

Energy &
Environment

Solution
Ready
Package

Wind Power Monitoring & PHM Solution

Optimized Operational Efficiency with
IoT Edge Computing

SRP-PHM400



- Failure analysis for efficient prognostics and health management
- Prediction of potential failures and alerts to lower maintenance costs
- Maximum power generation and operational efficiency



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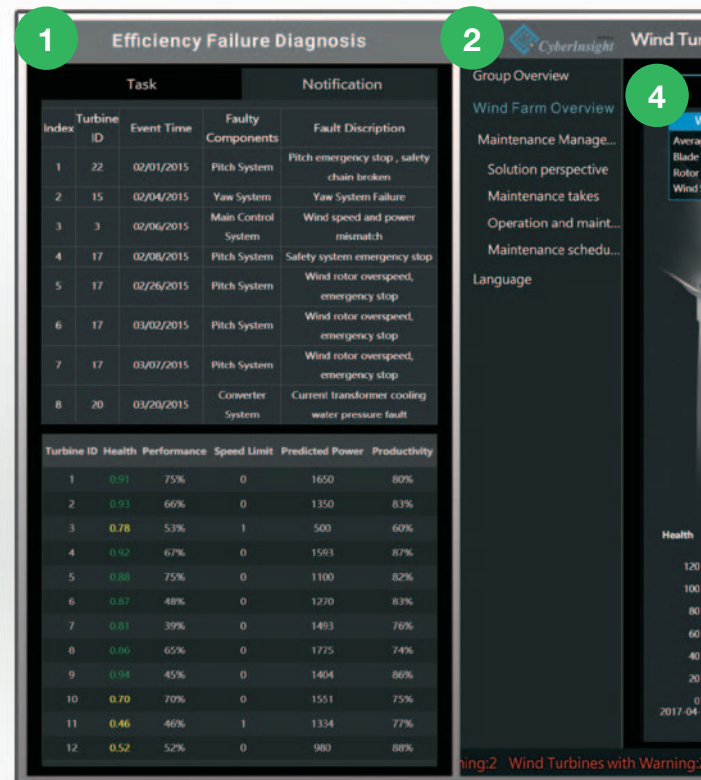
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WISE-PaaS

System Introduction

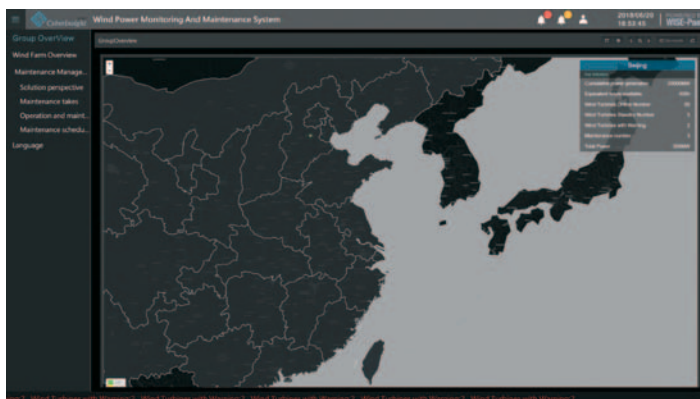
With predictive analysis and intelligent diagnosis software for equipment operation and system management, Advantech's Wind Turbine Monitoring and PHM Solution provides precise data acquisition, real-time monitoring, and intelligent operation management, thus achieving intelligent preventative maintenance to maximize the operational efficiency of wind turbines.

WISE-PaaS/Dashboard



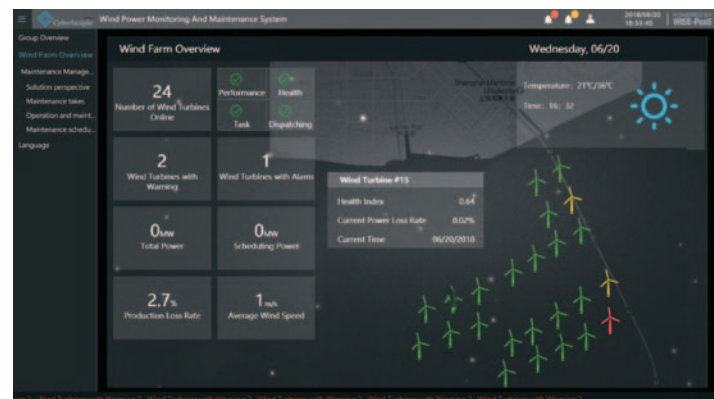
1 Focal Point for Wind Turbine System Status Monitoring

