

iEMS/ECOWatch Lite All-in-One

Advantech 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.

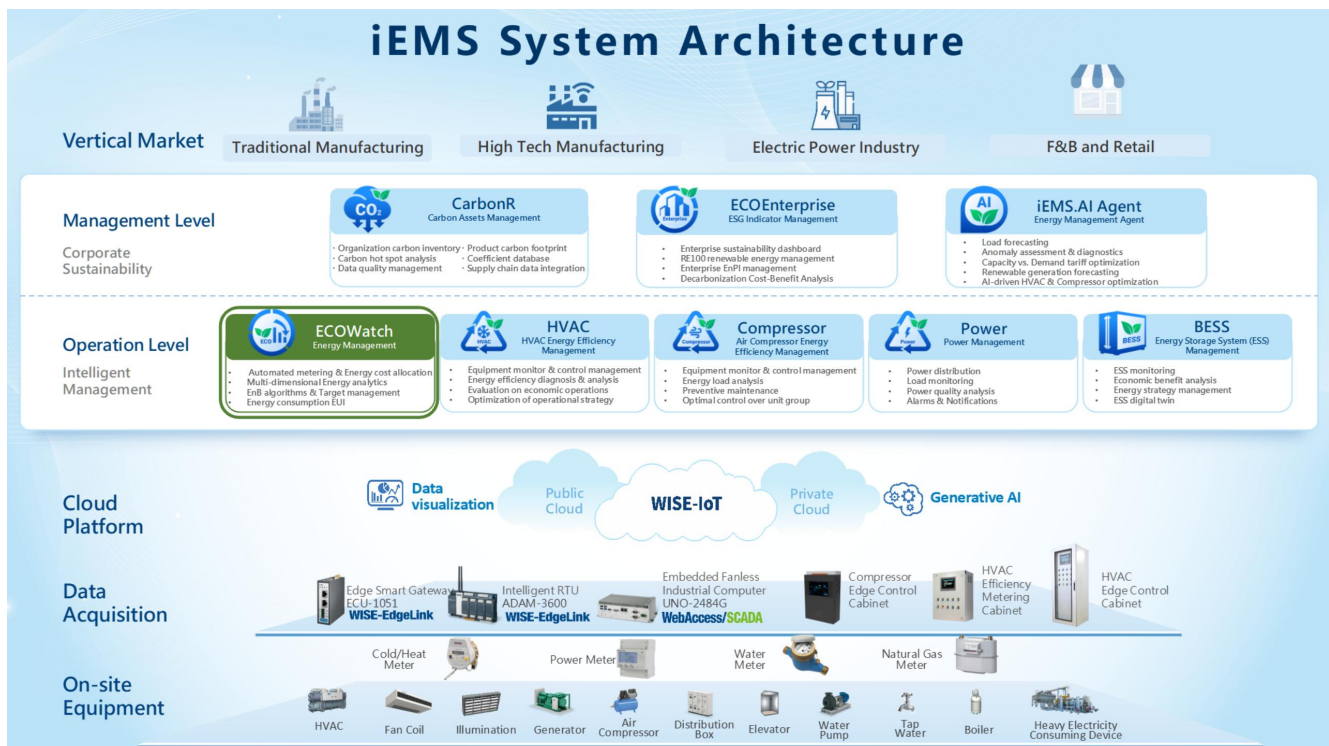


Overview

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 historical 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

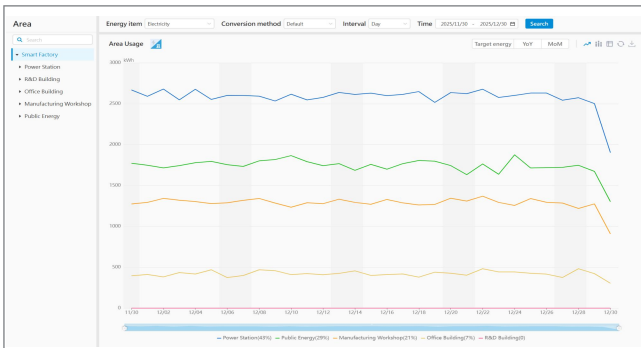
ECOWatch All-in-one Specifications

Category	Specification		Item
Software Model: iEMS/ECOWatch	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> Rating: 3000VA/1800W Feature: supports USB auto power on/off 		

