



# IoT Infrastructure for the Sustainable Energy Transition

Expert IoT solutions for ESCO's, Demand Response Providers, Facilities Managers, System Integrators, SaaS Companies, Energy Managers, and Resellers.

EpiSensor exists to accelerate the transition to sustainable energy. Our **award-winning IoT infrastructure** is known for being secure, easy-to-use, scalable, rugged, reliable, easy-to-integrate, and capable of withstanding harsh environments.

## Why EpiSensor



### Proven and Trusted

Trusted by market leaders in energy management worldwide.



### Easy-to-Use

10 x easier to use than traditional industrial energy management systems.



### Scalable

Scale rapidly within facilities and into multiple locations worldwide.



### Irish-made

Researched, designed and made in Ireland by world-class engineers.

*"Our mission is to help accelerate the transition to sustainable energy. We started over 15 years ago with sensors for energy management - and now we've developed cutting-edge technologies for demand response. I'm excited by what we'll get to design next."*



**Brendan Carroll**

CEO EpiSensor



# Advanced IIoT solutions for



## **ENERGY MONITORING**

Advanced, easy-to-deploy wireless energy monitoring systems with zero-compromise.

## **DEMAND RESPONSE**

Demand Response Infrastructure that's trusted by market-leading aggregators.

## **ENVIRONMENTAL MONITORING**

Highly-accurate environmental monitoring solutions for the Supply and Cold Chain industries.



# Who we support



- ✓ ESCO's
- ✓ Demand Response Providers
- ✓ System Integrators
- ✓ Facilities Managers
- ✓ SaaS Companies
- ✓ Energy Managers
- ✓ Resellers & Distributors
- ✓ Direct Customers & Consultants



## Our growing global footprint



**970+**  
Customers

**20+**  
Countries

**25k+**  
Devices  
Deployed

**15yrs**  
Proven  
Performance

# Gateway

Our API-enabled, powerful Gateway forms the foundation of our IoT solutions.



## EpiSensor API-Enabled Gateway.

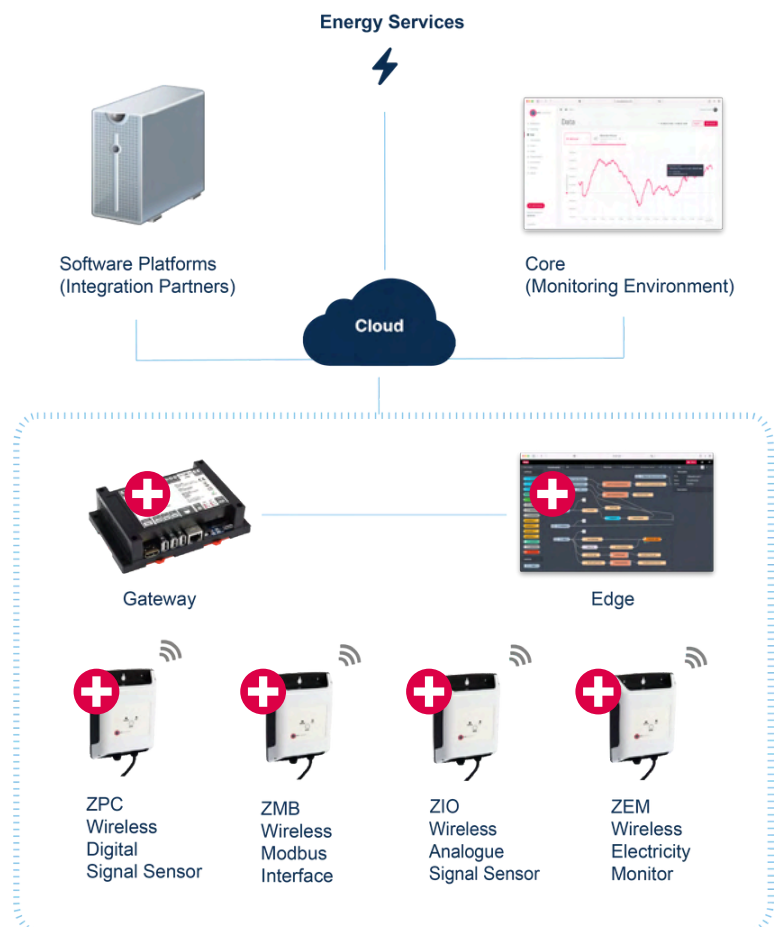
- An industrial computer that manages large networks of EpiSensor wireless nodes (up to 100 nodes / 1,000 sensors).
- Quad-core 1.5GHz ARM Cortex-A72 Processor, Ubuntu Core operating system.
- Gigabit Ethernet, 3G/4G/5G Cellular, USB, Wi-Fi, Bluetooth, ZigBee®, Dual RS-485, CANbus, GPS & more.
- Data export via HTTP(S), FTP(S), MQTT(S) & more.

