

Edge AI Layer

Patented Edge AI technology that delivers unparalleled performance and maximum security



With plug & play installation and intelligent remote management, integration into any type of machinery is effortless.

The Zerynth Industrial IoT Platform can connect with any asset in a simple and non-invasive way thanks to the Edge AI Layer. This includes both legacy and modern machines, which can be connected through Zerynth Edge Devices or Agents installed on the machine or on the corporate IT/OT infrastructure.

Industrial IoT - Application



Production Efficiency



Monitoring and Optimization of energy consumption



Retrofit of industrial machinery



Conditioned based and predictive maintenance



Machine monitoring and industrial asset



Visibility and Order Tracking

Return on Investment (ROI)



Real Time and remote Monitoring
Receive real-time updates from your industrial machinery and assets



Costs reduction
10-30% reduction in operating costs



Opportunity to take advantage of tax incentives

Zerynth Edge AI Layer Components



4ZeroAgent

A powerful **AI on-the-edge microservice** that allows reading and analysing data from any modern or legacy machines. 4ZeroAgent runs on all Zerynth Edge Devices and on any hardware or IT infrastructure supporting container technology.

4ZeroBox



Industrial IoT device for data acquisition, monitoring, and control of industrial machines.

4ZeroBox Mobile



Industrial IoT device designed for asset monitoring with Narrow-Band connectivity.

4ZeroBox Lite



Compact, entry-level Industrial IoT device for data acquisition and machine monitoring.

4ZeroNode



Edge Computing Node for interfacing modern machinery and for IoT applications that require high performance. It can run one instance of 4ZeroAgent.

4ZeroGateway



Edge Computing Gateway for interfacing modern machinery and for IoT applications that require high performance. It can run more instances of 4ZeroAgent.

Main Features

Patented Edge AI technology

Designed to deliver advanced efficiency, accuracy, and reliability.

Secure Element for maximum security

Provides industry-leading protection against unauthorized access and cyber attacks, ensuring your data and devices remain secure at all times.

Plug & Play on any machinery

Easily connect any machine to our platform without the need for complex setup or configuration.

Intelligent remote management

Monitor and control your machines from anywhere, using advanced analytics and maintenance to optimize performance and minimize downtime.

4ZeroAgent

A powerful AI on-the-edge microservice that allows reading and analysing data from any modern or legacy machines.

How the 4ZeroAgent works

4ZeroAgent is designed to run seamlessly on all Zerynth Edge Devices, providing advanced performance, scalability, and flexibility. It can also be **easily deployed on any hardware or IT infrastructure** supporting container technology. This makes implementation effortless and gives you the freedom to choose the best hardware for your unique needs.

Technical Features

- Software agent based on container technologies that runs on Windows and Linux;
- Most modern OT protocols supported;
- Fully integrated with Zerynth Platform for Over the Air Update and Diagnostics;
- Configurable via Zerynth No-Code Configurator;
- Ready for AI on the edge data processing.

Key Functionalities

Real-time remote monitoring

Receive real-time updates from your industrial machineries and assets.

Reduced maintenance costs

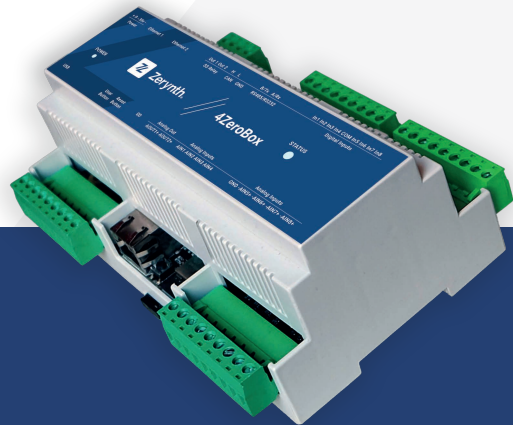
Build a predictive maintenance model and optimize the maintenance cycle.

Optimization of production processes

Continuous improvement through a digital simulation.

4ZeroBox

Industrial IoT device for data acquisition,
monitoring, and control of industrial machines.



Technical Features

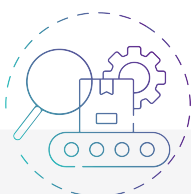
- Integrated ZM1 IoT module.
- 9 to 36V Power Supply.
- DIN-rail mountable (9 slots).
- Wifi and dual Ethernet connection, with optional Bluetooth connectivity.
- Channels for analog and digital industrial sensors.
- Channels for analog output and relays.
- Supports MicroSD card and USB (type C).
- RGB status LED.
- Reset button and User button.
- Supports communication buses such as RS232, RS485, CAN.
- zBUS for connection with Zerynth Expansion Boards.
- Atmel SAM V71 slave module for on-the-edge computational capabilities
- Supports the Zerynth OS (a Python-enabled OS) for IoT applications.
- Easy integration with BI tools, ERP, and MES.
- Ready for Zerynth SIM and Zerynth Platform.

Key Functionalities



GET INSIGHTS

Acquire valuable data
from your
machinery with
onboard sensors.



IMPROVE PRODUCTION

Make informed
decisions based
on gathered data



CUT COSTS

Enable predictive and
condition-based
maintenance and remove
unnecessary expenses.

4ZeroBox Mobile

Industrial IoT device for asset monitoring with
Narrow-Band connectivity.



