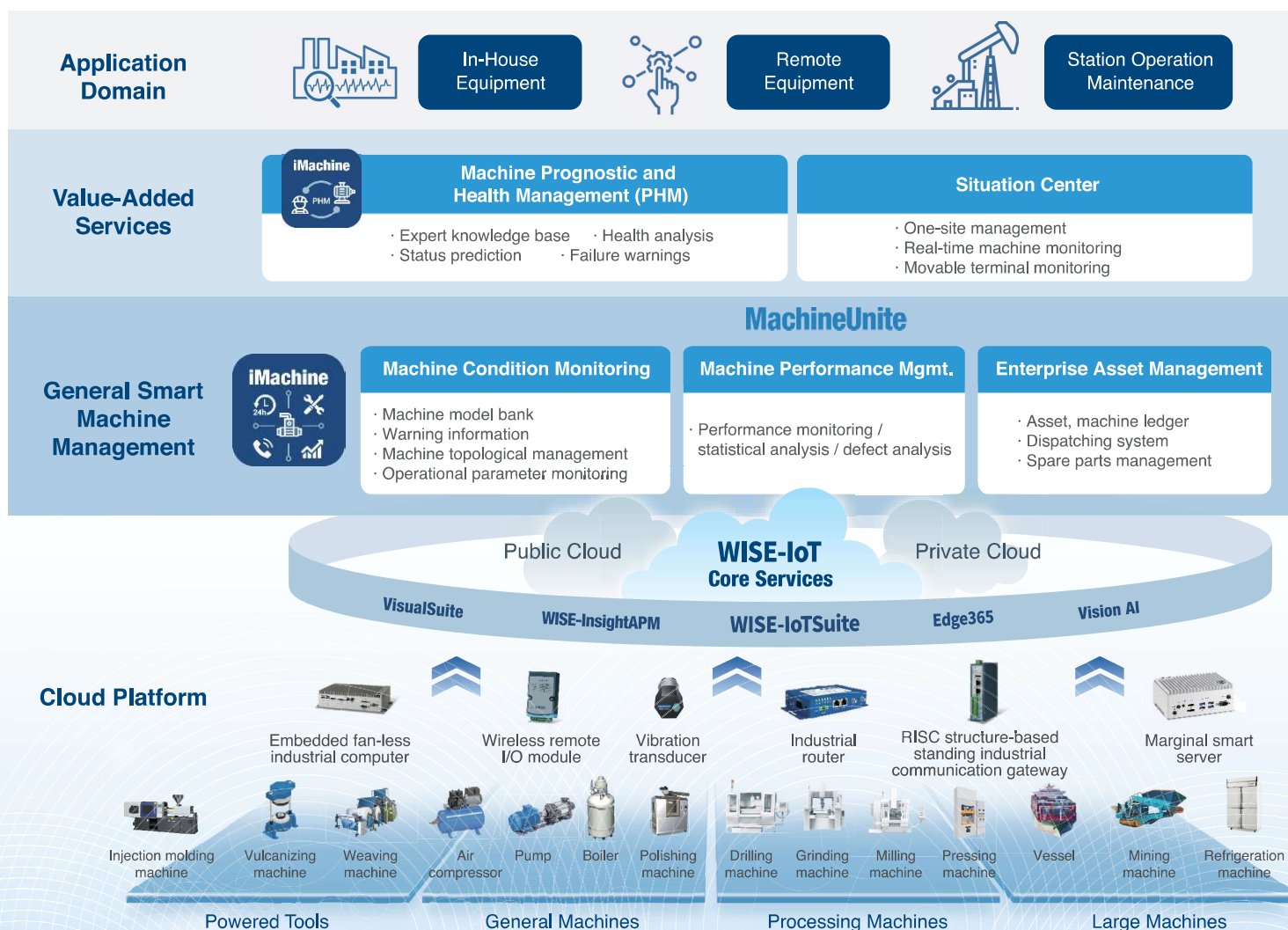*Enabling an Intelligent Planet*

Introduction Video

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ADVANTECH
WISE-PaaS

Solution Introduction

Easily Monitor Machine Status	Enhance Machine Operation Performance	Terminal-to-Cloud Integration to Quickly Get Online	AI Extended Applications
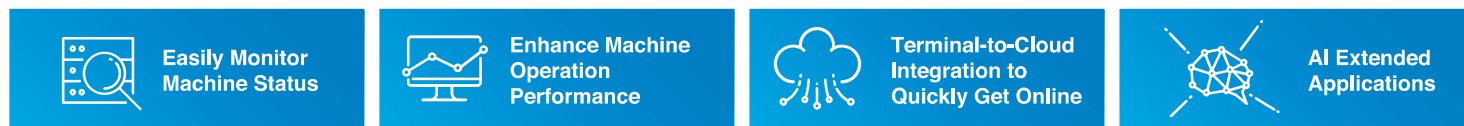
The core of the WISE-iMachine solution is machine asset management which transforms each type of machine into a digital asset for machine integration. Advantech iMachine brings a complete set of solutions from edge-to-cloud to assist you in speeding up the development & deployment of internet machine management, and is fully dedicated to the vertical market and core business. It features an array of value-added applications like machine data control, predictive maintenance, and the situation center. These features can be applied to various scenarios including in-house machine management, remote machine management, and station maintenance.

Application Structure

Application Domain

In-House Equipment | Remote Equipment | Station Operation Maintenance

Value-Added Services

iMachine PHM

Machine Prognostic and Health Management (PHM)
- Expert knowledge base
- Status prediction
- Health analysis
- Failure warnings

Situation Center
- One-site management
- Real-time machine monitoring
- Movable terminal monitoring

MachineUnite

General Smart Machine Management

iMachine 24h

Machine Condition Monitoring
- Machine model bank
- Warning information
- Machine topological management
- Operational parameter monitoring

Machine Performance Mgmt.
- Performance monitoring / statistical analysis / defect analysis

Enterprise Asset Management
- Asset, machine ledger
- Dispatching system
- Spare parts management

