



DIGITAL POLE

Catalogue

*Behind every digital application,
there is a connected industrial solution
made by Groupe ZeKat*



ERCOGENER



LUCIO



HL2GENER



IOF

► **TABLE OF CONTENTS**

► GROUPE ZEKAT	04
► FOCUS ON THE DIGITAL POLE	06
► BUSINESS SOLUTIONS	09
► ERCOGENER	18
► LUCIO	54
► HL2	58
► IOF	59
► IOL	62



► GROUPE ZEKAT

► PRESENTATION

IN NUMBERS



1

Shareholder



200

Collaborators



30M

Turnover



20M

Equity

Groupe ZeKat is a holding company **founded in 2015** with **200 employees**. It is specialized in mechatronics technologies.

It designs and produces high-tech solutions in France based on key skills. The group functions as a chain comprising stand-alone companies that are experts in their field. They are linked by a core of values embodied by the sole shareholder and current CEO Pascal Denoël.

Within the digital pole **Groupe ZeKat** focuses on MtoM and IoT: radio communications, embedded software and

smart systems, device management platforms, security and energy management. The digital center relies on two other centers of its smart devices.

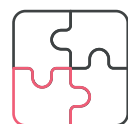
The group is a reliable company with a **long-term strategic vision**.

This projection is illustrated by a strong investment in R&D, perseverance in our development choices but above all in supporting our customers by **creating long-term relationships based on trust**.

► OUR VALUES

"We are a bold, committed group aiming for performance with humility."

COLLECTIVE



PERFORMANCE



COMMITMENT



BOLDNESS



HUMILITY



The digital centre relies on the industrial capacities of the group to offer robust and reliable solutions. The manufacturing and OEM poles are composed of 4 French main production sites:

- **AZKEDIA** in Saumur dedicated to production of medium and large electronic boards with a SMD (surface mounted device) production line with a capacity of 30,000 components / hour, a 3D AOI (Automated optical inspection), X-ray radiography, etc. It has an aeronautic accreditation (ISO 9100).
- **ZK-SYSTEMS** in Saumur which is specialized in cabling and electronic integration. This entity is able to design and build complex systems integrated into shelters for example. Those systems could combined telecommunications capabilities, cooling systems and power electronics.
- **CEQUAD** in Jugon-les-Lacs dedicated to small and medium electronic boards and focusing on industrial and transport markets. For 35 years, Cequad has been designing, producing and integrating high quality electronic boards and systems.
- **SAPELEM** in Angers combines recognized expertise in mechanical design combined with high-performance production tools. Through this combined expertise, we are able to work in all sectors of activity: packaging, automotive, medical, agrifood, plastics, aeronautics, chemicals, logistics, etc.

Those entities work together to provide industrial expertise and a global ecosystem.

This helps the digital pole to integrate the production constraints within their designs and to produce the majority of its product .



