iEMS/ECOWatch
Lite All-in-One

Advanteh ECOWatch Lite All-in-One



Features

- Lite delivery, plug-and-play for rapid go-live.
- Real-time energy monitoring, early detection of anomalies.
- Automated meter reading management, saving time and effort.
- Multi-dimensional energy efficiency analysis, a full picture of energy use at a glance.

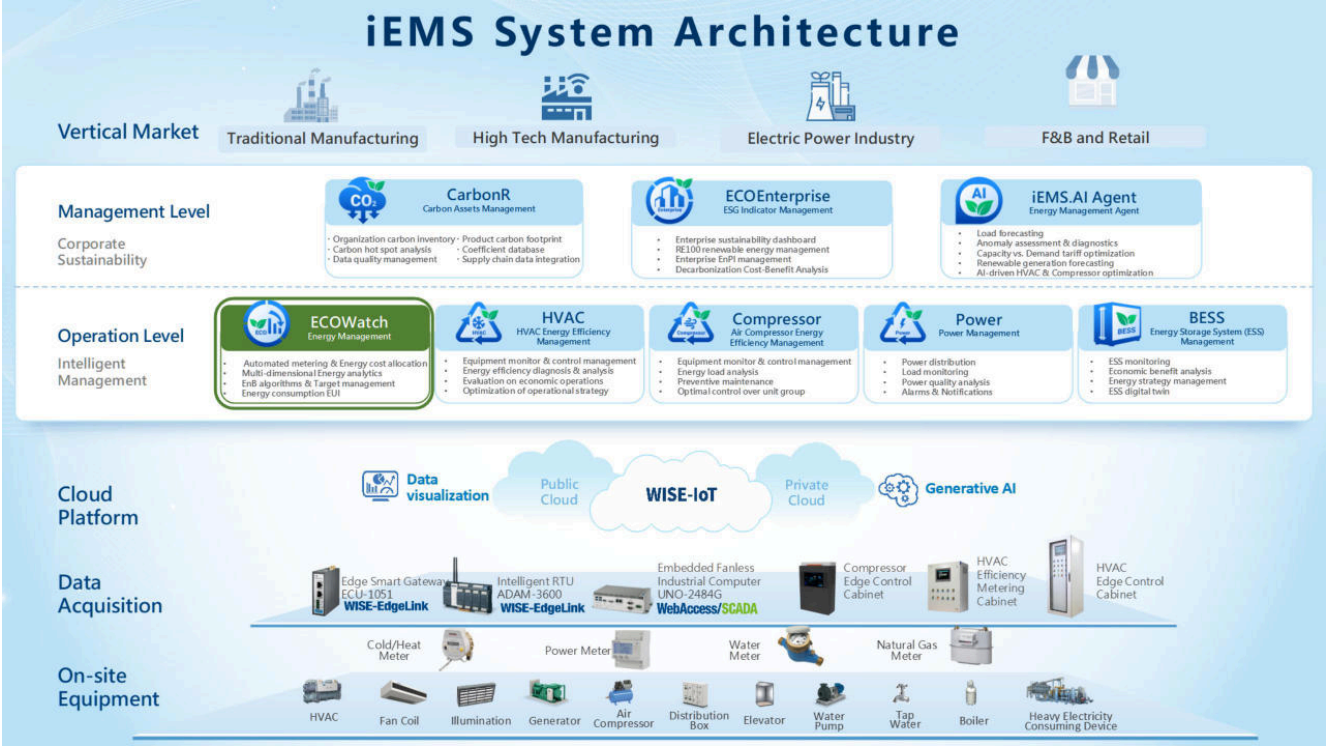
ISO 50001 ISO 50006

Overview

ECOWatch Energy Management All-in-One is an integrated hardware-and-software solution, combining an Advantech HPC-7242 industrial server with the iEMS/ECOWatch.

