

Zerynth Edge AI Layer



What is it?

Zerynth Edge AI Layer is the technology that **quickly connects any industrial asset**, turning it into a valuable source of data. It **enables production process optimization** and facilitates a **scalable and fast digital transformation**.

Zerobox are a family of **edge devices** integrated with Zerynth's IoT & AI platform, capable of **collecting** and **processing production data** in a simple, secure, and plug-and-play way.

Real-time data collection from machinery, sensors, and other industrial devices.



Data processing locally or on **Zerynth Cloud**.



Compatible with **production** and **auxiliary machinery** (brownfield and greenfield), and **electrical panels**.



Main Features



Advanced Data Management

Data acquisition via OT protocols (OPC UA, Modbus, MQTT, etc.) and Analog/Digital inputs, with local or cloud processing and storage.



Instant Startup

Plug-and-play setup and rapid installation with the No-Code Configurator.



Versatile Connections

Connectivity to cloud and other systems via LAN/Internet or cellular networks.



Integrated Security

Encrypted and reliable data transmission to the cloud or local server, ensured by our patented technology.



Remote Device Management

Manage device maintenance and configuration remotely with advanced tools from the Zerynth IoT & AI Platform.

Edge AI Layer Components

The **Layer** consists of various types of modular and **fully configurable Edge Devices**, designed to meet diverse operational needs and provide maximum application flexibility.



ZeroBox



Ideal for monitoring individual industrial machines, both digital and analog, thanks to compatibility with **standard OT protocols** (e.g., Modbus RTU/TCP, PLC) and **external analog or digital sensors**.

ZeroGateway



Perfect for **more complex installations**. It supports simultaneous management of **up to 5 digital machines**, ensuring centralized and efficient control.

The ZeroBox is available both as a stand-alone device and as part of a **complete IoT Kit**. Among the available accessories, the **cellular modem with SIM** and **included data** stands out, ensuring cloud connectivity regardless of local network availability for internet access.

How does the connection work?

Depending on the type of machinery and the client's IT infrastructure, **the most suitable device** from the **ZeroBox** family is selected to meet data collection requirements.

Machines and devices are connected via **wired** (Ethernet, RS-485) or **wireless** (Wi-Fi) **channels**, using standard industrial protocols. Data is exchanged with the cloud via the **internet** (Ethernet, Wi-Fi) or a **cellular network** (optional 4G/LTE modem).



The collected data is processed directly on the device using advanced **Artificial Intelligence** algorithms and then sent to the **Zerynth Platform Core**, where it is displayed and monitored in real time on the portal.

Plug & Play

on any machine, with no complex configurations.

Secure Element

already integrated, to protect your data from unauthorized access.