## Export data from the Gateway to 3rd party servers and applications, quickly and securely

EpiSensor's Gateway routes data from networks of wireless sensors to the software platforms of our customers and partners. No sensor data passes through EpiSensor servers in the process.

Crucially, the Gateway can be deployed within a corporate network, or isolated automation network, behind customer NAT and firewalls, without compromising security.

Measure gas consumption, electricity, weight, volume, temperature, water, and much more, with unprecedented ease.



Working on an energy project? Need to integrate with legacy systems?

[Find out what's possible](#)

# Edge Visual Programming



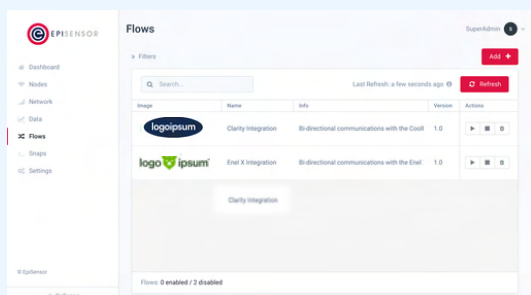
Maximise resource utilisation in an increasingly complex energy environment, with speed, scale and security.



## Edge Visual Programming

- **Enterprise-class device management for EpiSensor hardware and IoT Gateways.**
- Gather data from a wide range of legacy sensors and systems and manage them all from a single, intuitive interface.
- Build custom integrations to a wide range of 3rd party platforms.
- Monitor system health remotely, effectively and efficiently.

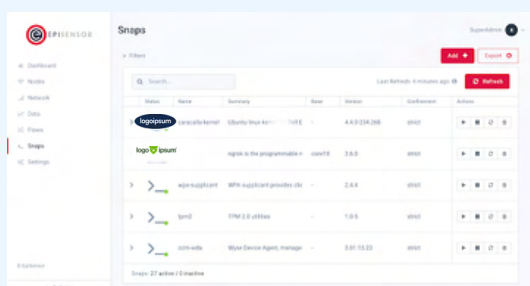
NEW



## Edge Flows

- **Edge Flows was developed to radically simplify the flow of data between sensors and platforms.**
- Designed to integrate with various IoT platforms through a visual, low-code programming environment, Edge Flows allow for seamless, bi-directional, secure connections without the need for users to understand complex protocols.

NEW



## Edge Snaps

- **Extend the functionality of your EpiSensor IoT Gateway to include advanced features like machine learning, VPNs, and even a standalone energy management system, all without recurring costs.**
- Managing the Canonical Ubuntu Core OS and its app store is now accessible to all, bypassing the need for Linux expertise or command-line navigation.

Preview our latest advancements -  
Edge Flows and Edge Snaps

[Arrange a demo](#)

# Demand Response

Secure and highly-accurate Demand Response IoT infrastructure.



**We help the world's leading demand response providers deliver solutions that enable their customers to react in real-time to fluctuations on the grid.**

We have designed the most advanced all-in-one hardware and software platform for demand response and frequency response, which creates the communications link between energy supply and demand.