17%

R & D



6

Production sites



60

Patents



90

Countries



75

Techs

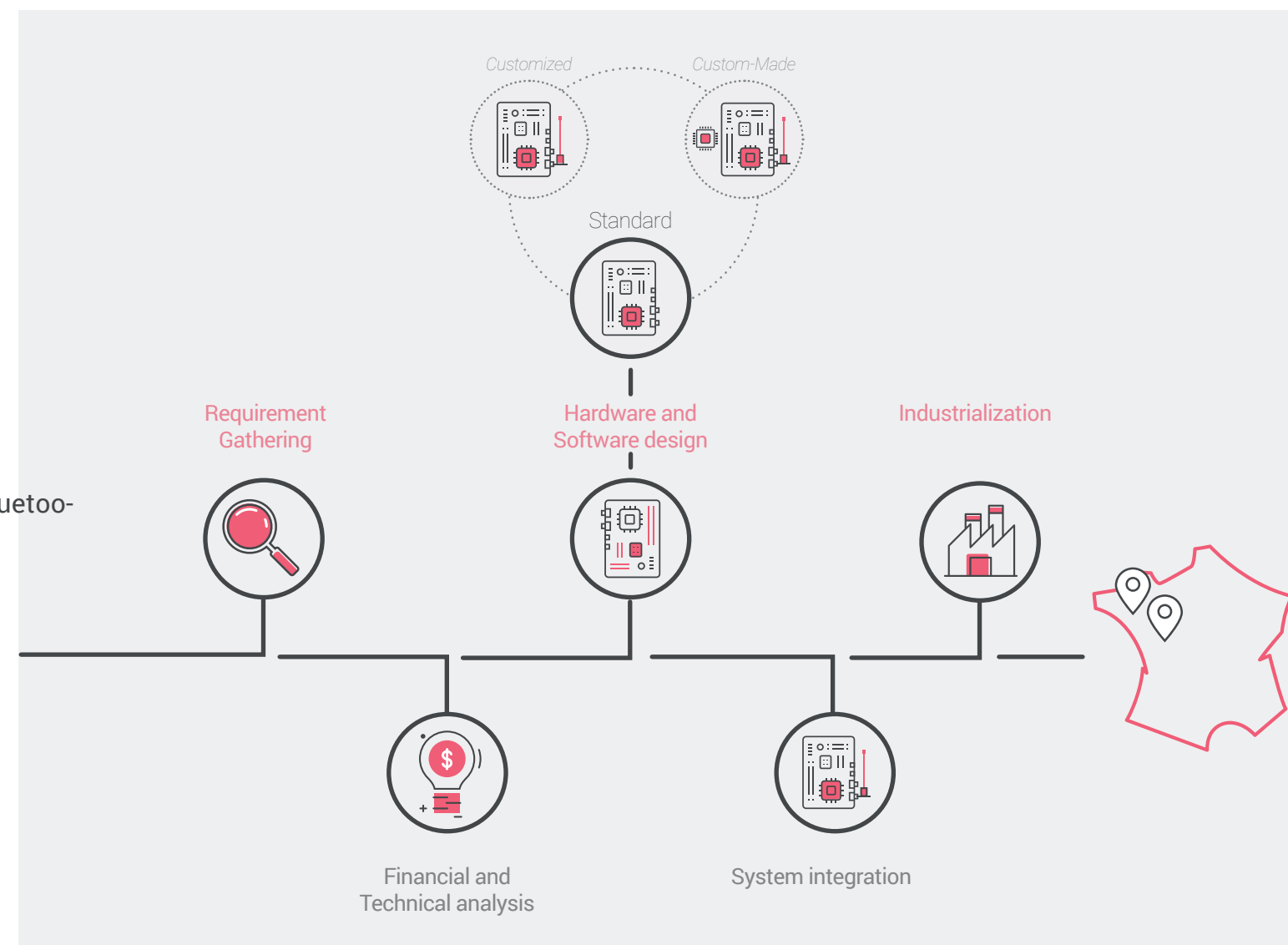
FOCUS ON THE DIGITAL POLE

OUR CORE BUSINESS

A dynamic team of digital players that provide advice, devices, data, and implementation dedicated to IoT solutions.



OUR APPROACH



The communicating solutions market now demands **specific tailoring** for each project to match the **client's needs** as closely as possible. For this reason, we combine the development of **standard products** and solutions based on **open hardware and software**

with tailored developments or modifications. By starting with standard hardware and software platforms, our clients can **produce proofs of concept** and value using standard industrial components. This accelerates the transition to industrial implementation and

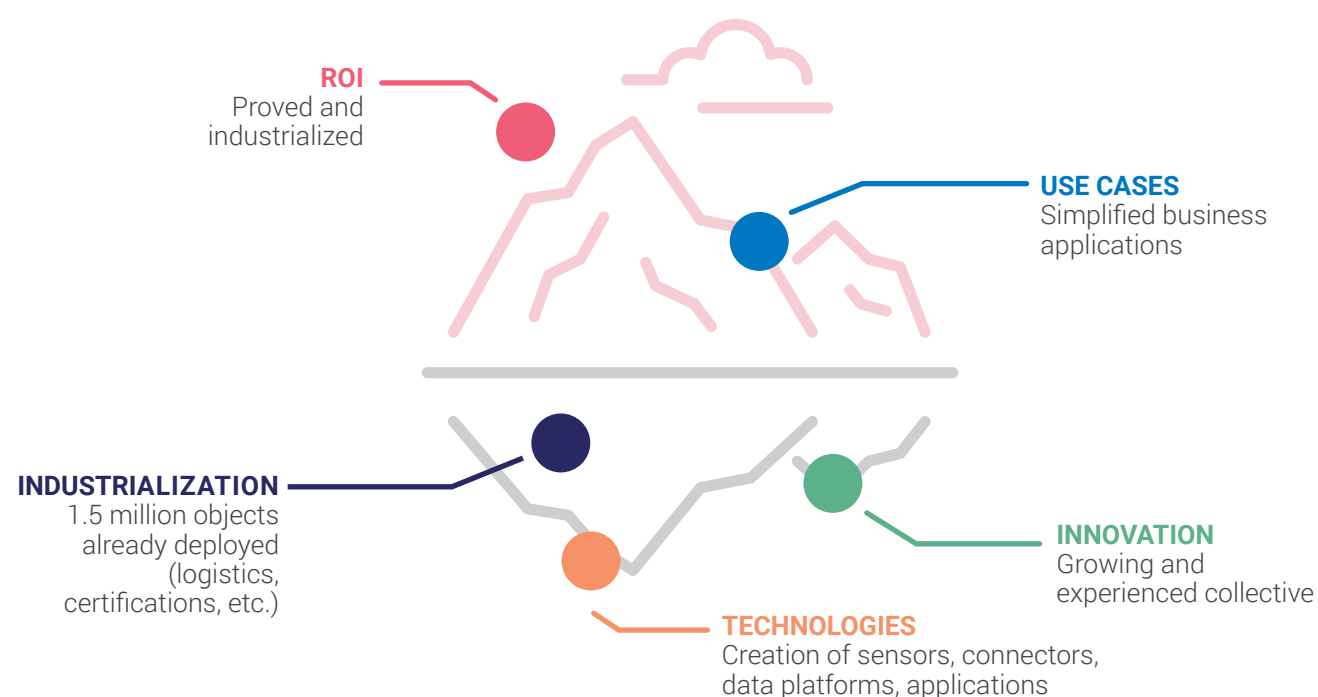
our teams can support you to tailor it and manage industrialization constraints.

Thus, our partners can benefit from a **dedicated product** with a **low development cost** while having product support throughout its lifecycle.

▶ WORKING IN PARTNERSHIP

"We manage IoT and MtoM complexity to help you to focus on your line of work through comprehensive and easy-to-use tools to secure your on-the-field deployment without embedded systems development knowledge"

PARTNERS

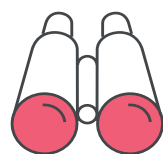


DIGITAL POLE

We simplify the complex aspect of IoT for you so you can focus on your core business.