Built for Small and Medium-sized Enterprises, it provides real-time monitoring and analysis of electricity, water, and gas usage, giving customers a clear view from enterprise level down to key equipment. With multi-dimensional analytics, it highlights anomalies and improvement areas, supporting targeted energy-saving actions to reduce energy cost.

System Architecture



Function List

No.	Level-1 Module	Level-2 Module	Description
1	Energy Monitor	Energy Usage Statistics	Itemized & total energy statistics with MoM/YoY comparison.
		Area Usage	Consumption monitoring by area and by energy item.
		TOU Period Analysis	TOU monitoring (peak / shoulder / off-peak / valley).
		Demand Analysis	Monitor enterprise peak demand (electricity).
		Energy Alarm	Anomaly alerts with notifications via DingTalk,Wechat, Email, etc.
2	Effect Analysis	Energy Ranking	Energy KPI rankings in multiple views.
		Usage Comparison	Multi-region, multi-date comparative energy analysis.
		Energy Flow Analysis	Energy flow view for supply–demand balance.
3	Automated Meter Reading	Meter Reading	Daily/monthly/annual meter reading report.
		Meter Usage	Daily/monthly/annual meter usage report.
		Scheduled Record	Define reading rules and generate meter reading reports on a schedule.
		Meter Area Settings	Customize meter reading areas.
4	Data Rollback	Usage Rollback	Recalculate meter usage.
5	Data Monitor	Meter Monitor	Real-time monitoring of metering device status.
		Historical Data Query	Search meter istorical parameter trend.
		Meter Parameters	View Real-time Parameters.
		Consumption Traceability	Show Calculation Logic & Locate Anomalies
6	Basic Settings	Energy Medium	Energy medium configuration (Electricity, Water, Steam, etc.)
		Energy Conversion Factors	Energy Conversion Factor Configuration (Electricity, Water, Steam, etc.)
		Data Entry Mgmt.	Import/enter historical consumption data

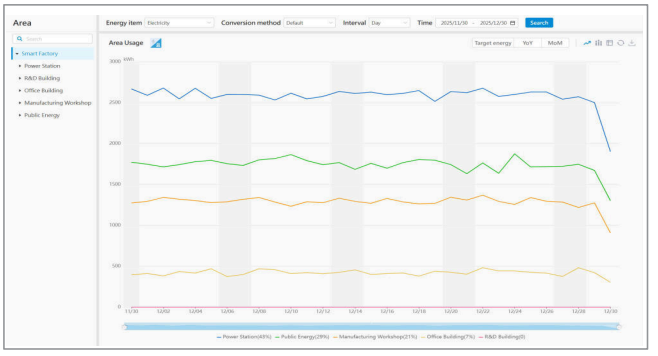
ECOWatch All-in-one Specifications

Category	Specification		Item
Software Model: iEMS/ECOWatch	• Supports up to 200 meters / 4,000 tags (scalable in increments of 20 meters) • Max data acquisition frequency: once per minute • Data retention: 2 years		
	Included application services: • ECOWatch • InsightAPM Standard Edition • Microservice Framework • MongoDB • PostgreSQL • Rabbit MQ • MessagePush • MinIO		
Hardware Model: HPC-7242 2U rack server	CPU	Intel 13th Gen Core i7, 16 cores / 24 threads, 35W embedded energy-saving edition	
	Memory	64GB DDR5 4800MT/s	
	Storage	Enterprise-grade 4TB SATA 6Gbps	
	Power Supply	500W	
UPS (recommended, sold separately) Prevents disk failure caused by unexpected power loss.	• Rating: 3000VA/1800W • Feature: supports USB auto power on/off		

Standard Feature Screens

- **Area Energy Analysis**

Calculate and display energy usage of each area; analyze anomalies via trend comparison and drill-down.