## Demand Response Controller (ZDR)

- **Award-winning Demand Response infrastructure.**
- When combined with our powerful Gateway, ZDR presents an **all-in-one** solution for large-scale Demand Side Response programmes.
- ZDR meets the highest standards of accuracy, reliability and security. ZigBee® wireless mesh networking.
- Housed in a water and dust proof enclosure.

**Variants:** ZDR-20,ZDR-21,ZDR-22: Battery Control with Dynamic Frequency Response, High Speed Data and GPS Time Sync.

## EpiSensor support from inception to implementation, and beyond

Collaboratively design systems architecture

Products shipped (worldwide)

Deployment and integration

Monitor remotely behind customer Firewalls and NAT's

Build Demand Response solutions at scale

enel x

“EpiSensor’s partnership has played an important role in our ability to win and deliver projects for customers of all sizes and industries around the world, including first-of-kind projects with big multinational brands in the most innovative markets.”.



**John Byrne, Head of Operations UK and Ireland**

Enel X UK and Ireland

# Case Study - Demand Response

## Enel X enables Microsoft Data Centre batteries to support growth of renewables on the power grid, with EpiSensor technology

### AT A GLANCE

#### Industry

Data Centre

#### Key Products Used

Industrial IoT Gateways

Demand Response Controller (ZDR)

### ABOUT OUR PARTNER

Enel X is the world's leading demand response provider with around 8.5 GW of flexible load deployed across the Americas, Europe, Asia, and Oceania.

### THE CHALLENGE

Microsoft, a long-time participant in Irish grid services, recognised the opportunity to use a data centre's batteries to respond quickly to frequency fluctuations on the grid, in a cost-effective, sustainable way, reducing the need for building and running coal and natural gas power plants.

### Why EpiSensor



Dynamic Fast Frequency Response



Highly-accurate time sync



Secure from Edge to Cloud



Scalable



John Byrne, head of operations for Enel X UK & Ireland, performs a system test on the grid-interactive UPS inside a Microsoft datacenter in Dublin, Ireland. Photo by Naoise Culhane.

### OUR CONTRIBUTION

Due to the high megawatt load, and the accuracy and security requirements of a data centre, Enel X and Microsoft needed to rely on proven IoT Infrastructure that provides enterprise-class security from sensor to server. In this case, we are controlling **10MW assets** and creating a **40MW Virtual Power Plant**. Our ZDR is in full control of the full site load and it facilitates the data centre to move to UPS gradually, in line with the magnitude of the frequency deviation on the grid.

### MAIN FEATURES

- Enrolling **40MW** of UPS in Dynamic Frequency Response
- **80ms** reaction time
- **+/-2ms** time synchronisation accuracy



# Energy Monitoring

Proven and scalable IIoT for Facilities and Energy Managers



**We design, build and deliver reliable, secure and highly accurate wireless energy monitoring systems for commercial and industrial use.**

Our partners win projects in harsh environments where performance and security are crucial – because no one else can match our capabilities or ease-of-use.



## **Wireless Electricity Monitor (ZEM)**

- A highly accurate, wireless 3-phase electricity monitor.
- Monitor energy consumption patterns in equipment and buildings remotely via the powerful EpiSensor Gateway.
- Providing Facility and Energy Managers with granular, real-time energy consumption information essential for increasing efficiency.
- **ZEM-63** comes pre-installed and pre-commissioned with a range of CTs and Rogowski coil options to measure currents from 0.1A to 6kA per phase, offering a high level of accuracy and control.



## **Wireless Digital Signal Sensor (ZPC/ZDI)**

- A digital signal sensor used to count pulses produced by mechanical or electrical meters.
- These pulses usually represent the volume of liquid, gas, or electricity consumed.
- The number of pulses counted in a particular time period is recorded and sent to the EpiSensor Gateway at a configurable interval.

## CAPULA

“EpiSensor gives us confidence that we can scale our business and take our Energy Monitoring Solutions worldwide”.