1 : UBIQUITY

Be in several places at once without having to move to monitor or survey.



Have trackers and connected objects connected to LPWAN and/or cellular networks.

2 : DIGITALIZATION

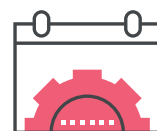
Transforming 'real life' events collected by sensors into 0 and 1.



Transform a shock, a temperature, a position, an opening, etc., into dashboards and alerts.

3 : ANTICIPATION

Optimize and forecast on the basis of masses of data from the field.



Improve business processes, develop new services, strengthen value chains.

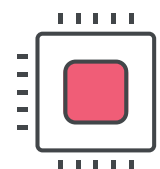
▶ BUSINESS SOLUTIONS

▶ PRESENTATION

These solutions have been developed **based on use cases** encountered with clients, and they help you to move more quickly through your operations. These cases include our top sellers as well as our collaborations with various companies.

DEVICE

HARDWARE

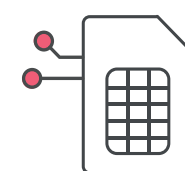


SOFTWARE



&

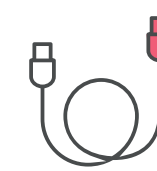
CONNECTIVITY



PLATFORM



ACCESSORIES



FOR



INTRUSION
DETECTION



ASSET
TRACKING



TRAILERS
TRACKING



SOIL
MOISTURE



SMART
INVENTORY



TRAINING
SERVICES



MYLUCIO
DEV KIT



TRACEABILITY
WITH A SMARTBOX





BENEFITS



SELF-LEARNING

Thanks to its on-board intelligence, the product calibrates itself automatically to determine its reference position. The alert angle is remotely configurable.



SECURITY

Be informed of any instruction in your infrastructure or fall of your equipment.



UBIQUITY

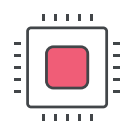
Be in several places at the same time thanks to your devices that allow you to be remotely informed of the status of your equipment.

MANHOLE OPENING DETECTION KIT

Detect a change in verticality with your EG-IoT.

Detect an unwanted opening to prevent theft or accident. It is widely used for **manholes** but can also be used to **detect the opening of electrical cabinets** or to detect **the fall of equipment** such as poles or antennas.

OFFER DETAILS



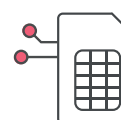
EG-IoT 4201

- Accelerometer for the detection of movement and change of verticality
- Industrial casing for rugged external environment
- Internal antenna with high sensitivity

Ease EG-IoT



- Verticality change measurement
- Alert on fall detection
- Position of the alert
- Automatic learning of the reference position = Edge Computing



LoRa Connectivity

- Geographical coverage
- 5-year operation
- No package overrun



ESKIOT Platform

- Dashboard - Monitoring & Management
- Visualization of configured alerts
- Notification system
- Responsive: PC, Tablet, Laptop
- Multi-User and multi-level use



Accessories

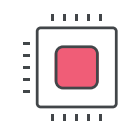
- Fixation and activation clips
- Unclipper

ASSET TRACKING KIT

Track and secure your goods remotely.

Track your **high added value** goods remotely and **secure your assets**. With great autonomy and a global geographical coverage you can **easily start to deploy and use our kit**. You will then be able to add multiple options with the same technological basis.

OFFER DETAILS



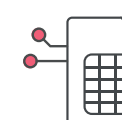
EG-IoT 1A81

- GNSS accuracy (10 meters)
- Motion detection (Start&Stop)
- Multiple temperature sensor (BLE)
- Easy to install and robust casing
- Worldwide coverage with L(TE-M1) / NB-IoT and 2G fallback

Ease EG-IoT



- Sending positions in real time
- Geofencing with one circular zone
- Configuration over the air
- Automatic activation
- Shock detection
- BLE scanning
- Interactive Google maps



5G (LTE-M1/NB-IoT) Connectivity

- Worldwide coverage
- Monthly contract
- Blocked subscription - Established data limit
- Cellular communication management with roaming and management of multiple networks
- 3GPP validation



ESKIOT Platform

- User-friendly dashboard view
- Alerts configuration
- Device specific dashboard
- Remote configuration
- Raw data available
- API and callback



Accessories

- BLE temperature sensors
- Programming cable
- Wrench-proof mounting clips
- Socket clamps
- Clip removal tool



BENEFITS



PRODUCTIVITY

Logistics flows improvement, better inventory management, proactive maintenance.



SECURITY

Anti-theft alerts, motion detection, localization in case of loss, traceability in case of damage.



SERENITY

Continuous tracking temperature monitoring, speed monitoring.

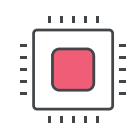


TRAILERS TRACKING

Maximize the rate of use of your trailers with real-time monitoring of their condition.

Optimize your fleet management by identifying your stationary trailers and by increasing their usage rate. **Optimize service schedules, maintenance, and replacement** of worn parts.

OFFER DETAILS



EG-IoT 8201

- No on-site installation necessary
- 10 year autonomy
- Outer casing (robust and water-proof)
- GNSS accuracy (10 meters)

Ease EG-IoT



- Real-time location
- Geofencing
- Shock and movement detection
- Remote configuration
- Battery control



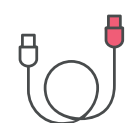
Sigfox Connectivity

- RCZ1 area (Europe and Africa)
- Low consumption
- Low costs
- Reliability



MAGMA Platform

- Dynamic dashboard
- Management alert possible
- Export of file to .csv
- Mission management, decision, Real-time view of all delivery delays and contingencies
- Full interoperability with ERP, TMS and WMS task



Accessories

- Fastening and activation clips
- Unclipper

BENEFITS



PRODUCTIVITY

Maximize the rate of use of your trailers with real-time monitoring of their condition. Speed up rotations and decrease your downtime to save money by reducing your equipment fleet.