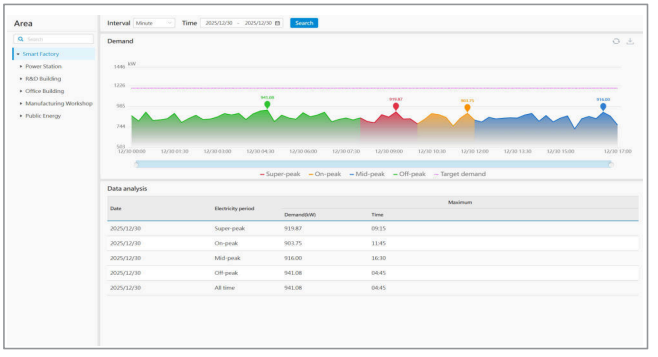
- **Sub-item Energy Analysis**

Display energy consumption by energy type/structure for the same area, with drill-down by the energy category hierarchy for step-by-step traceability.



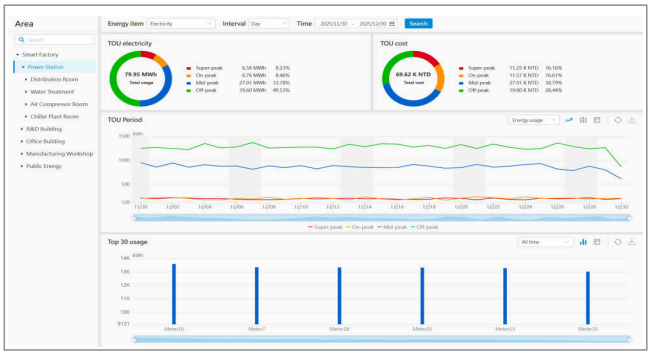
- **Demand Analysis**

Record 15-minute load and peak demand; The users can view demand by area.



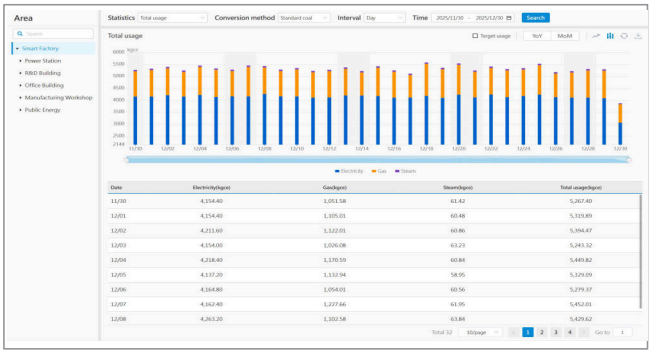
- **TOU Period Analysis**

Calculate and display peak/flat/valley electricity usage per area, including usage and cost proportion.



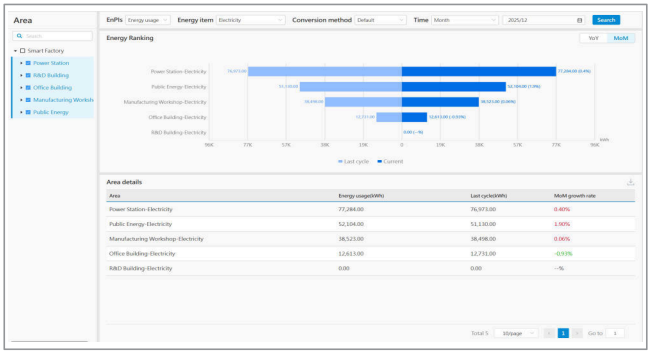
- **Energy Usage Statistics**

Energy statistics include both itemized and total consumption, with YoY and MoM comparisons.



- **Energy Ranking**

Calculate and display consumption for water, electricity, gas, heat, etc. by area, ranked high to low.