**David Robinson, Global Strategic Business Development**  
Capula

# Energy Monitoring

Proven and scalable IIoT for System Integrators and Energy Managers.



## **Wireless Analogue Signal Sensor (ZIO/ZVO)**

- Our Analogue signal sensor (ZIO/ZVO) is a rugged, mains-powered sensor used to monitor flow rates, pressure levels, pH or any other energy-related output which uses the industry standard 4-20mA current loop or 0-10V signal.
- It features secure wireless ZigBee® mesh communications for easy installation and minimum disruption.
- Suitable for harsh industrial environments, including outdoors.



## **Wireless Modbus Interface (ZMB)**

- Not your typical Modbus-enabled product.
- Full Modbus master capability, in a rugged, embedded form-factor – so you'll never lose a data point.
- Includes an efficient internal mains power supply, on-board ZigBee® wireless communications and Modbus (RS-485) communications capability
- Modbus register information can be configured in 1-click using our EpiSensor Node Profiles, which can be uploaded via the Gateway.



## **Wireless M-Bus Interface (ZHM)**

- ZHM-21 makes it easy to collect data from wired M-Bus-enabled metering equipment.
- The ZHM includes an efficient internal mains power supply, on-board ZigBee® wireless communications and M-Bus communications capability.
- The enclosure is fully water and dust-proof, which is ideal for use in harsh industrial or outdoor environments.

Expert Energy Monitoring solutions that will help you advance Net Zero programmes

[Find out more](#)

## Case Study - Energy Monitoring

# Reducing energy consumption and achieving 6-figure cost savings at 3Arena



### AT A GLANCE

#### Industry

Entertainment

#### Key Products Used

Industrial IoT Gateway

Wireless 3-Phase Electricity Monitor (ZEM)

Wireless Digital Signal Sensor

### ABOUT OUR CUSTOMER

3Arena, located in the heart of Dublin's Docklands, is the largest indoor arena in Ireland, boasting a capacity of over 13,000. Given its expansive size, the arena incurs significant energy costs, driven by its extensive lighting and ventilation systems, and the high volume of event attendees.

### THE CHALLENGE

3Arena approached EpiSensor with several challenges related to their energy use. Their overarching goal was to reduce energy costs and advance their sustainability efforts, with a focus on monitoring both electricity and gas consumption.

#### Why EpiSensor



Wireless Technology



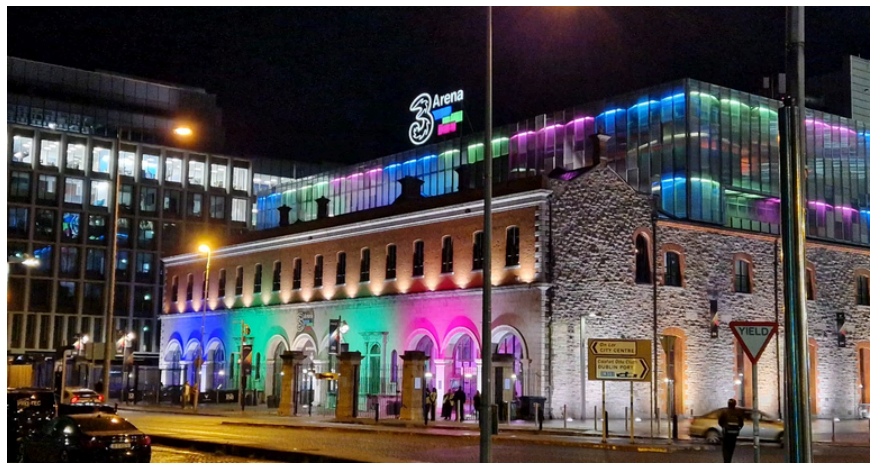
Speed of Installation



Proven at Scale



6-figure energy savings



3Arena, Ireland's largest indoor entertainment venue. Source: 3Arena

### OUR CONTRIBUTION

EpiSensor Wireless Electricity Monitors were strategically placed to capture accurate electricity usage data throughout the arena, including the targeted entertainment bars. For gas consumption monitoring, the battery-powered Wireless Digital Signal Sensor was employed to provide detailed usage insights. This device's extended battery life meant minimal maintenance for the onsite team.