- Production efficiency failure diagnosis for individual wind turbines
- Failure diagnosis and alert management



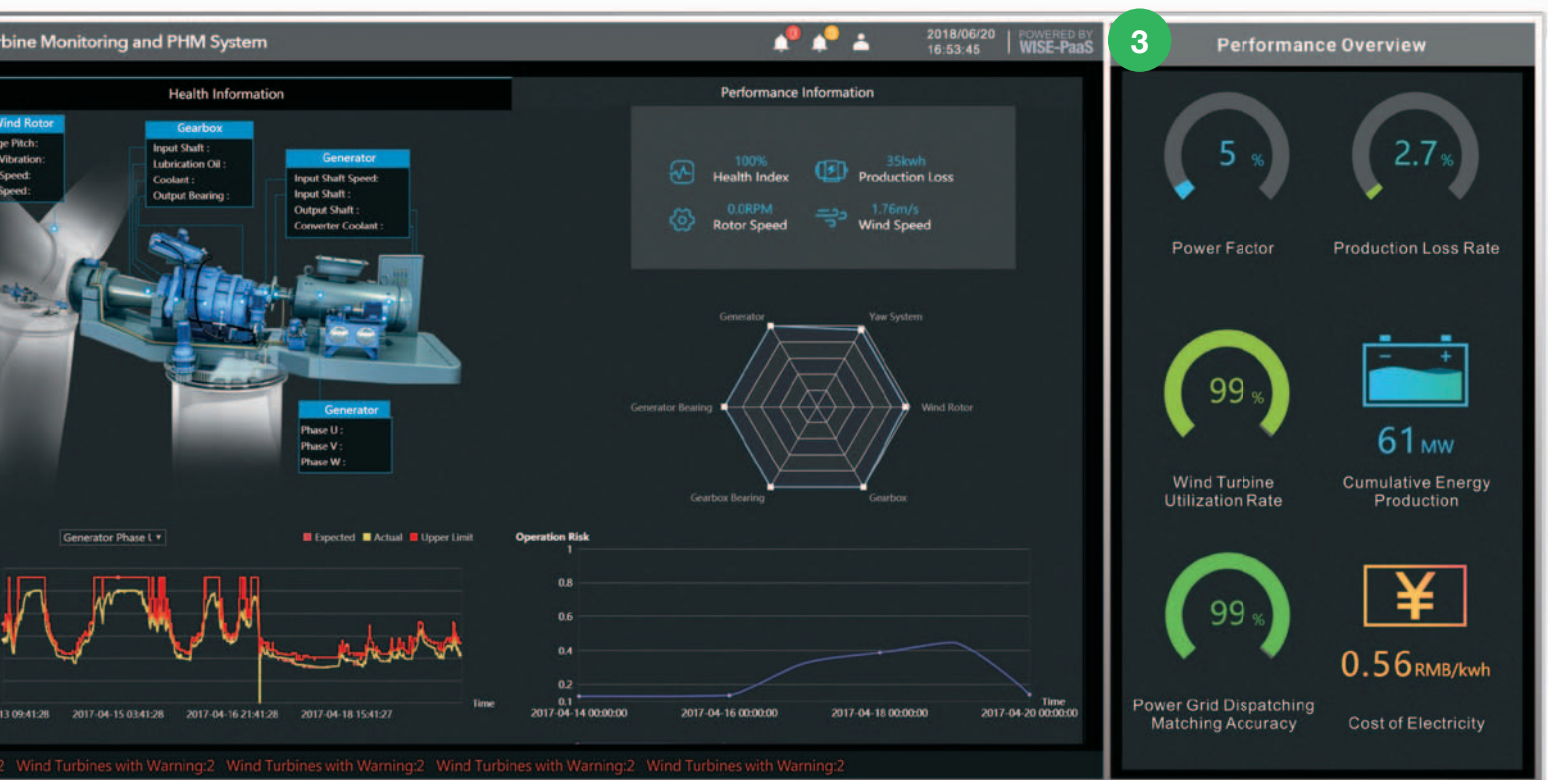
Wind Turbine Monitoring and PHM Solution Home Page