Cloud Platform

Public Cloud | **WISE-IoT Core Services** | Private Cloud

VisualSuite | WISE-InsightAPM | WISE-IoTSuite | Edge365 | Vision AI

Embedded fan-less industrial computer | Wireless remote I/O module | Vibration transducer | Industrial router | RISC structure-based standing industrial communication gateway | Marginal smart server

Injection molding machine | Vulcanizing machine | Weaving machine | Air compressor | Pump | Boiler | Polishing machine | Drilling machine | Grinding machine | Milling machine | Pressing machine | Vessel | Mining machine | Refrigeration machine

Powered Tools | **General Machines** | **Processing Machines** | **Large Machines**

Complete Solution for Machine Management Digitalization Transformation

| ❌ Complex manual operation ❌ Difficulty obtaining complete machine information ❌ Failure to respond in real time when there are unexpected damages	⊙ Machine internet ⊙ On-line inspection management ⊙ Predictive maintenance	✅ Information transparency enhances management efficiency ✅ Digital twin accelerates response efficiency ✅ Control future risk for early response

Feature Highlights

Situation Room

Tracking Machine Performance

The machine map is based on Google maps and allows you to check machine status and statistical results. It provides warning statistics and category analysis of any machine anomalies.
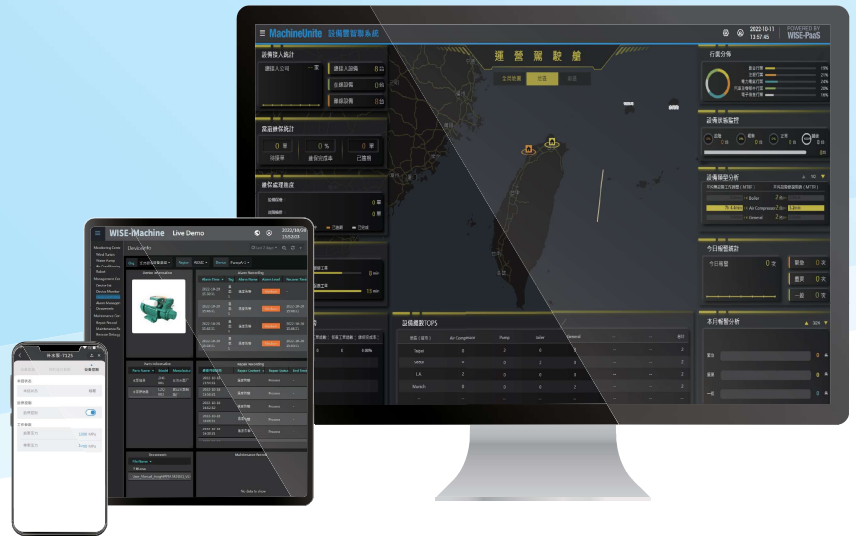
Machine Performance Management

Real-time production — Management can set targets to support production efficiency for different processes and regions

Root-cause — Analyze statistics to get a deep understanding of root causes of issues to support decisions

Process Monitoring

Provides real-time machine monitoring of various measures to control machine efficiency.