Standard Feature Screens

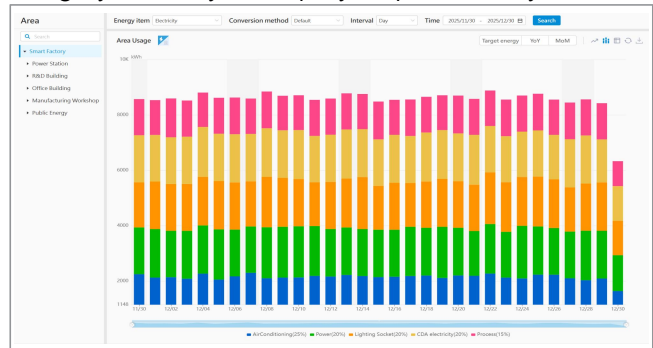
Area Energy Analysis

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



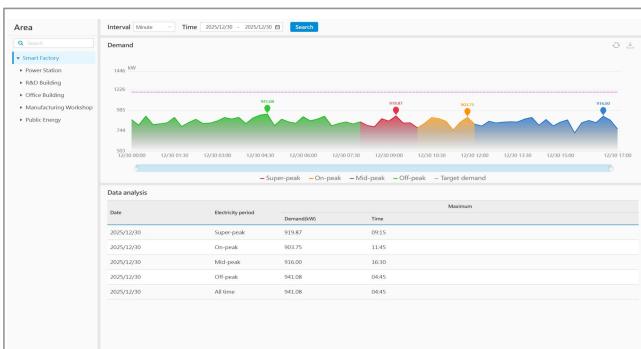
Sub-item Energy Analysis

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



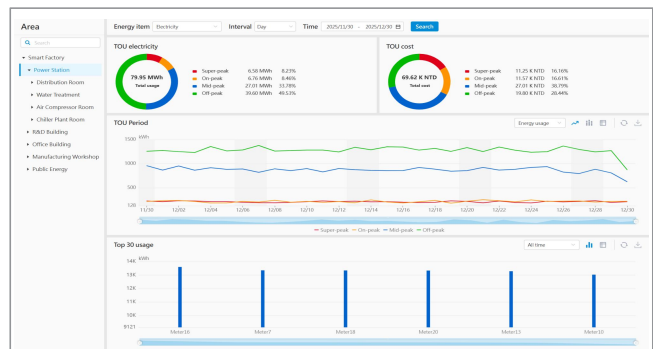
Demand Analysis

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



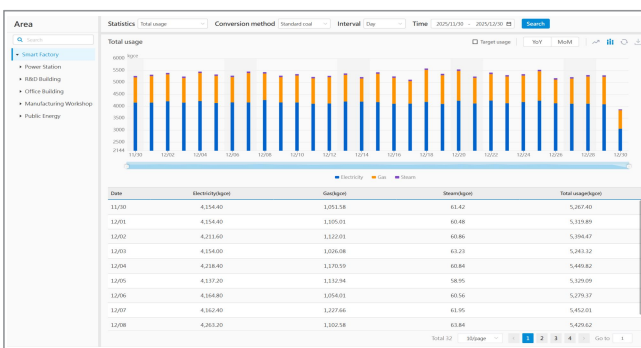
TOU Period Analysis

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



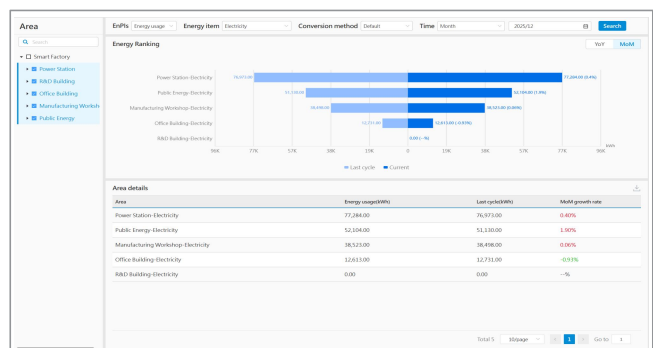
Energy Usage Statistics

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



Energy Ranking

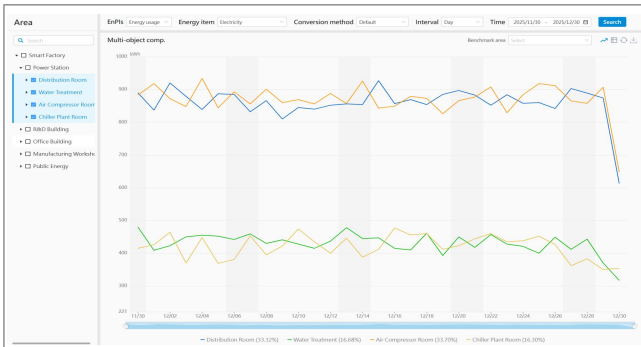
Calculate and display consumption for water, electricity, gas, heat, etc. by area, ranked high to low.



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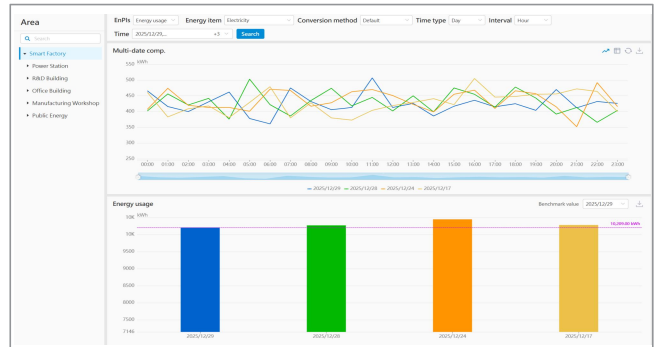
• Multi-object Comparison

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 No.	Meter name	Meter type	2025/12/01	2025/12/02	2025/12/03	2025/12/04	2025/12/05
1	Meter7	Manufacturing Equipment(kWh)	115533.00	115917.00	120416.00	120869.00	121286.00
2	Meter11	External Air Equipment(kWh)	120395.00	121368.00	121829.00	122255.00	122677.00
3	Meter20	CDA electricity(kWh)	120281.00	120490.00	120911.00	121363.00	121818.00
4	Meter18	Lighting Socket(kWh)	120305.00	120805.00	121257.00	121689.00	122126.00