CUSTOM ALERTS

Get alerts to anticipate fleet movements, unauthorized drifts and attempted theft.



BETTER FLEET MANAGEMENT

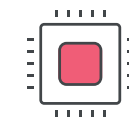
Identify your trailers when stationary and increase their usage rate. Optimize service planning. Maintenance and replacement of worn parts.

SOIL MOISTURE SENSOR KIT

Monitor soil moisture for direct control of sprinklers.

The demographic and economic development of our society is putting increasing pressure on a vital resource: water. Our soil moisture sensor solution helps **reduce water consumption** by optimizing irrigation and water supply. This connected and smart system provides a **better follow-up of the water needs of the plants** to optimize the water supply

OFFER DETAILS



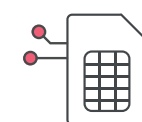
EG-IoT 1AB1

- No external power supply needed
- 5 year autonomy
- Outer casing (robust and water-proof)
- GNSS accuracy (10 meters)
- Adapted embedded intelligence (Edge computing)
- Adapted to outdoor environments
- 1 open collector output

Ease EG-IoT S0591B



- Measurement and periodic transmission of moisture level
- Control of the output on threshold
- Alerts on threshold
- (IP67/IP69K and IK09)
- Moisture sensor 10HS



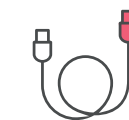
5G (LTE-M1/NB-IoT) Connectivity

- Worldwide coverage
- Month contract
- Cellular communication management with roaming and management of multiple networks
- 3GPP validation
- Configuration over the air



ESKIOT Platform

- User-friendly dashboard view
- Alters configuration
- Access to raw data
- Historical hygrometry data
- Supervision of equipment



Accessories

- Dedicated cable for output and analog sensors connection



BENEFITS



ECO-FRIENDLY

Optimization of the available resource and reduction of the ecological impact.



COST REDUCTION

Daily follow-up to ensure better performance of the plants by refining water monitoring.



SERENITY

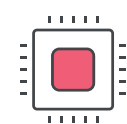
Automated analysis of these data to adapt in time the hygrometry measurement.



▶ SMART INVENTORY

With the help of BLE beacons and a gateway, you can **easily deploy an infrastructure to manage and monitor your equipment fleet** within a warehouse, a factory, a hospital, an office, etc. Based on an easy to use and easy to deploy solution, the web portal will provide **efficient transactional inventory management and equipment tracking**. You can **connect it to your existing inventory systems** to improve process efficiency. Save time searching for assets and eliminate dormant assets with our complete solution.

OFFER DETAILS



EG-IoT 1AA6

- BLE module 5.0
- External power supply with internal battery back-up (1A.h)
- 5G (LTE-M1/ NB-IoT) communication module

Ease EG-IoT V2.20



- BLE scanning for an automatic inventory (Eddystone or iBeacon format)
- Filtering on name
- Configuration of the frequency and length of listening period



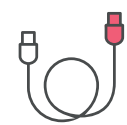
5G (LTE-M1/NB-IoT) Connectivity

- Worldwide coverage
- Secure data transmission
- Low consumption



Charlie Platform

- Real-time inventorying
- History of movements and states
- Simple and centralized form for compliance monitoring and digitized control sheets
- Devices management (battery, connectivity, etc.)
- Open API/ call-backs



Accessories

- Cable to connect to the external power supply
- BLE beacons (multiple possibilities)
- Clips for fixation

BENEFITS



REAL-TIME VISIBILITY

View all of your equipment in real time: display on the map your storage areas and the equipment stored there.



PRODUCTIVITY

Quickly and easily find all your assets and do not lose time searching for your assets anymore. Identify the sleeping assets to optimize your stocks.



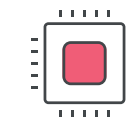
BETTER MANAGEMENT

Optimize your production cycles by always knowing which assets are available at each site.

▶ IOT SOLUTIONS OVERVIEW TRAINING SERVICES

This introductory training provides a general overview of the IoT main principles and the issues associated with this change in approach: **toward products as a service** allowing continuous connection to its customers. The training will also present some issues linked to **multiple examples of connected products and services**: location and traceability, remote diagnosis, predictive maintenance, alert services, inventory, etc.

OFFER DETAILS



Hardware

- Presentation of the different elements of the hardware: micro-controller, module, power supply, casing



Software

- Global analysis of the issues for FW development: security, industrialization, EDGE computing, etc.



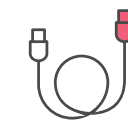
Connectivity

- Comparison of the pros and cons of the different solutions: LPWAN (Sigfox, LoRa), cellular (3G, 4G, 5G), IoT cellular (LTE-M1, NB-IoT, 5G), IoT satellite
- Discussion about the difference between private and public networks



Platform

- Global presentation of the complexity behind an IoT platform with the different levels and features
- Focus on the device and connectivity management platform



Accessories

- One of the main issues of the deployment of IoT solution is the installation and maintenance.
- The training will also present some issues linked to this operational side: activation of the device, fixation, maintenance, external sensors, etc.



BENEFITS



360 LEARNING

Complete understanding of the challenges and best practices.