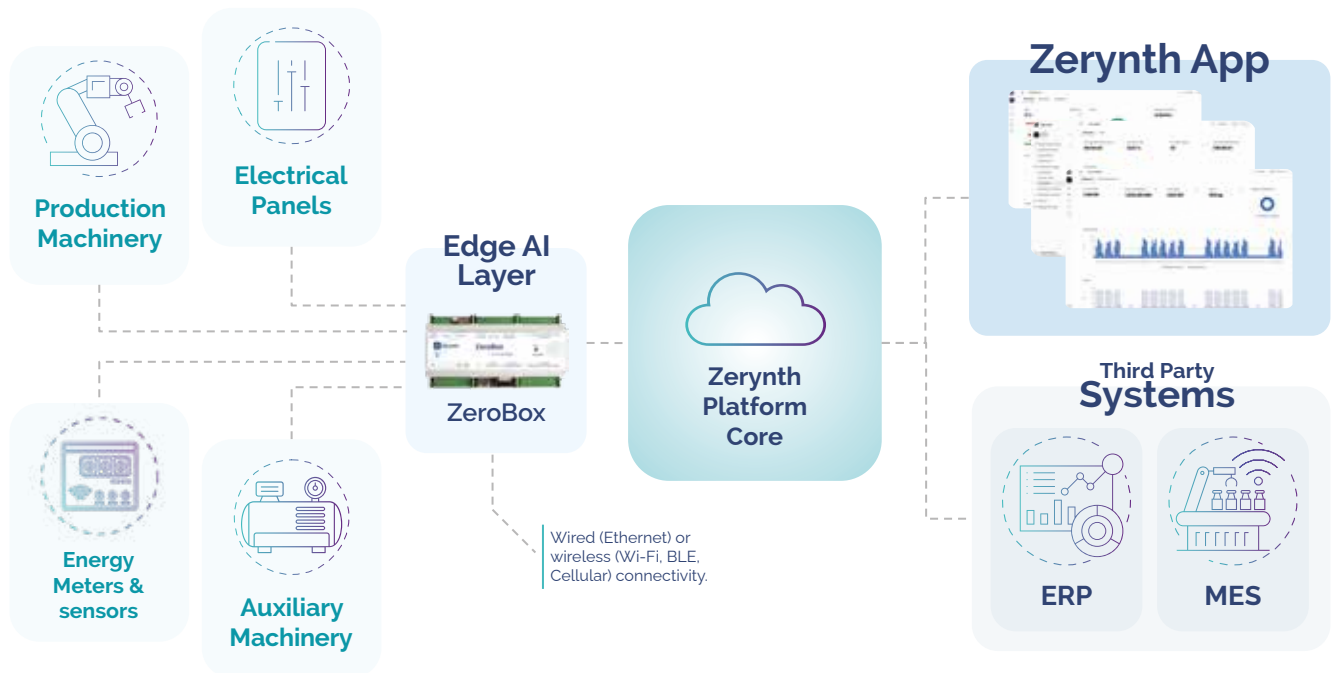
Patented Technology

designed to deliver high reliability standards.

Remote Management

to monitor your machines wherever you are.

Platform Architecture



Features Overview

Functionality	ZeroBox	ZeroGateway
Analog sensor support for brownfield machine data acquisition	✓	✗
Digital sensor support for greenfield machine data acquisition	✓	✓
Maximum concurrent monitored machines	1 machine max	up to 5 machines
Control Commands	✓	✓
Remote configuration and updates	✓	✓

Technical Features

Comparison Table

Functionality	ZeroBox Ideal for single machines, both <i>brownfield</i> and <i>greenfield</i>	ZeroGateway Ideal for monitoring an entire digitized production line
Software	Linux + zAgent (1 instance)	Linux + zAgent (max 5 instances)
Supported Analog sensors	4 inputs with support for: 4-20 mA current sensors; 0-10 V voltage sensors and current transformers (CT); 0-70 KOhm resistance sensors	Not available
Optically Isolated Inputs	8	8
Solid State Relays (max 36v)	2	2
Field Interface	1x CAN 1x RS-232/485	1x CAN 1xRS-232/485
Status RGB LED	✓	✓
USB Types	1x USB-C 1x USB2 1x USB3	1x USB-C 1x USB2 1x USB3
WiFi + BLE	Advanced 2.4/5GHz WiFi (up to 433Mbps) with integrated Bluetooth for low-power connections and support	Advanced 2.4/5GHz WiFi (up to 433Mbps) with integrated Bluetooth for low-power connections and support
Ethernet Ports	2 LAN (RJ-45) channels at 1000M	2 LAN (RJ-45) channels at 1000M
Cellular Connection* <small>*Optional on mini-PCle, Quectel EG25 (Global)</small>	LTE GSM GPRS	LTE GSM GPRS
Positioning	GNSS with external additional antenna	GNSS with external additional antenna
DIN Rail Slots	9	9
Dimension, Weight	157 x 107 x 59mm 456g	157 x 107 x 59mm 456g

About Zerynth

Zerynth revolutionizes industrial production with an advanced platform that integrates IoT and AI, facilitating the optimization of production processes and reducing energy consumption. Our mission is to enable companies in their digital transformation journey by easily connecting any machinery to a powerful Industrial AI system. With the launch of Zero, the Industrial AI Copilot, we position ourselves as leaders in the field of industrial AI, promoting production efficiency and sustainability.

Our platform allows real-time monitoring of machinery performance, advanced KPI analysis such as OEE, and predictive maintenance. Zerynth seamlessly integrates with ERP, MES, and BI systems, ensuring data security and rapid configurations thanks to the No-Code Configurator.

Founded in 2015 in Pisa, Zerynth serves over 150 client companies across various industrial sectors.

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