



# IoT Infrastructure for the Sustainable Energy Transition

Expert IoT solutions for ESCO's, Facilities Managers, System Integrators, SaaS providers and Aggregators

## About Us

EpiSensor exists to accelerate the transition to sustainable energy. Manufactured in Ireland by world-class engineers, our technology is renowned for being secure, easy-to-use, scalable, rugged, reliable, easy-to-integrate, and capable of withstanding harsh environments.

## Why EpiSensor



### Trusted by global leaders

Market-leading partners rely on our expertise to deliver energy management, demand response and environmental monitoring solutions at scale.



### Rapidly installed with minimal impact

Our IoT infrastructure is 10x easier to use than traditional systems, enabling our partners to deploy energy services that rely on real-world data at the speed of SaaS.



### Win more business with a proven hardware partner

With EpiSensor, you instantly gain access to 50 years' experience that you can lean on to win more clients. Our value-driven pricing helps you boost revenue and safeguard margins.

*"Our mission is **to help accelerate the transition to sustainable energy**. We started 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





# Brief Company History



2007

## LAUNCH

EpiSensor was co-founded by Gary Carroll and Brendan Carroll, CEO, highly-experienced entrepreneurs and technology experts, with a passion for advancing positive change.

2009

## GROUNDING BY EXTENSIVE R&D

Leveraging IoT technology, we set out to develop robust, accurate and scalable energy management infrastructure, with a simplified user experience. This approach rapidly earned the trust of global market leaders.

2022

## ENERGY TRANSITION WORLD-FIRSTS

In collaboration with our market leading partners, we achieved world-firsts in the energy transition, setting new standards of excellence globally.

2023

## A BRIGHT FUTURE

Strategically positioned to support the global shift towards sustainable energy, we continue to grow our partner network, expand our team, and advance product development that paves the way for a greener future for all.

## Our growing global footprint



970+

Customers

20+

Countries

25k+

Devices  
Deployed

15yrs

Proven  
Performance

# Advanced IIoT solutions for



## ENERGY MANAGEMENT

Energy management infrastructure with zero-compromise.

## DEMAND RESPONSE

Demand Response Infrastructure that's trusted by market leading aggregators

## ENVIRONMENTAL MONITORING

Environmental Monitoring solutions that drive energy efficiency and enhance building occupant experience.





# Energy Management

Proven and scalable IIoT for Facilities and Energy Managers



**We design, build and deliver reliable, secure and highly accurate wireless energy management 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 targeted energy consumption information essential for increasing efficiency.
- **ZEM-63** can be configured 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



## 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.
- EpiSensor's 'client push' architecture means that if for any reason wireless communications is interrupted, data will be securely logged and uploaded in sequence once the wireless network is available.
- Full Modbus master capability, in a rugged, embedded form-factor – so you'll never lose a data point.

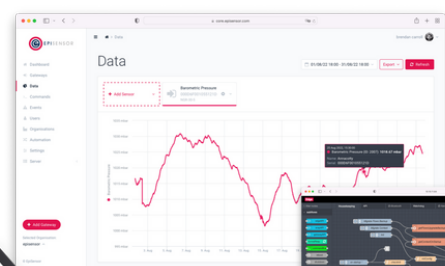


## Wireless M-Bus Interface (ZHM)

- ZHM-21 makes it easy to collect data from wired M-Bus-enabled metering equipment.
- Data is transferred securely over a wireless network to a central Gateway, where it is stored and exported to a variety of 3rd party platforms for tenant billing, storage, visualisation and analysis.
- The ZHM includes on-board ZigBee® wireless communications and M-Bus communications capability.
- Suitable for harsh industrial environments, including outdoors.

**The all-in-one Energy Management Solution**

[Find out more](#)





### Capula develops an easy-to-install, open architecture, energy monitoring solution based on EpiSensor's IIoT infrastructure

#### AT A GLANCE

##### Industry

Energy Services

##### Key Products Used

- Industrial IoT Gateway
- Wireless 3-Phase Electricity Monitor (ZEM)

#### Why EpiSensor



Wireless Technology



Speed of Installation



Proven at Scale



Reduced costs

#### ABOUT OUR PARTNER

With a focus on operational technology and digital transformation, Capula has been a leader in advanced system integration for decades; optimising energy efficiency, intelligent asset management and delivering operational performance for asset and energy-intensive clients.

#### THE CHALLENGE

Capula wanted to develop an energy monitoring offering with open architecture, simplifying installation and making it easier to replace any device with minimal dependencies. Other solutions they identified took time to install, making deployment inefficient and expensive.