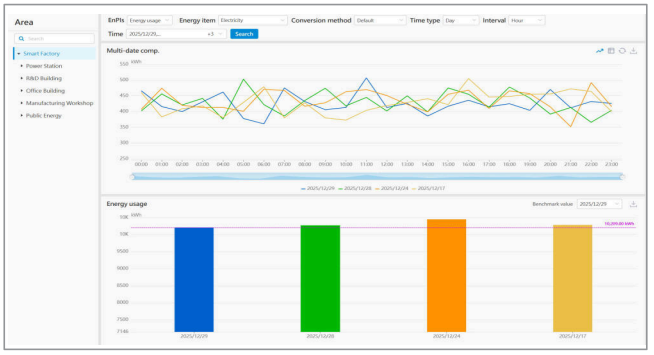
- **Multi-object Comparison**

Compare comparable areas over time and visualize energy consumption trends across multiple areas for the same period.



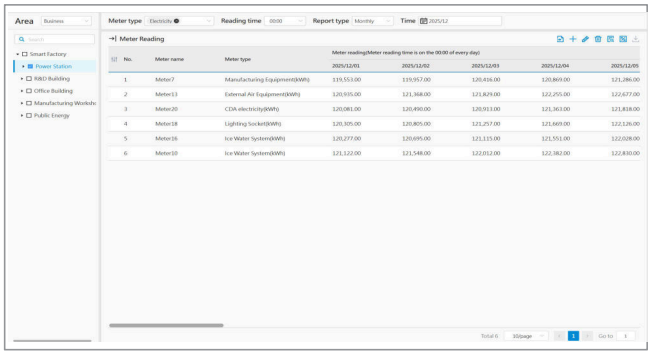
- **Multi-date Comparison**

Compare the same area across different time ranges to show changes over time.



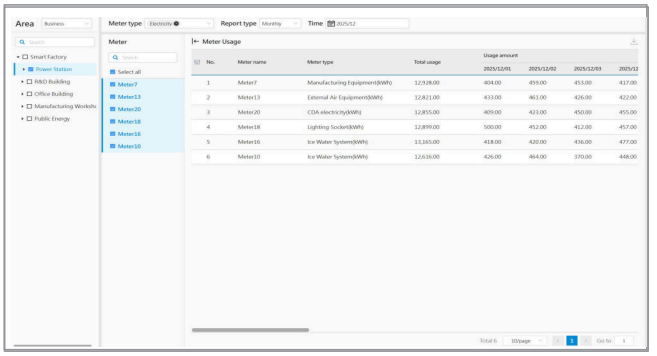
- **Meter Reading**

Automatically capture raw meter register values; provides annual, monthly, daily reports and custom period readings.



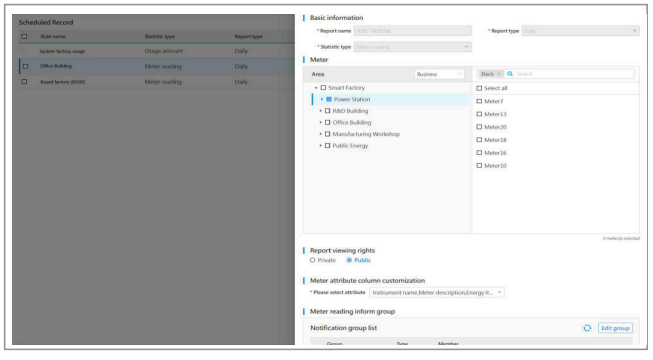
- **Meter Usage**

Automatically calculate hourly/daily/monthly usage per meter; provides annual, monthly, daily and custom period usage reports.



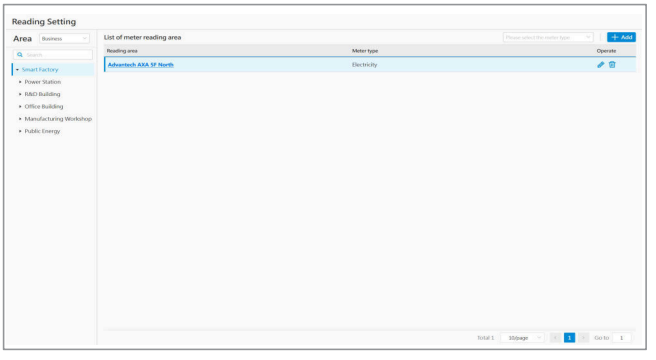
- **Scheduled Record**

Define reading rules and email scheduled meter reading reports, including meter readings and usage.