Region Monitoring

Supports regional review with the ability to examine a target machine to manage efficiency.

Vision Analysis Tool

Identify machine inefficiencies with the vision analysis tool.

Root Cause Analysis

Provides a summary of root causes for management to analyze and use to devise improvements.

Machine Condition Monitoring

Real-time monitoring

One-station manages multiple I/O positions of machine data in cooperation with flexible workflows and thresholds. A machine management workstation can be set up in accordance with daily demands and employee knowledge.

Remote control

A machine can be connected anytime and anywhere to be controlled remotely. A time schedule and event-triggered conditions can also be set up to automatically manage numerous machines. An unmanned machine room with quick response capability can be achieved.

Anomaly surveillance

Machines can be integrated to provide one-way information. This allows the support administrator to provide rapid response to any issues that may arise.

Machine Overview

Summary of the status for the machine under control.
Any anomalies will be highlighted.
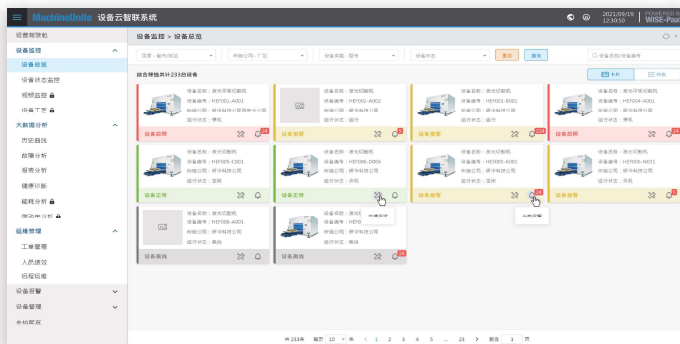
Machine Data Overview

Monitor the real-time status
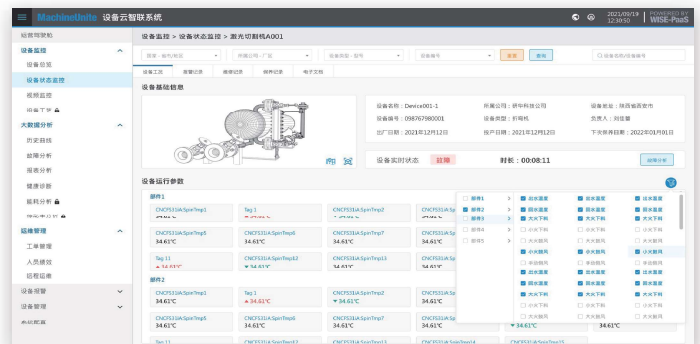
Anomaly Surveillance

Supports machine management and dispatch.
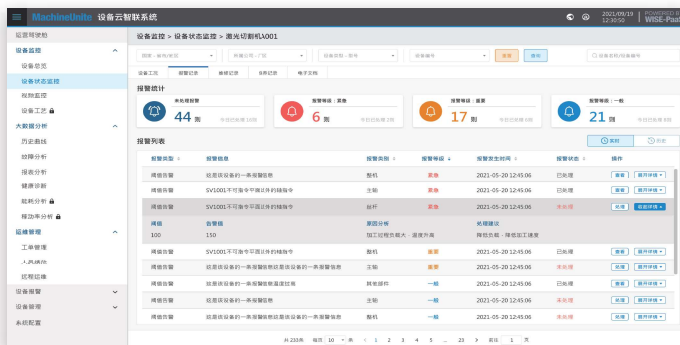
Remote Control