Source: Capula via Zenoot

#### OUR CONTRIBUTION

With the EpiSensor solution, Capula managed to reduce the cost of installation, taking advantage of the features and resilience offered by wireless, mesh and Zigbee technologies – such as the ability to heal the network and bring devices back online automatically if they ever drop out.

#### A POWERFUL RESULT

Leveraging EpiSensor technology, Capula has reduced installation time and almost eliminated site revisits – lowering overall project costs.

# Demand Response

Secure and highly-accurate Demand Response  
IoT infrastructure for aggregators



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

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



## Demand Response Controller (ZDR)

- 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



“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 Gateway
- Demand Response Controller (ZDR)

### Why EpiSensor



Dynamic Frequency Response



Highly-accurate time sync



Secure from Edge to Cloud



Scalable

### ABOUT OUR PARTNER

Enel X are 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 standard Irish grid services, recognised the opportunity to use a data centre’s batteries (typically used in case of emergency to support the data centre’s Uninterrupted Power Supply or UPS) to respond quickly, supporting the frequency of the electricity system in a cost-effective, sustainable way, reducing the need for building and running coal and natural gas power plants.



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, it was essential that Enel X and Microsoft relied on proven and secure IoT Infrastructure, with dynamic frequency response. The solution also relies on highly-accurate time synchronisation, made possible by our IoT infrastructure.

### TRANSFORMATIONAL CHANGE

A typically high-energy consumer (data centre) is now contributing to grid flexibility.

# Environmental Monitoring

Secure and highly-accurate Demand Response  
IoT infrastructure for aggregators



**We help leading System Integrators and Facilities Managers conduct real-time monitoring of building, asset and environmental performance, accurately and efficiently.**

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

### Why EpiSensor



Suitable for  
harsh  
environments



Highly-accurate  
temperature  
tracking



Proven at  
Scale



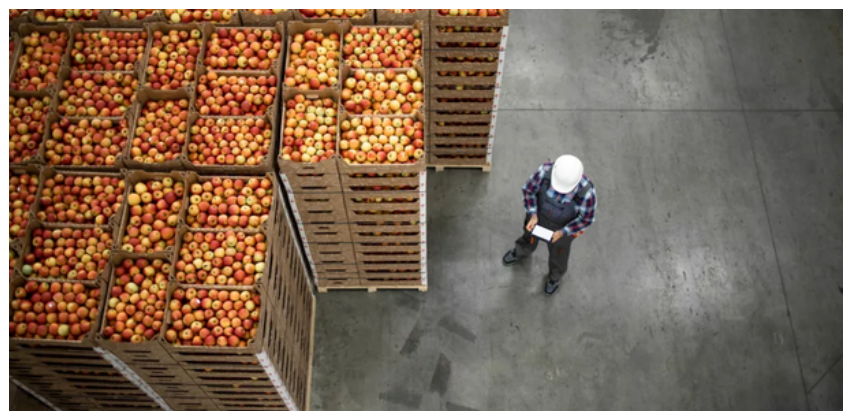
Reduced  
costs

## 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.



## 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.

# Gateway, Edge and Core



When combined with our cutting-edge hardware, these elements complete our suite of IoT solutions



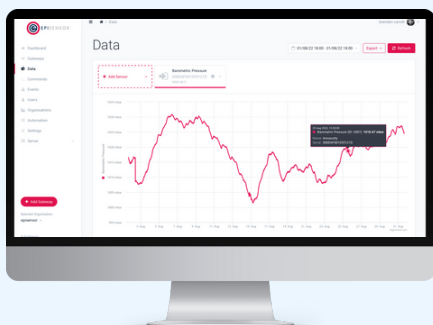
## EpiSensor API-Enabled Gateway

- 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.

## Edge Visual Programming



- **Enterprise-class device management for EpiSensor hardware and IoT Gateways.**
- Monitor and control all of your IoT devices securely and remotely, behind customer firewalls and NAT.
- Effective remote monitoring, fast and easy access to sensor data, automation capabilities.
- An array of established integrations, making deployment quick.



## EpiSensor Core

- Enterprise-class device management for EpiSensor hardware and IoT Gateways.
- Monitor and control all of your IoT devices securely and remotely, behind customer firewalls and NAT.
- Effective remote monitoring, fast and easy access to sensor data, automation capabilities.
- An array of established integrations, making deployment quick.



# 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 necessary system architecture for your upcoming energy services programme, enabling its successful launch and growth.

[Get in touch to find out what's possible](#)





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

enel x   CAPULA   CoolPlanet   VEOLIA   SIEMENS   M-FOUR<sup>+</sup>

### Get in touch with our experts



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