- Wind farm geographical distribution map and operation status by color
- Current status overview of individual wind turbines



Wind Farm Status Overview

- Real-time analysis of key factors of overall wind farms
- Identify at-risk and low-efficiency wind turbines



2 Interactive Dashboard for Wind Turbine Monitoring and PHM Solution

- Main menu for quick selection

3 Management Scorecard

- Daily wind turbine usage rate
- Accumulated power generation output/loss ratio and grid dispatch compliance
- Cost information with power factor efficiency

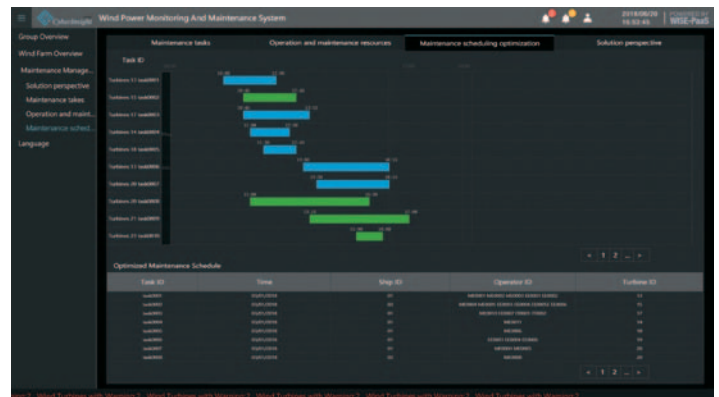
4 Status Overview of Individual Wind Turbine

- Health status analysis of bearing unit, gearbox, and generator
- Real-time condition monitoring and anomaly detection with SCADA time-series data
- Diagnostic information and alert management



Production Management

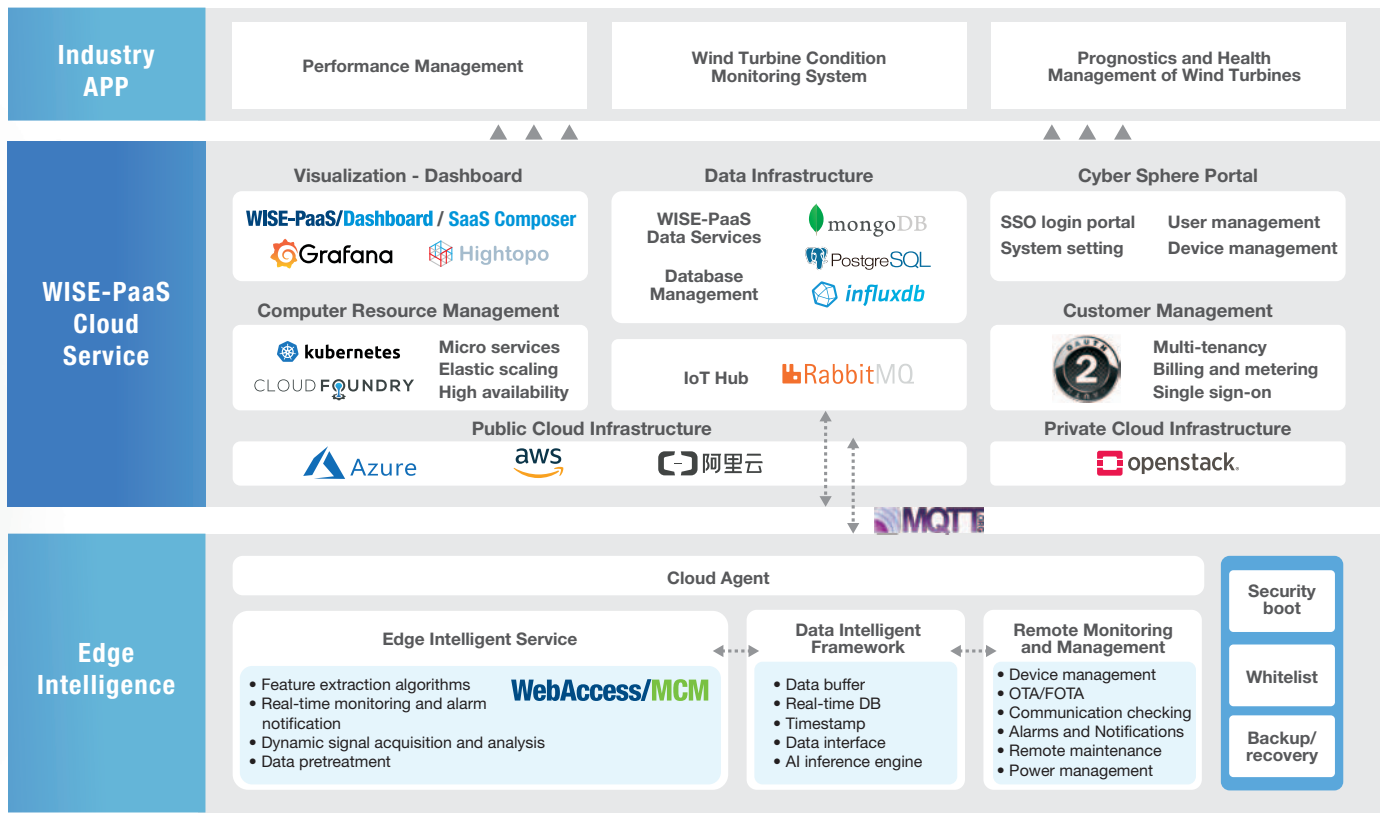
- 72-hour wind power prediction
- Productivity and cause of power loss for individual wind turbines