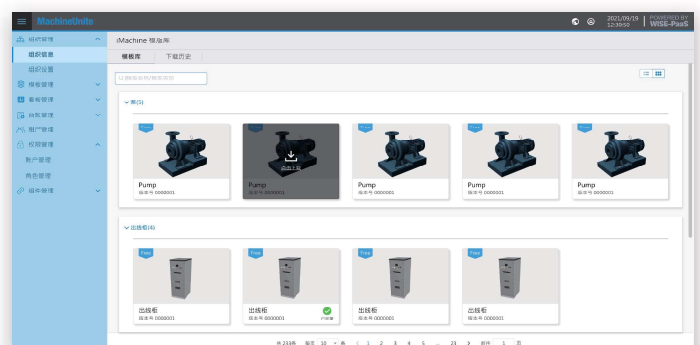Enables scheduling and an unmanned machine room.
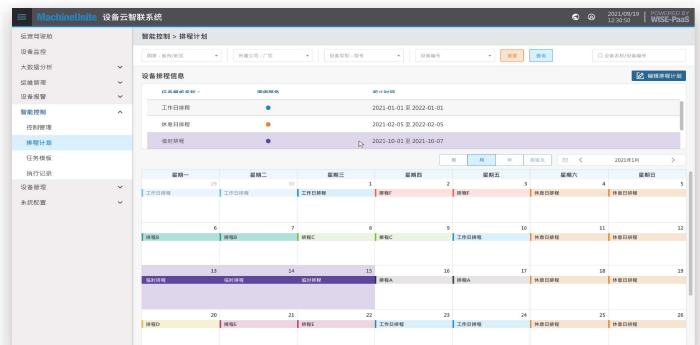
Historical Data Analysis

Supports analysis of different machine parameters and optimizes the maintenance and service strategy.
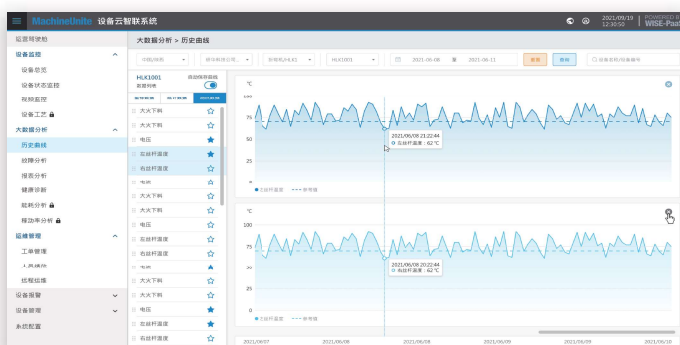
Machine Management Template

Integrates regional experience to provide management templates and support the administrator for fast implementation.

Enterprise Asset Management

Service & maintenance workflow integration

Summarizes the working items and historical records from maintenance planning to the inspection process. Supports digitalization of the machine management flow.

Virtual scenario integration

Enables review of historical machine information by scanning the QR code on a field machine. Combines virtual stations with real management scenarios.
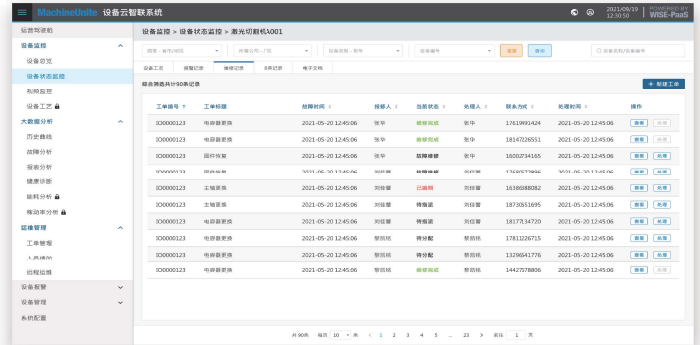
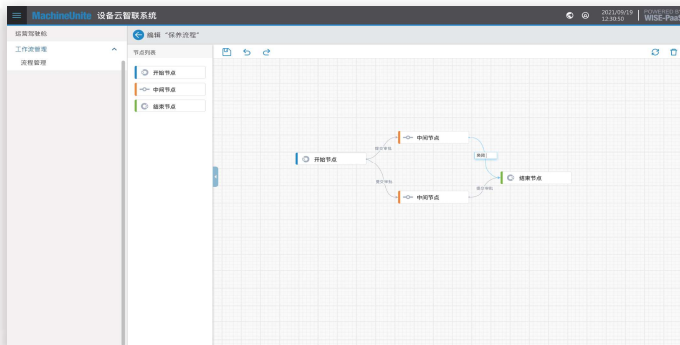## Service & Maintenance Schedule