Technical Features

- Integrated ZM1 IoT module.
- 9 to 36V Power Supply.
- DIN-rail mountable (6 slots).
- Wifi and Ethernet connection, with optional Bluetooth connectivity.
- Cellular modem with support for LTE Cat M1 / LTE Cat NB2 / EGPRS with Integrated GPS GNSS.
- SMA Antenna for GSM/GPRS (SX) and GPS (DX).
- Industrial 3-axis accelerometer.
- Channels for analog and digital industrial sensors.
- Channels for digital output and relays.
- Supports LiPo battery, MicroSD card, and Micro USB (Type C).
- zBUS for connection with Zerynth Expansion Boards.
- RGB status LED.
- Reset and user configuration buttons.
- Supports communication buses such as RS232, RS485, CAN.
- Supports the Zerynth OS (a Python-enabled OS) for IoT applications.
- Easy integration with BI tools, ERP, and MES.
- Ready for Zerynth SIM (Micro SIM slot) and Zerynth Platform.

Key Functionalities



CELLULAR CONNECTIVITY

Easy communication
with industrial
machines over 2G and
NB-IoT.



ASSET MONITORING

Thanks to integrated
GPS capabilities,
monitor all your assets
with ease.



EASY DATA ACQUISITION

Easily acquire data, and make
informed decisions.

4ZeroBox Lite

Compact, entry-level Industrial IoT device for data acquisition and machine monitoring.



Technical Features

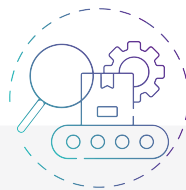
- Integrated ZM1 IoT module.
- 9 to 36V Power Supply.
- DIN-rail mountable (6 slots).
- Wifi and Ethernet connection, with optional Bluetooth connectivity.
- Channels for analog and digital industrial sensors.
- Channels for digital output and relays.
- Supports LiPo battery, MicroSD card, and Micro USB (Type C).
- zBUS for connection with Zerynth Expansion Boards.
- RGB status LED.
- Reset and user configuration buttons.
- Supports communication Ethernet protocols
- Supports the Zerynth OS (a Python-enabled OS) for IoT applications.
- Easy integration with BI tools, ERP, and MES.
- Ready for Zerynth SIM (Micro SIM slot) and Zerynth Platform.

Key Functionalities



GET INSIGHTS

Acquire valuable data from your machinery.



IMPROVE PRODUCTION

Make informed decisions based on gathered data.



CUT COSTS

Manage machines maintenance and remove unnecessary expenses.

Zerynth Expansion Boards

Connect Zerynth Expansion boards with the 4ZeroBox mobile and add additional functionality of your IoT application, including:

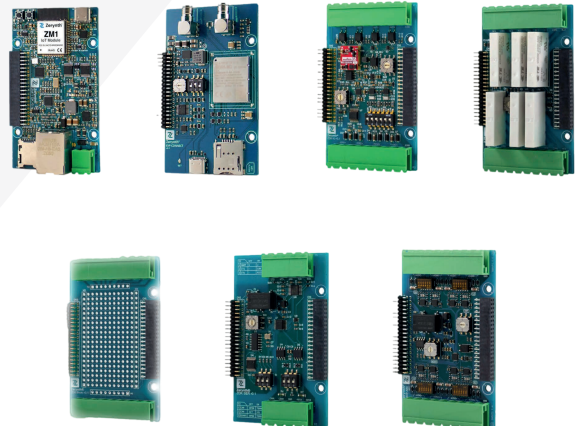
- Relays.
- Additional analog and digital IO channels
- Industrial analog sensor channels.
- CAN and 232/485 Serial interfaces.
- Prototyping Board for connecting sensors and modules.



Zerynth Platform

Key Features

- Efficient device management for monitoring and controlling fleets of devices.
- Fail-safe OTA capabilities that enable firmware updating, and remote feature addition.
- Cross-platform dashboard for end-users.
- Guaranteed security with cutting-edge data encryption and secure hardware design.
- Easy integration into systems by using webhooks and REST open APIs.



Zerynth Platform Core is also available as SaaS or On-premise.

Technical Features

comparison table

Feature	Zerynth Edge Devices			Zerynth Expansions				
	4ZeroBox Lite	4ZeroBox	4ZeroBox Mobile	EXP-IO	EXP-AIN	EXP-Relay	EXP-SER	EXP-Connect
Processor	ZM1	ZM1	ZM1	NO, slave device	NO, slave device	NO, slave device	NO, slave device	NO, slave device
Power supply	9-36V DC	9-36V DC	9-36V DC	from zBUS	from zBUS	from zBUS	from zBUS	from zBUS
DIN Spaces	6	9	6	3	3	3	3	3
Analog Sensors Channels	2 generic	4x resistive 4x 0-10V/4-20mA 3x current coil	6 generic	2 generic	8 generic			
Opto Isolated Input	2	2		2				
Relay (220V)		2				6		
Solid State Relay (max 36V)	4	2	2	2				
CAN, RS232, RS485		✓	✓				✓	
RGB Status LED		✓	✓					
USB Type	C	Micro USB and USB C	C					
User Button	✓	V	✓					
WiFi + BLE	✓	✓	✓					
Ethernet ports	1	2						
Cellular Connection			NB-IOT+2G					NB-IOT+2G
zBUS	✓	V	✓	✓ daisy chain	✓ daisy chain	✓ daisy chain	✓ daisy chain	✓ daisy chain

About Zerynth

Zerynth enables companies to streamline production processes and increase the value of connected industrial products. Through a plug-and-play IoT & AI platform, we connect any industrial machine, allowing for a complete 4.0 transformation quickly, flexibly, and securely.

Founded in 2015, Zerynth has grown steadily. Today it has 40+ team members with deep IoT expertise and industry knowledge with over 150 customers across many industries: from manufacturing to agriculture to energy to logistics. Zerynth is based in Pisa, Italy, but also is active in international projects, and foresees an expansion both in EU and non-EU countries during the next three years.

REQUEST A DEMO

Scan the QR Code or visit this page
zerynth.com/request-a-demo/

