



univers

AI Microgrid Solution

EnOS™ Flex

EnOS™ Flex Product Suite

Unlock the full potential of your distributed energy resources (DER) with the EnOS™ Flex Product Suite.

Our state-of-the-art solution combines cloud-based AI microgrid management with on-premises Microgrid Controller, designed to optimize energy use, reduce costs, and generate new revenue streams.

Value for Asset Owners, Site Operator, Energy Retailer, and more



Cost & Energy Savings

Reduce energy consumption and minimize operational costs



Energy Resilience

Avoid power disruption, impacting operations and revenue



New Revenue Stream

Participate in energy markets to maximize financial returns



Carbon Reduction

Meet sustainability goals and stay compliant with environmental regulations

Key Function



Real-Time Monitoring

Enables real-time visibility and analytics of energy usage, allowing for quick identification of issues and enhancing operational efficiency.



Energy Orchestration

Seamlessly integrates various energy sources to create a balanced and resilient system, maximizing renewable utilization and reliability.



AI-Driven Optimization

Leverage AI to optimize energy distribution and consumption, delivering cost savings and improved system performance.



Energy Trading

Facilitates seamless participation in energy markets, enabling efficient buying and selling of energy to maximize financial returns and market opportunities.



Cloud Based AI Microgrid or On-Prem Microgrid Controller

Real-time data and control of all connected assets



Single Data Pipeline for All Energy Assets



Solar Panel



Energy Storage



EV Charger



HVAC



Distributed Genset



Controllable Load



Electrolyser

Unified Benefits for Diverse Needs



Renewable-energy power plants



Net Zero industrial park



Behind-the-meter PV/EV/Storage



Off-grid power system

Export Limitation

It can meet the power grid's restrictions on the connection point (power and power change rate) while maximizing the power generation revenue

Price Arbitrage

Buy energy when prices are low, sell when prices are high, or move high energy usage to a low-price period to capitalize on additional benefits from electricity price difference

Capacity Management

Use the flexibility of energy storage or other assets in the microgrid to reduce or eliminate uncontracted capacity bills and shift peak demand

Max Renewable Self-Consumption

Maximize local renewable energy self-consumption through energy storage and other tunable resource

Power Balancing

Real-time distribution of power in the microgrid when islanded or with weakly connected grid connection, supporting the stability of the frequency and voltage of the microgrid

EnOS™ Flex in Action: Delivering Success with Customers

Improved Clean Energy Charging and Cost Savings for Dutch Energy Retailer

Overview

EnOS™ Flex enhanced home energy management for their consumers with AI, focusing on optimizing EV charging and preparing for future integration with home batteries and heat pumps.

Solution

Smart control of household devices, including solar, battery storage, EV chargers, and heat pumps, to lower energy costs and increase clean energy use.

Results

- 30+ residential locations piloted
- 6 MWh of annual PV generation
- €400 average annual savings per site
- Improved solar penetration



Minimizing Grid Dependency and Optimizing Energy Generation for Hydrogen Plant in Inner Mongolia

Overview

EnOS™ Flex delivers on-premises and cloud energy management to coordinate renewable energy, battery storage, and hydrogen electrolysis.

Solution

Real-time orchestration and rolling-horizon optimization of 50 MW PV, 75 MW wind, 75 MWh/37.5 MW battery storage, and 34 MW electrolysis capacity.

Goals

Fully utilize renewable energy generation, minimize grid dependency, and maintain stable hydrogen production.



Real-Time Microgrid Management for a UK Construction Company

Overview

EnOS™ Flex enables real-time control for two microgrids to manage 2.8 MWp PV, 240 kWh BESS, and 1 MW EV chargers.

Solution

Reduce carbon emissions, balance loads, and optimize EV charging and battery storage usage for minimal grid import costs and zero export of PV generation.



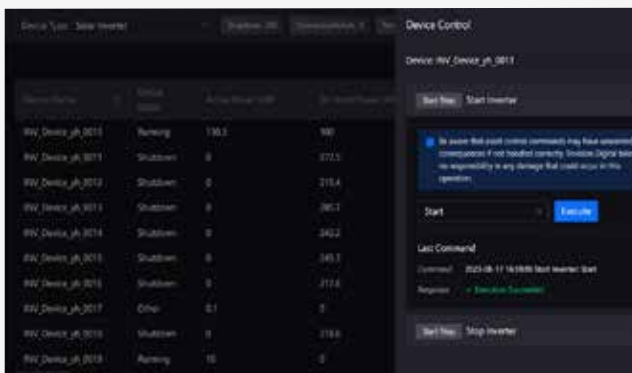
Product Feature Showcase

Microgrid Controller



Monitoring

Gain a comprehensive, OEM-agnostic fleet/portfolio view with KPIs for tracking battery, EV, and solar charging performance.



Device Name	Status	Active Power (kW)	SoC (%)
INV_Device_gh_2010	Running	135.2	98
INV_Device_gh_2011	Shutdown	0	87.5
INV_Device_gh_2012	Shutdown	0	218.4
INV_Device_gh_2013	Shutdown	0	36.1
INV_Device_gh_2014	Shutdown	0	242.2
INV_Device_gh_2015	Shutdown	0	145.1
INV_Device_gh_2016	Shutdown	0	211.6
INV_Device_gh_2017	Offline	0.1	0
INV_Device_gh_2018	Shutdown	0	218.6
INV_Device_gh_2019	Running	0	0

The screenshot also shows a 'Device Control' panel for 'INV_Device_gh_2011' with buttons for 'Start Inverter' and 'Stop Inverter', and a 'Last Command' section showing a successful start command.

Control

Real-time power control with predictive optimization across multiple scenarios, using hardware options: Lite, Standard, and Pro.



Energy Market Participation

Generation and flexibility forecasters with API interface, available as an optional plug-in.

Hardware Specifications



Edge Lite

Processor	ARM Cortex A35 1.3GHz/quad-core
Memory	2GB DDR4
Storage	16GB eMMC
Networking - 4G	4G/LTE Quectel EC25E (optional)
Networking - Ethernet	100M * 1 ; 1000M * 1
Interface - Serial Port	RS-485x2/RS-232x1
Interface - USB	USB 2.0 * 2
Power Supply	9-24V DC input



Edge STD (2.4.6)

Processor	Intel 6412 2.0GHz/quad-core
Memory	8GB DDR4
Storage	1TB SSD (512GB optional)
Networking - 4G	Not included
Networking - Ethernet	10/100/1000M * 2
Interface - Serial Port	RS232/485 * 4
Interface - USB	USB 2.0 * 1, USB 3.2 * 3
Power Supply	10-36V DC input



Edge Pro

Processor	Intel 4210 2.2GHz/10-Core
Memory	16GB DDR4 * 2
Storage	2T HDD * 4, SSD extendable
Networking - 4G	Not included
Networking - Ethernet	1000Mbps Ethernet * 4
Interface - Serial Port	Not included
Interface - USB	USB 2.0 * 1, USB 3.0 * 2
Power Supply	750W * 2



AIoT Software Leader for Net Zero

To learn more about EnOS™ Flex, please contact marketing@univers.com

About Univers

Univers provides the world's most comprehensive decarbonization system. Our AI and IoT-powered EnOS™ (Energy and Environment Operating System) platform delivers real-time energy data and carbon monitoring, reporting, and abatement, optimizing energy systems and reducing emissions.

With over 280 million sensors, 680+ GW of renewable energy under management, and 800+ customers, we help businesses achieve net zero and beyond.

For more information, please visit www.univers.com.



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