### A POWERFUL RESULT

**Cost Reductions:** Achieved 6-figure cost savings per annum (€1,000 hourly).

**Operational Benefits:** Real-time, granular, energy management data enabled 3Arena to improve cost projections, optimise energy usage and reduce waste.

# Environmental Monitoring



Our advanced solutions enable easy monitoring and control of temperature and environments in supply chain and commercial settings.

**We help leading pharmaceutical, supply, and cold chain companies control and monitor temperature and environments with precision accuracy.**

Our high-performance, accurate, and reliable systems rank us higher than our competitors time and time again.



## **Wireless Ambient Temp & Humidity Sensor (ZHT)**

- EpiSensor's ZHT is a flexible, highly-accurate wireless ambient temperature and humidity sensor.
- It can monitor environmental conditions in buildings and assets remotely and securely via the EpiSensor Gateway, providing Facilities Managers with the granular, real-time data they need to improve efficiency, reduce costs and improve performance.



## **Wireless Probe Temperature Sensor (TES-2X)**

- Wireless, accurate Probe Temperature Sensor.
- Records temperature data at regular intervals, transmitted via EpiSensor gateway.
- Encased in a waterproof polycarbonate enclosure; can be deployed in various environments.
- Extended battery life (up to 10 years).

## Inteligistics

"We win business because no one else can keep up with EpiSensor's devices in harsh environments. They're reliable, rugged, accurate, and their batteries last months and years - while their competition need weekly replacements. "



**Eric Kithinji, Chief Engineer, Product Solutions**  
Inteligistics

## Inteligistics deliver accurate temperature tracking in harsh environments with EpiSensor solution

### AT A GLANCE

#### Industry

Supply Chain

#### Key Products Used

Industrial IoT Gateway

Wireless Probe Temperature Sensors

### ABOUT OUR PARTNER

Inteligistics provide supply chain digitisation solutions through high value improvements to supply chain and cold chain performance, productivity and sustainability, transforming existing processes.

### THE CHALLENGE

Inteligistics delivered a project for the US Navy focusing on transportation and tracking small items accurately by using wireless and RFID technologies. Looking at new ways of commercialising this project for general use in the coaching industry, surfaced the challenge of tracking perishable commodities and medical items that require specific temperature environments.

#### Why EpiSensor



Suitable for harsh environments



Highly-accurate temperature tracking



Proven at Scale



Reduced costs



### OUR CONTRIBUTION

Apart from the harsh environments the sensors were required to operate in, energy efficiency was also identified as a challenge and a priority for the project. EpiSensor delivered a comprehensive solution that encompassed all Inteligistics requirements - long battery life, accuracy and performance even in the harshest of industrial environments.