5	Meter16	Ice Water System(kWh)	120277.00	120695.00	121115.00	121561.00	122008.00
6	Meter10	Ice Water System(kWh)	121122.00	121548.00	122023.00	122382.00	122810.00

• Meter Usage

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

Meter No.	Meter name	Meter type	Total usage	Usage amount	2025/12/01	2025/12/02	2025/12/03	2025/12/04
1	Meter7	Manufacturing Equipment(kWh)	127628.00	404.00	405.00	413.00	417.00	417.00
2	Meter11	External Air Equipment(kWh)	128211.00	431.00	461.00	436.00	422.00	422.00
3	Meter20	CDA electricity(kWh)	128551.00	409.00	423.00	450.00	455.00	455.00
4	Meter18	Lighting Socket(kWh)	128959.00	500.00	452.00	412.00	417.00	417.00
5	Meter16	Ice Water System(kWh)	131665.00	438.00	420.00	436.00	477.00	477.00
6	Meter10	Ice Water System(kWh)	127618.00	426.00	464.00	370.00	448.00	448.00

• Scheduled Record

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

The form includes sections for:

- Basic information:** Report name (Smart Factory), Report type (Daily).
- Report viewing rights:** Checked for Smart and Public.
- Meter attribute column customization:** Meter select attribute (Instrument name: Meter, Data: kWh, Energy, kWh).
- Meter reading inform group:** Notification group list.

• Meter Reading Settings

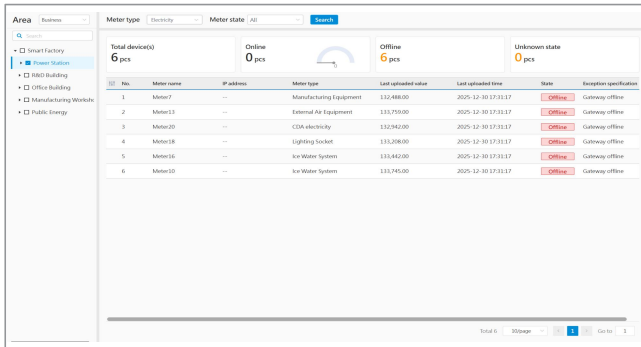
Define meter-reading areas by route for quick selection during meter reading.