360 VIEW

Global overview of the technologies and the players.



PRACTICE

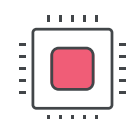
The construction of your roadmap.

MYLUCIO DEVELOPMENT KIT

Because **quality**, **modularity** and **reusability** matters the most, reusable software components-based framework enables an application to be run regardless of the underlying hardware architecture.

When good data transmission is fundamental in Industrial IoT, the Lucio multi-connectivity solution **takes the best of each protocol** for proper data transmission. But not only this!

OFFER DETAILS

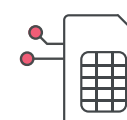


Hardware (SDK)

- STM32 NUCLEO-L476RG
- 1x "LoRa click" IoT telecommunications module (reference MIKROE-1997)
- 1x "LSM303AGR Click" Accelerometer module (reference MIKROE-2684)
- 1x antenna 868Mhz

Software

- Lucio software components-based framework
- Lucio multi-connectivity solution



LoRa / Sigfox Connectivity

- 1 year LoraWan Orange Network subscription 144 msg / d + 1 year



Telemesure (SNOC)

- Cloud platform Telemesure.net included



Accessories

- 1x 113mm half wave 868Mhz antenna
- 2x Mini USB cables (USB type B to USB type A)
- 1x 5-sided wooden case and a Plexiglass top face in the likeness of EGOS with a thickness of 3mm
- 1x Quick Start Guide

BENEFITS



PORTABLE ARCHITECTURE

To design a true portable application for different chipsets, My Lucio uses a dynamic dispatching mechanism that finds the right function to call.



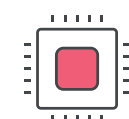
ROAMING

Patented global roaming library at the edge of IoT applications based on the NIST Cyber-Security Framework.

TRACEABILITY WITH A SMARTBOX AND MESPARCELLES®

Tillage, sowing, crop protection, spreading of inputs, harvest, etc. **Track all your interventions.** Reducing the time spent on double entry of interventions is a major challenge for farmers. Our SmartBox allows the farmer to **save time, increase reliability and access data directly from the MesParcelles® software.**

OFFER DETAILS

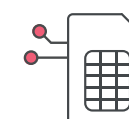


SmartBox

- LoRa and 3G/ 2G modules
- Accurate GNSS
- BLE module
- External power supply
- State of life LED

Keyfield

- Scanning of your phytosanitary products
- Detecting the harnessed equipment
- Sending position in real time
- Creation of your intervention within your Farm Management Software



3G / 2G Connectivity

- 36 month contract
- European coverage
- LoRa fallback with a 36 month subscription



MesParcelles®

- Manage the traceability of your crops
- Track your environmental indicators
- Facilitate your environmental certification audits
- Manage your economic performance
- Anticipate your PAC declaration



Accessories

- 5 beacons
- A cigarette lighter 12V
- A QR code reader
- A home plug



BENEFITS



PRODUCTIVITY

Automatically collects all data related to your daily operations by tracking their movements and those of your agricultural machinery.



STREAMLINING SEIZURE

Save time by avoiding manual entry and then re-entry on your management software or FMIS. A simple validation of the automatically collected data is enough.



VISIBILITY

Gain visibility into your daily, monthly, and annual operations. You share your tractors, compare your results, and benefit from new services.

▶ ERCOGENER

▷ PRESENTATION

IN NUMBERS

...



+40

Years of experience

...



+2M

Products delivered

...



50

Countries covered

Ercogener, your specialist in communicating and intelligent systems

Our experts are here to support your technology needs in IoT. *"Behind every digital application, there is a specific Ercogener field solution".* **Ercogener** is a major player in **communicating and smart systems solutions**.

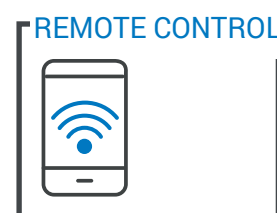
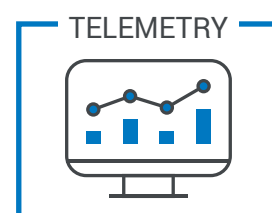
40 years of experience
Since 1981 we have been at the forefront of continuous technological evolution: digital systems, networks, artificial intelligence, data analysis – in the world of connected objects. Our range of services has been considerably broadened by building on our experience and know-how.

Starting out with a simple modem, today we now offer standard, special or tailored high-quality solutions to meet all of your technology requirements.

A start-up culture fuels our everyday operations, driven by the quest to develop the best products for our clients and specific advice for each requirement.

Proud to promote the Made in France label
Ercogener also attaches great importance to the "Made in France" principle and is proud of **designing and manufacturing its products in France**. The majority of Ercogener products are produced in the Group's facilities which means we can optimize production, plan in advance, and maintain a high degree of responsiveness.

Ercogener is part of numerous ecosystems and R&D projects like IoL (Internet of Logistics) dedicated in building an ecosystem around a universal mobile IoT platform. This is part of our DNA to provide open and adaptable solutions.