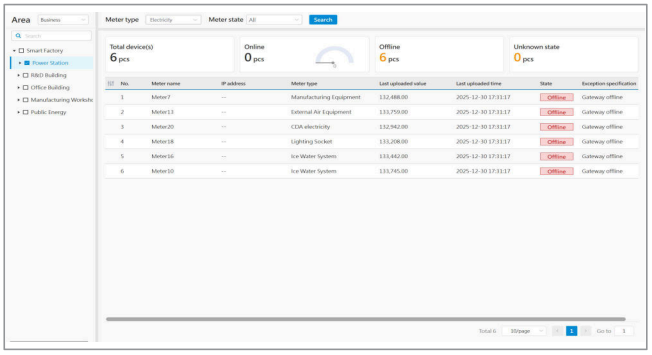
- **Meter Reading Settings**

Define meter-reading areas by route for quick selection during meter reading.



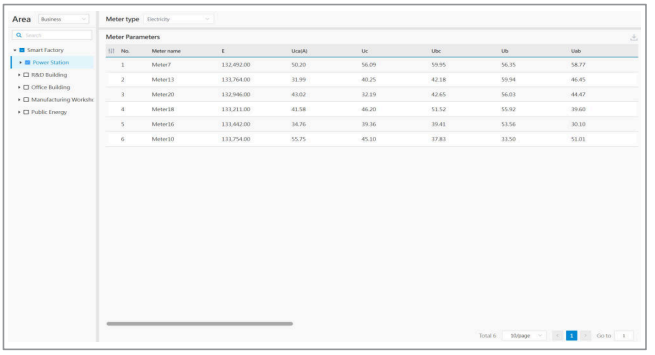
- **Meter Monitor**

Real-time monitoring of edge-side meters (power, water, etc.): track status and device counts by status, and record the last upload time and value for key points.



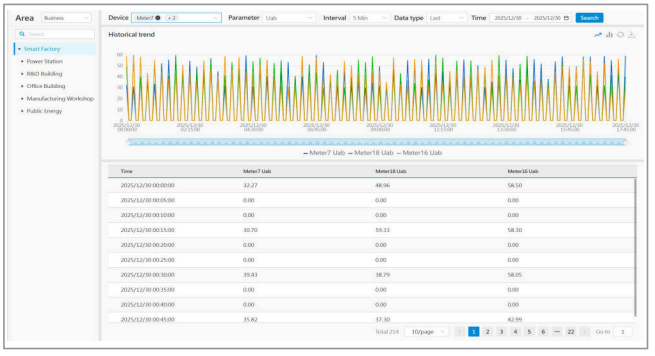
- **Meter Parameters**

Show real-time readings for each meter based on the selected area and energy parameters.



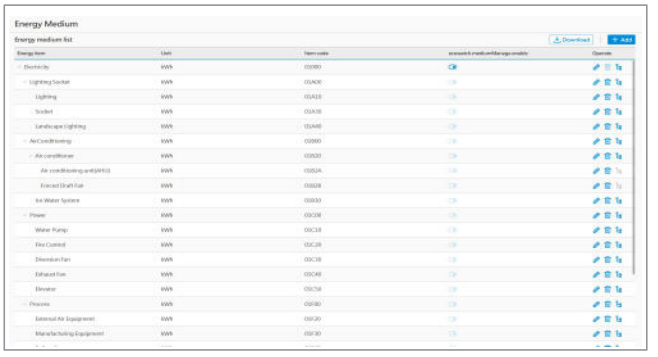
- **Historical Data Query**

Query historical data by selected meter parameters for a time range and display it as a trend chart.