The form shows the configuration for the 'Advanced AS 5F North' meter reading area, with the meter type set to 'Electricity'. A list of meter types is provided for selection, including Smart Factory, Power Station, R&D Building, Office Building, Manufacturing Workshop, and Public Energy.

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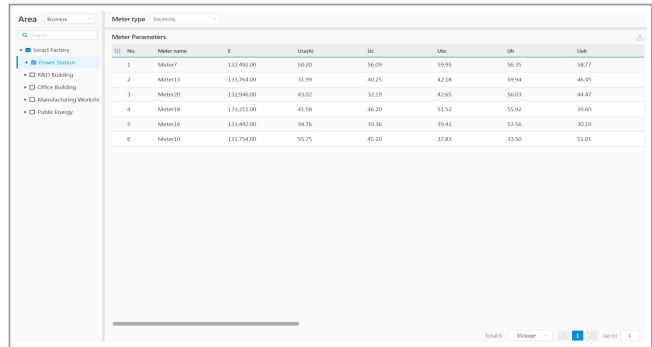
Meter Monitor

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.



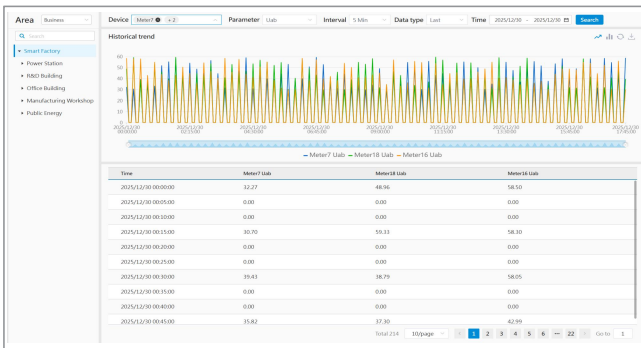
Meter Parameters

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



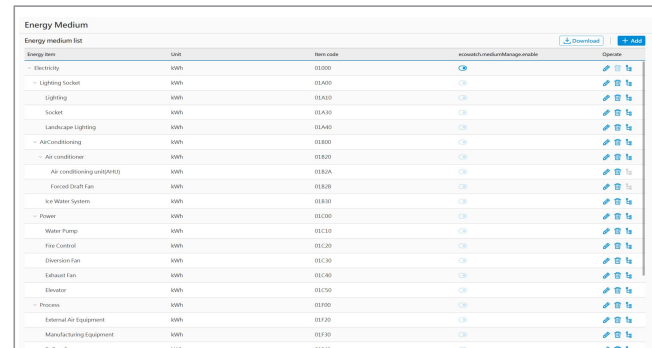