▷ GENERALITIES

EXPERT IN CONSTRUCTING GLOBAL IOT SOLUTION

- Easy to use configuration interface
- Comprehensive technical documentation and quick start guides
- Support by an expert team of more than 20 years of experience in English and French
- Dedicated support team in English and French

EXPERT IN INDUSTRIALIZATION

- CE, REACH, RoHs default certification and other on demand or for specific products (UL, FCC, CSA, ATEX, etc.)
- Packaging and logistic adapted (IATA, WEEE, number, accessories, etc.)
- Products designed and produced in France with a direct link to the production teams and plants which are part of the group
- Exports to 50 countries

EXPERT IN PARTNERSHIP

- Part of various collaborative R&D projects in agriculture, logistic, cyber-security, maritime geolocation
- Opened embedded frameworks for integrating partners intelligence
- Adaptation of the standardized solutions to different use cases



▶ RADIO CONNECTIVITY

	MESSAGE SIZE	MESSAGE FREQUENCY	MESSAGE SPEED	HANDOVER	ROAMING	INDOOR ENTRY	ENERGY CONSUMPTION	TOTAL COST
5G	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★☆☆☆☆	★☆☆☆☆	★☆☆☆☆
2G 3G 4G	★★★★★	★★★★★	★★★★☆	★★★★★	★★★★★	★★☆☆☆	★☆☆☆☆	★★☆☆☆
LTE-M	★★★★☆	★★★★☆	★★★☆☆	★★★★☆	★★★☆☆	★★★★☆	★★☆☆☆	★★★★☆
NB-IOT	★★★★☆	★★★★☆	★★★☆☆	★★★★☆	★★★☆☆	★★★★☆	★★☆☆☆	★★★★☆
LORA	★★★☆☆	★★★☆☆	★★☆☆☆	★★★☆☆	★★☆☆☆	★★★★★	★★★★★	★★★★★
SIGFOX	★☆☆☆☆	★☆☆☆☆	★☆☆☆☆	★☆☆☆☆	★★★★☆	★★★★★	★★★★★	★★★★★
IOT NANOSAT	★☆☆☆☆	★☆☆☆☆	★☆☆☆☆		★★★★★	★☆☆☆☆	★★★★☆	★★☆☆☆

▶ ESKIOT

Device management platform.

Eskiot is an **IoT device management platform** dedicated to Ercogener products. It has been developed to collect, store, and transfer data collected by devices deployed in the field in a standard format.

Its main objective is to **simplify the management of Ercogener's communicating devices** and to maximize services provided by these devices.

OVERVIEW OF THE 360° CASES

- Battery status
- Last communication report
- Network subscription management

DATA MANAGEMENT

- Data decoding
- Data transfer via call-backs and API
- Sovereignty of your data

REMOTE CONFIGURATION

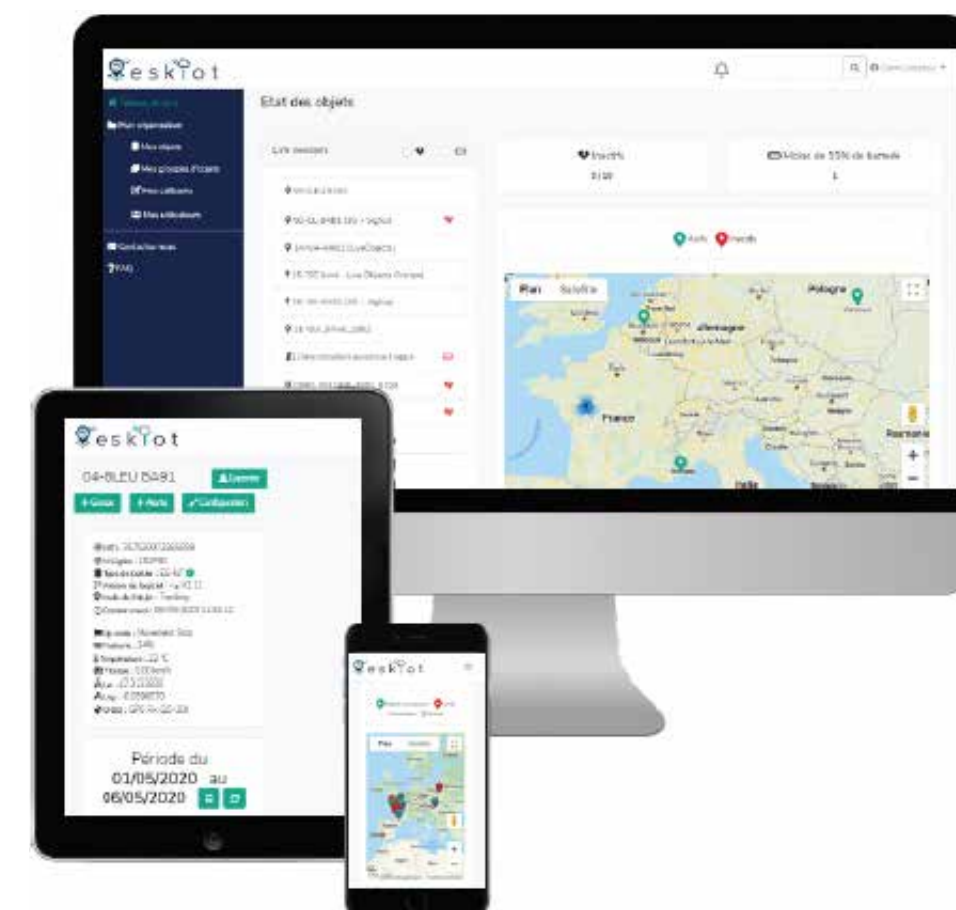
- Modification of parameters
- Firmware update

SECURITY

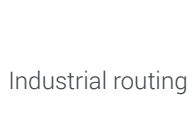
- Server developed with a security approach
- Authentication based on RGD recommendations
- Secure communication network

ALERTS ON EVENTS

- SMS or Email alerts in case of suspicious events (shock, battery, communication failure,...)
- Customized alarms



OUR PRODUCT RANGE AND THEIR APPLICATIONS

APPLICATIONS		PRODUCT RANGE	TECHNO
TRACKING			Cellular
			Cellular &/or LPWAN
			Cellular
TELEMETRY			Cellular &/or LPWAN
			Cellular
REMOTE CONTROL			Cellular Calculator Router
			Cellular Router

We have now developed more than 50 different products in 3 distinct product ranges to meet various requirements such as geolocation, surveillance, telemetry, and remote data recording. Our ability to create tailored products for our partners or clients is one of our strengths. Our skilled R&D, support, and production teams will support you from defining a solution to final commissioning.