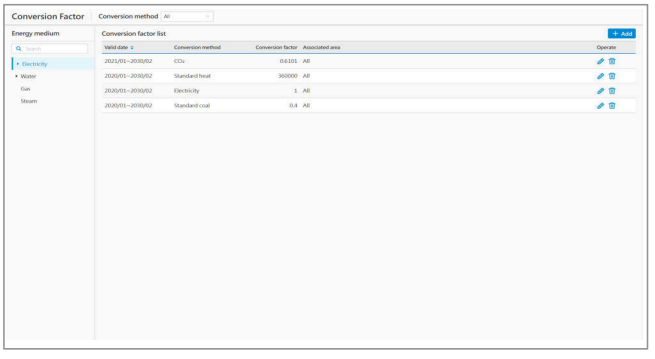
- **Energy Medium**

Configure enterprise energy classification structure (electricity, water, gas, etc.), including energy types and conversion factors.



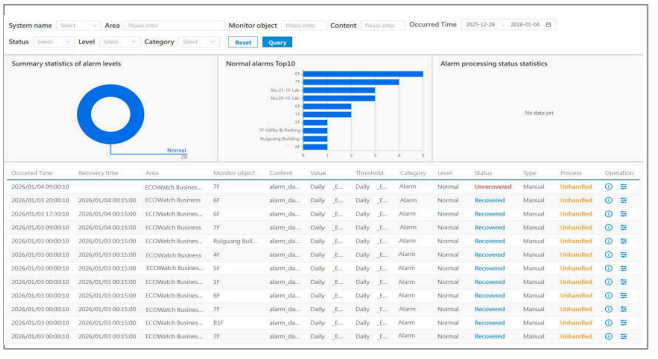
- **Energy Conversion Factors**

Customize conversion factors based on international standards and enterprise characteristics to support comprehensive energy calculations in the UI.