Maintenance Management

- Maintenance task scheduling with total cost optimization
- Intuitive visualization of maintenance task planning and routes for mechanical maintenance

Software Diagram



System Diagram



Feature Highlights

Predictive Data Analysis

Precisely collect parameter data and perform wind farm monitoring in real time to enhance wind power generation efficiency

Accurate and Reliable Failure Diagnosis

Optimize security and reduce unanticipated failures to extend the life of wind turbine subsystems and components

Intelligent Prevention and Maintenance

Intelligent prognostics and health management extend operating lifetime and the wind turbine life cycle while minimizing unplanned maintenance, thus reducing total operating costs

Application Stories

Smart Wind Farm Platform for O&M Management and Wind Power Prediction



- Wind turbine health management and predictive diagnosis to prevent wind turbine failure and minimize downtime
- Wind energy prediction to optimize production with more than 85% accuracy and compliance with grid regulations
- Maintenance scheduling and resource planning optimization to reduce production loss and costs while improving turbine yield rate


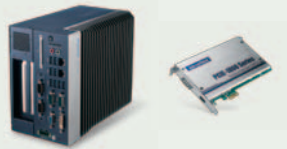



Wind Turbine Remote and Vibration Monitoring Management

- Monitor vibration information for each key component in real time
- Identify failure modes at turbine substations with the exact damage location
- Perform prognostics and health management on wind turbines in various remote locations
- Improve the accuracy and reliability of diagnostics to aid strategic operational decision-making

Ordering Information

Solution Package		
WISE-PaaS Situation Room SRP-SR-100-BTO	LCD Wall: 1 x 86" + 2 x 55" Server and Display: 1 x DS-980 Control Panel: 1 x UTC-520 WISE-PaaS/Signage CMS	
WISE-PaaS VIP Membership 98DPWAP2K	WISE points: 2,000	

SRP-PHM010 Wind Turbine PHM and CMS Solution	<ul style="list-style-type: none"> • Performance management software • Wind turbine condition monitoring system software • Prognostics and health management of wind turbine software 	
SRP-PHM410 Modularized Condition Monitoring Solution	MIC-7500B-U4A1E x1 MIC-75M20-00A1E x1 PCIE-1802 x2 Windows 7 Pro WebAccess/MCM	 WebAccess/MCM
SRP-PHM420 Compact Condition Monitoring Solution	1 x MIC-1810 Windows 7 Pro WebAccess/MCM	 WebAccess/MCM

Optional Purchase		
IoT.SENSE Training	Basic Basic training	2 days
	Advanced training	1 day
IoT.SENSE Consulting	IoT solution and on-site technical support	3 days

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