Geolocation for agriculture

Our first area of business is agriculture where our systems are used mainly for geolocation applications, based on the development of our precision application called RTK. It is used for the precision spraying of phytosanitary products, guidance of agricultural machinery, and work optimization. The application provides absolute repeatability, high accuracy, and a fast network connection.

Logistics and Fleet Monitoring

One of our other major vertical markets is logistics and vehicle fleet monitoring. Based on an accurate GNSS (from 2 to 10 m), geolocation provides wider geographical cover. The system is useful for monitoring rotation frequencies or the use of certain equipment items,

warning of theft or a vehicle leaving its allotted area, or monitoring and controlling work operations by employees.

Smart Territories

Our third area of business is smart territories for the quick and simple connection of a large number of sensors such as pressure, water level, intrusion systems and so forth. Many of our products are used in Smart City or Smart Regions applications. For instance, our systems are used to transmit water level readings throughout France, to monitor and control water treatment plants, to detect the opening of manhole covers or utility cabinets in streets.

We are also involved in site security to prevent intrusion or to check the verticality of tall structures.

IN NUMBERS



+800

More than 800 clients have put their trust in Ercogener.



+70K

We put more than 70,000 products into service every year and exports to more than 20 countries.



<0.3%

The return rate is less than 0.3%.

► TRACKING

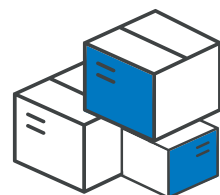
4 TYPES OF GEOLOCATION EQUIPMENT:



Removable equipment
in vehicles for fleet
management



Systems attached
to vehicles out of sight



Autonomous systems
installed in equipment
without a power supply
such as containers,
crates, site machinery,
and so forth.



Precision geolocation
systems

FLEET MANAGEMENT

All responsibilities relating to the usage and maintenance of a fleet of vehicles are covered under **fleet management**. It refers to activities that ensure the **supervision, maintenance, repair**, and **efficiency** of company-owned vehicles. The goals are to boost productivity while lowering costs.

Ercogener has developed by way of partnerships, numerous solutions adapted to multiple focus points like fuel consumption monitoring, renting optimization, supervision of complex vehicles (plows, mining vehicles, road-sweepers, etc.).



Use case

Ercogener products are integrated in a solution that prevent theft and wasted fuel and optimize costs and consumption.

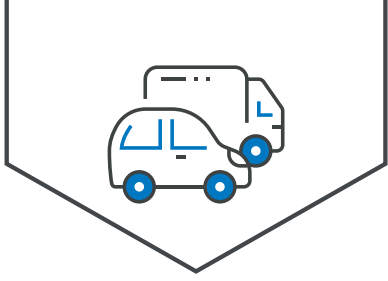
It is installed upstream in the measurement chain within the vehicles. It gathers various data through its CAN bus and I/O including feedback of activity within the fleet

(consumption, filling, puncture, etc.), geolocation, driver ID and engine information based on more than 10 sensors.

Our open middleware has allowed this partner to integrate its knowledge within our embedded software. The data is first analyzed on board the vehicle before going back to the servers.

The onboard monitoring system detects the slightest anomaly (fuel theft, waste, etc.) and notifies the person concerned according to the sending channel(s) defined (SMS, email, push notification).





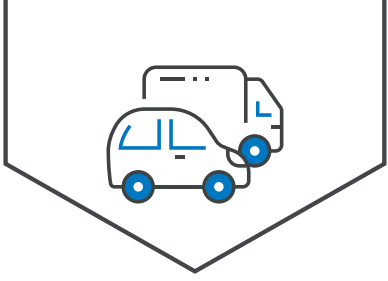
Focus on the Genloc product range



GENLOC is a cellular compact and industrial **geolocation device** with an external power supply (backup battery on option) and antennas. With wide-ranging connectivity, its embedded application provides **a large number of features** for fleet management (getting the GPS position, the car information from the CAN BUS, driver ID through I/O, etc.).

The aim is to **enable a vehicle to be located in real time** via 2G / 3G networks. The input/output/CAN option enables telematics to be offered in addition to tracking according to the business applications. Its **onboard monitoring system** integrates the network surveillance and the frames' storage (GPS and state of the inputs / outputs) until the **cellular network** is once again covered in order to transmit the frames' stream stored in memory.

For an easy installation, we have thought of everything (support & training) and our partners can integrate their own monitoring system within our devices thanks to our open middleware.