Defines the maintenance schedule according to each machine

Service Record

Monitor machine tasks to be handled and build a service & maintenance record for each machine

Work Flow Management

Define the appropriate work and approval flow for organizations

Work Progress Surveillance

Monitors the progress of tasks and the personnel responsible for each work order

Machine PHM

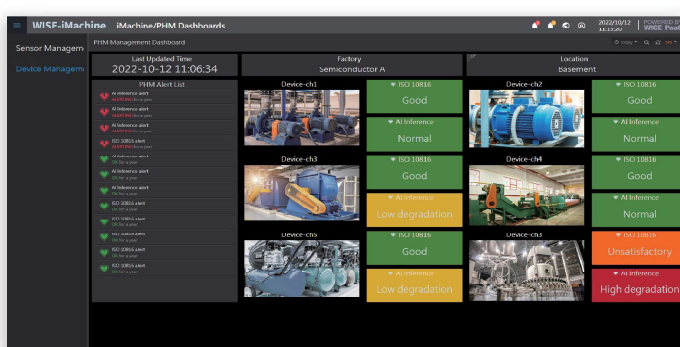**Management targets established by flexibly applying AI models**

Enables the training and deployment process for an AI model and controls the performance of the AI model.

Machine health index monitoring
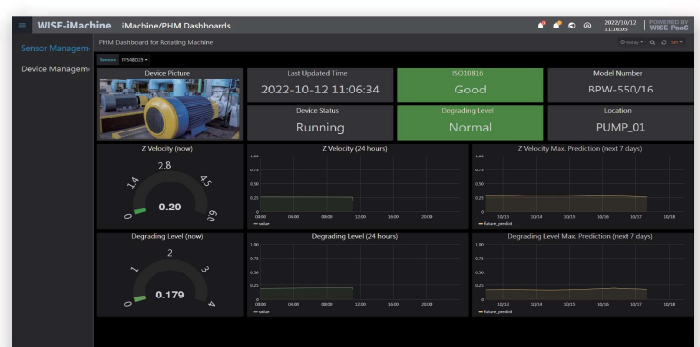
ISO10816 and machine degradation process monitoring

AI Project Management

Set up an AI management scenario for your machine to check the machine AI index

Overview of Machine Diagnosis Information

Determine the effective elements of AI models and provide retrospective and predictive information to support diagnoses

Subscription information

Provides dealers with different subscription plans to provide customers with value-added services.
You are invited to join iMachine smart machine management solutions as an ecopartner.

WISE-iMachine

	Speedy verification solution Available to be used upon connection — **400 Tags** upper limit
Depolyment Mechanism	No need for additional deployment
Flexible Expansion	400 Tags per unit
Data Storage	1 year
Data upload	1 minute
Muli-tenant	–

Data Acquisition Terminals

ECU-1051

**TI Cortex A8 300MHz CPU
with DDR3L 128MB RAM**

ECU-1051TL-R10AAE

ECU-1051

**Intel® Atom® E3940 processor (1.6 GHz)
with 8GB DDR3L memory**

UNO-137-E13BA

ECU-1251

**TI Cortex A8 800MHz CPU
with DDR3L 256MB RAM**

ECU-1251TL-R10AAE

EI-52

**Intel 11th gen. Core i5/i3/Celeron
with 8/16 GB Dual-Channel DDR4 Memory**

EI-52-S6A1 (i5 CPU/16GB)
EI-52-S2A1 (i3 CPU/8GB)
EI-52-U0A1 (Celeron CPU/8GB)

PHM Vibration Data Acquisition

WISE-6610

**Enhanced LoraWAN Gateway
WISE-6610-N100-A
(LoRaWAN gateway supports up
 to 100 nodes at 915 MHz)**

WISE-2410

**LoraWAN Vibration Wireless Sensor
WISE-2410-NB (US)
WISE-2410-EB (EU)
WISE-2410X-E21NA (IECEx Zeon21 for NA915 Band)**