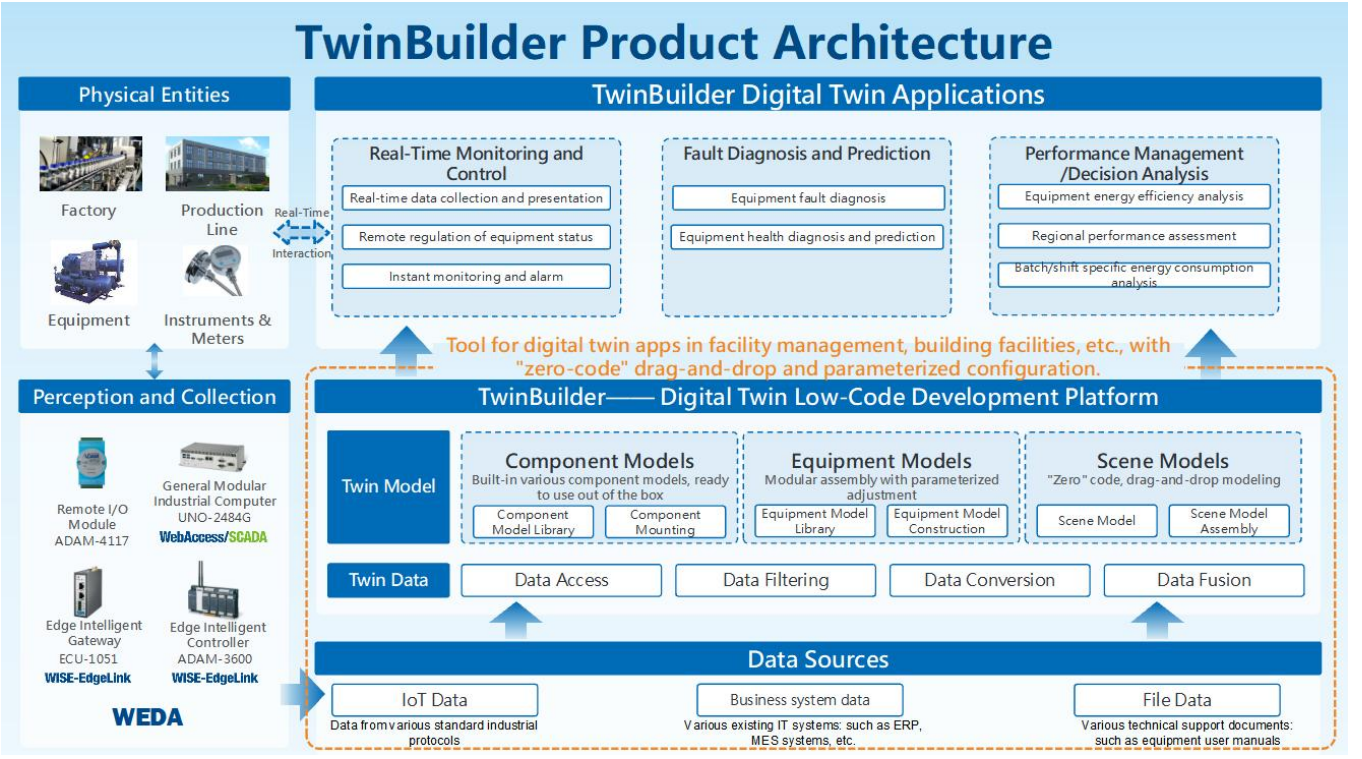
- **Energy Alarm**

Set thresholds for quota exception alarms and push abnormal consumption information to clients via Email, DingTalk, and WeChat.



TwinBuilder Platform

TwinBuilder（InsightAPM ）is Advantech’ s digital-twin low-code platform. It is flexible and comes with a rich industry component library. With low-code configuration you can quickly build precise digital models for physical objects. It also supports attaching physics-based models and data-driven AI models to further extend digital model capabilities, and provides 300+ open data APIs for secondary development and system integration.



Recommended Gateways

Model	Specification	Item
Intelligent Edge Gateway	ECU-1051TL/1251TL/1252TL • TI Cortex intelligent edge gateway, RT Linux system with 2 × LAN, 2 × COM ports (4 × COM ports for 1251TL), and 2 × CAN bus for ECU-1252TL • Built-in Edgelink gateway software; can be combined with CODESYS for real-time control	

Recommended Meters

Model	Specification	Item
WISE-E301A Three-phase Embedded Meter	•Three-phase I, U, kW, kvar, kWh, kvarh, Hz, cosφ; four-quadrant energy; RS485/Modbus; LCD display; 2 DI, 2 DO, 1 pulse; 2nd–31st harmonic monitoring	
WISE-E311C Three-phase DIN-rail Meter	•Three-phase I, U, kW, kvar, kWh, kvarh, Hz, cosφ; four-quadrant energy; RS485/Modbus; LCD display; 1 pulse; 2nd–31st harmonic monitoring; multi-tariff energy	
WISE-E101C Single-phase DIN-rail Meter	•Single-phase I, U, kW, kvar, kWh, kvarh, Hz, cosφ; four-quadrant energy; RS485/Modbus; LCD display; 1 pulse; multi-tariff energy	

Optional Add-on Services

Service Name	Service Description	Feature Screens
HVAC	Monitor key HVAC equipment energy/performance, diagnose efficiency drivers, and recommend optimizations for energy savings.	
Compressor	Real-time monitoring across generation, transmission, and consumption to pinpoint waste; AI coordinated control optimizes start/stop and supply pressure to match demand for site-wide savings.	
CarbonR	End-to-end tracking of corporate carbon footprint, emissions, and allowances; quantify low-carbon actions and support carbon asset management via visualization, analytics, and assessment.	
BESS	Intelligent ESS management with full monitoring, dispatch strategy control, dynamic revenue analysis, charge/discharge analytics, and a plant digital twin to ensure safe, economical operation.	