Historical Data Query

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



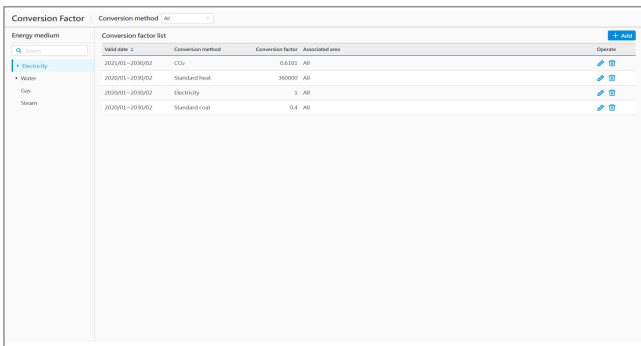
Energy Medium

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



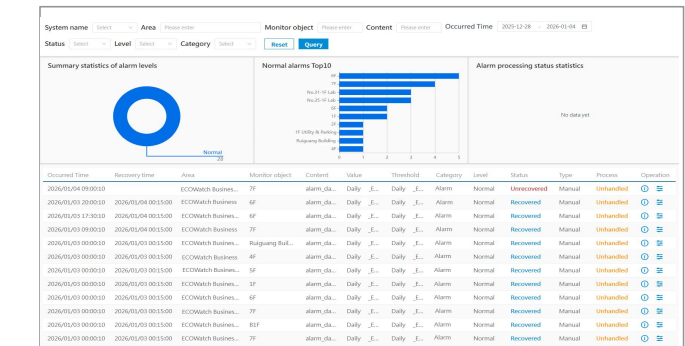
Energy Conversion Factors

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



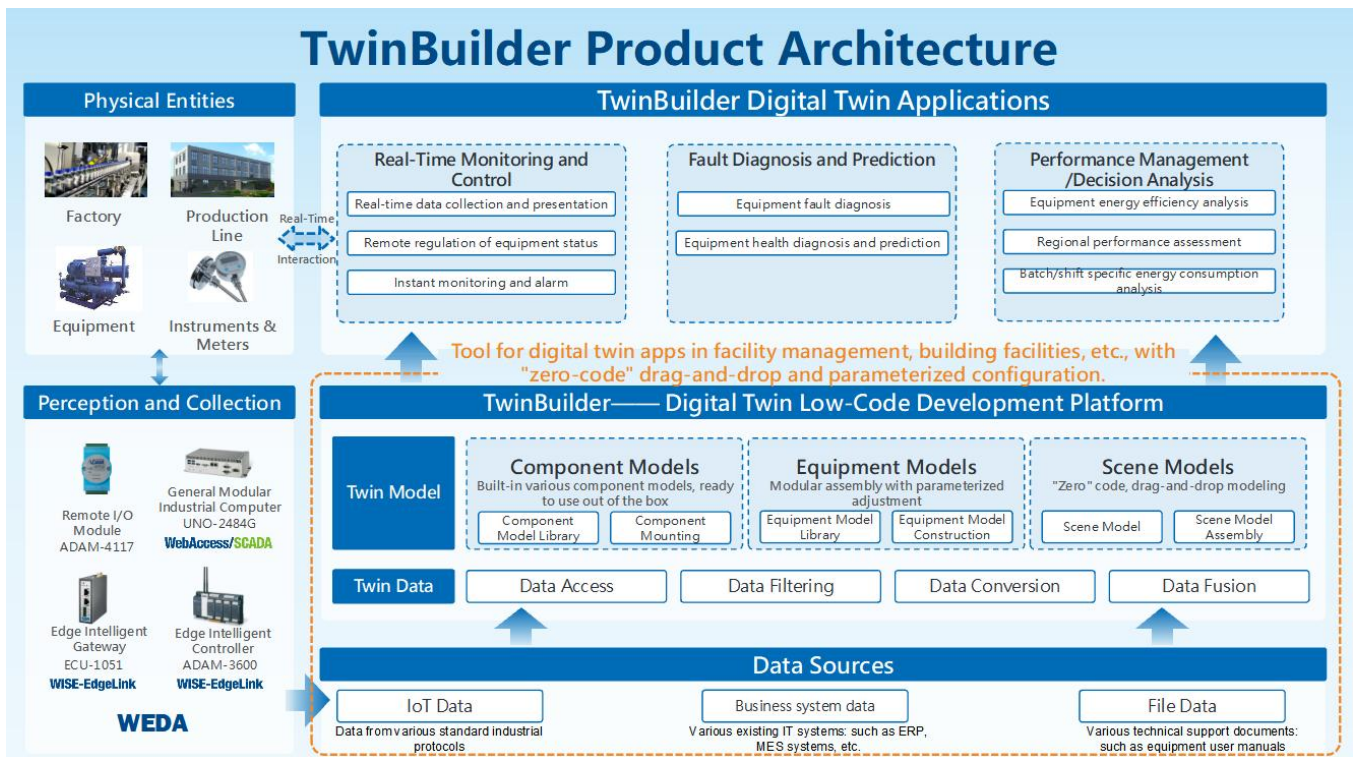
Energy Alarm

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	<p>ECU-1051TL/1251TL/1252TL</p> <ul style="list-style-type: none"> • 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 Edgeline 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.	