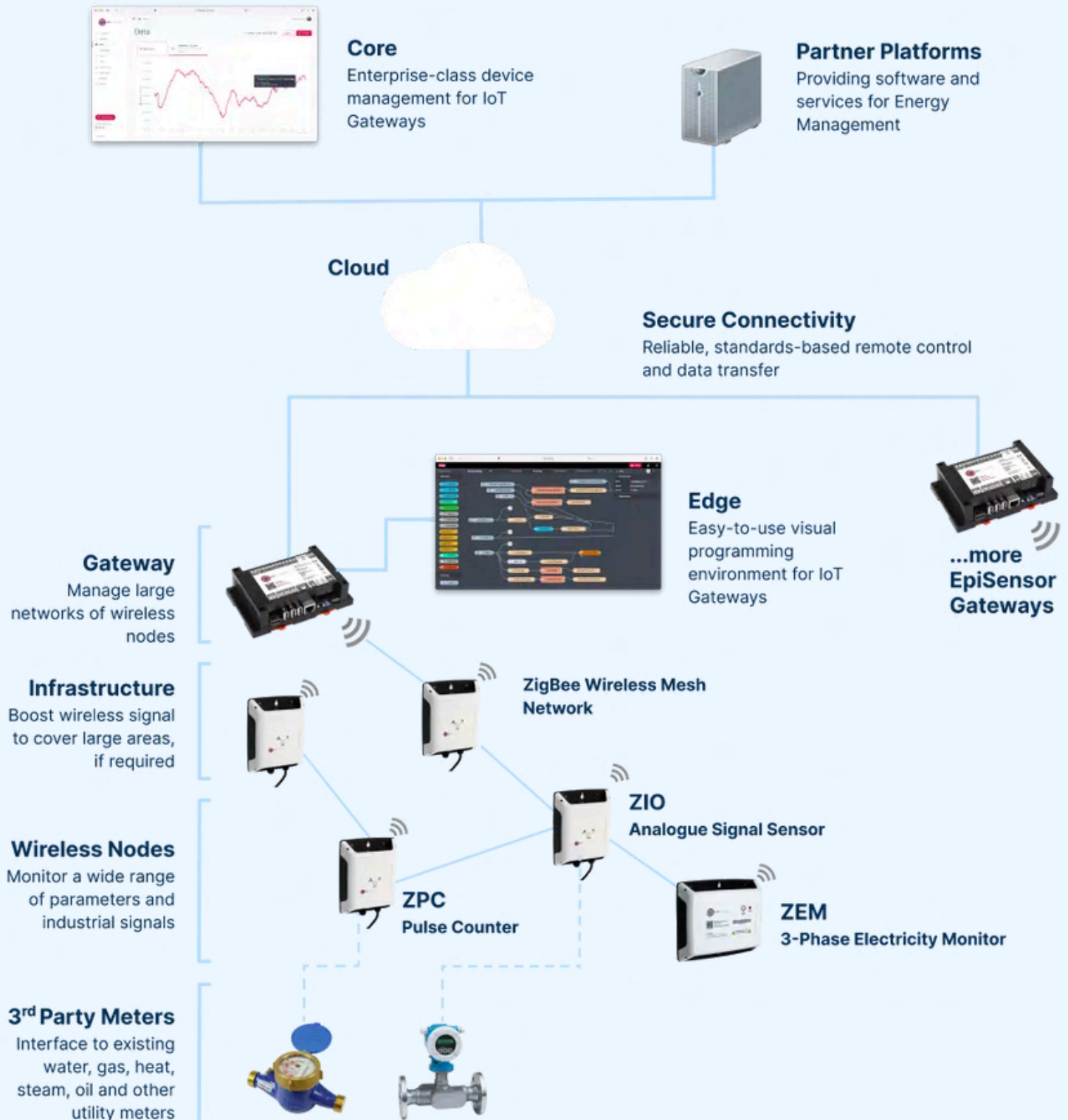
### RESULT

EpiSensor's devices are now the foundation of Inteligistics operating model, due to their reliability, ruggedness and extended battery life.

# The EpiSensor Difference



Our experts will help you design the **systems architecture you need to accelerate your next energy services project**



# Win more business with a proven and trusted IoT partner



- ✓ Grounded by over **15 years R&D and 50 years' experience**
- ✓ IoT infrastructure that's **easy-to-deploy and use**
- ✓ **Reliable, accurate and rugged IoT** solutions that drive results
- ✓ The opportunity to **conduct proof of concept** before building at scale
- ✓ Optional **premium product support**

## We are here to help

Our team of experts is here to assist you in creating the system architecture for your upcoming energy services programme, enabling its successful launch and growth.

[Book a call to find out what's possible](#)





Empowering partners to deliver  
**world-class energy services fast**

enel x

CoolPlanet

VEOLIA

SIEMENS

CAPULA



ENERGYCAP.

M-FOUR

**Get in touch with our experts**



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