Functions	GenLoc 341e	GenLoc 354e
		
Connectivity		
3G/3G+	✓	
GSM/GPRS	✓	✓
LTE-CAT M1 / NB_IoT		
LPWAN		
GNSS	✓	✓
Interface		
Digital inputs	3	5
Digital outputs	1	3
Analog input 0-10V	2 (opt.)	2
Analog input 4-20m A		2 (opt.)
Serial port RS232	1	1
Add. serial port RS232		1 + 1 opt.
Serial port RS485		option
1-WIRE simple	option	✓
1-WIRE master	option	option
K-line		✓
BUS CAN controller		option
Double SIM		option
Audio	✓	✓
Accelerometer	✓	✓
Internal antenna		
Internal backup battery	option	✓
Accessories & Firmware		
External antenna	mandatory	mandatory
Ext. power supply	mandatory	mandatory
Fixation clip	option	option
Programmation cable	mandatory	mandatory
Firmware available	EaseLoc	EaseLoc

EGM (Ercogener Middleware)





Focus on the GenLoc accessories

Our best sellers



Antennas:

- 618D2F2150
Antenna 2G-3G / 2dBi / adhesive mount / FAKRA-D
- 607C2G2305
Magnetic combo Antenna 3G/ 2G Quad band/GPS IP67 - 2dB - FAKRA (3m)



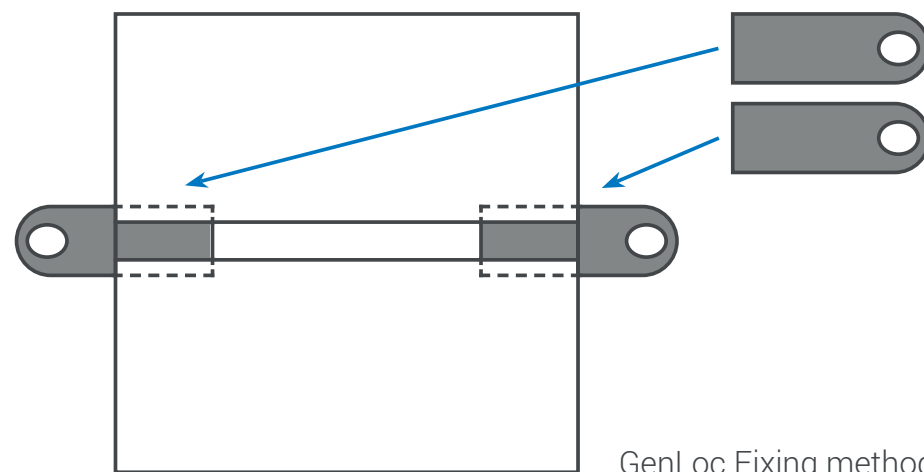
Miscellaneous:

- 4404000206
Serial cable DATA SubD-HD-15M/SubD 9F L=0.5m
- K011
Black waterproof casing

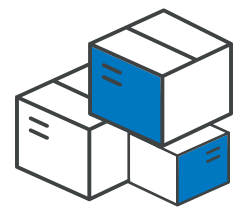


Power supply:

- 471210705
ALIM. 220VAC/12VDC Microfit 4pts
- 4402000100
Power supply cable 2 wires / fuse / µFIT-F 4pts



GenLoc Fixing method



ASSET TRACKING

Asset tracking consists of geolocating all types of resources that are crucial to the functioning of an organization's activity: tools, equipment, raw materials, human resources, fleet management, etc.

Asset tracking is one of the **main application of IoT**, whether for **security** or **logistics** purposes.



Use case

The construction equipment management presents **many challenges** to provide information on usage and geolocalization. The aim is to **maximize investment equipment, optimize equipment allocation, and better manage workshop** order and inspection.

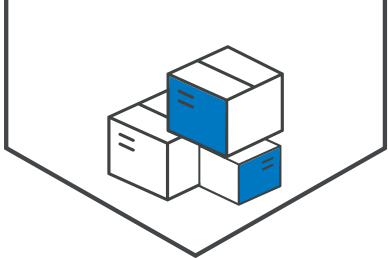
Our solutions offer **a modern and fast software interface** and real-time GPS tracking of Ercogener connected devices

installed on the equipment. All actions to be performed by the employee are dematerialized, allowing you to manage the company workload in real time.

By equipping its fleet with our solution, our client **becomes more agile**. Thus, it saves at least 15% of the costs associated with the operation of its vehicles or construction machinery.



+15%
costs saved



Focus on the EG-IoT product

EG-IOT is an **industrial geolocation device**, suitable for the rugged external environment. It is **waterproof** and **shock-resistant**. It works over any **cellular or LPWAN network** or even with a double connectivity. This multi-connectivity is a focus for Ercogener and is covered by a European and American patent.

Thanks to its **compact size**, its wide-range integrated antennas and its long autonomy, it allows easy installation and use. Designed with **native sensors** (accelerometer, magnetometer, and temperature sensor), you can **connect on additional sensors**.



GPS / GLONASS / GALILEO

GNSS



SIGFOX

or

LORA

Back-end Sigfox

Back-end LoRa

and / or

2G/3G

or

LTE Cat.M1
NB-IoT
2G

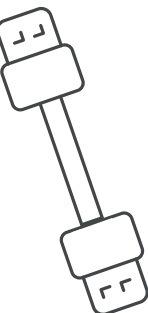
SMS / TCP / UDP
MQTT / MQTTS

SMS / TCP / UDP
MQTT / MQTTS

Option
IO + external
power supply
with backup

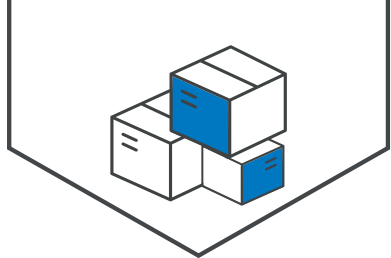


BLE
5.0



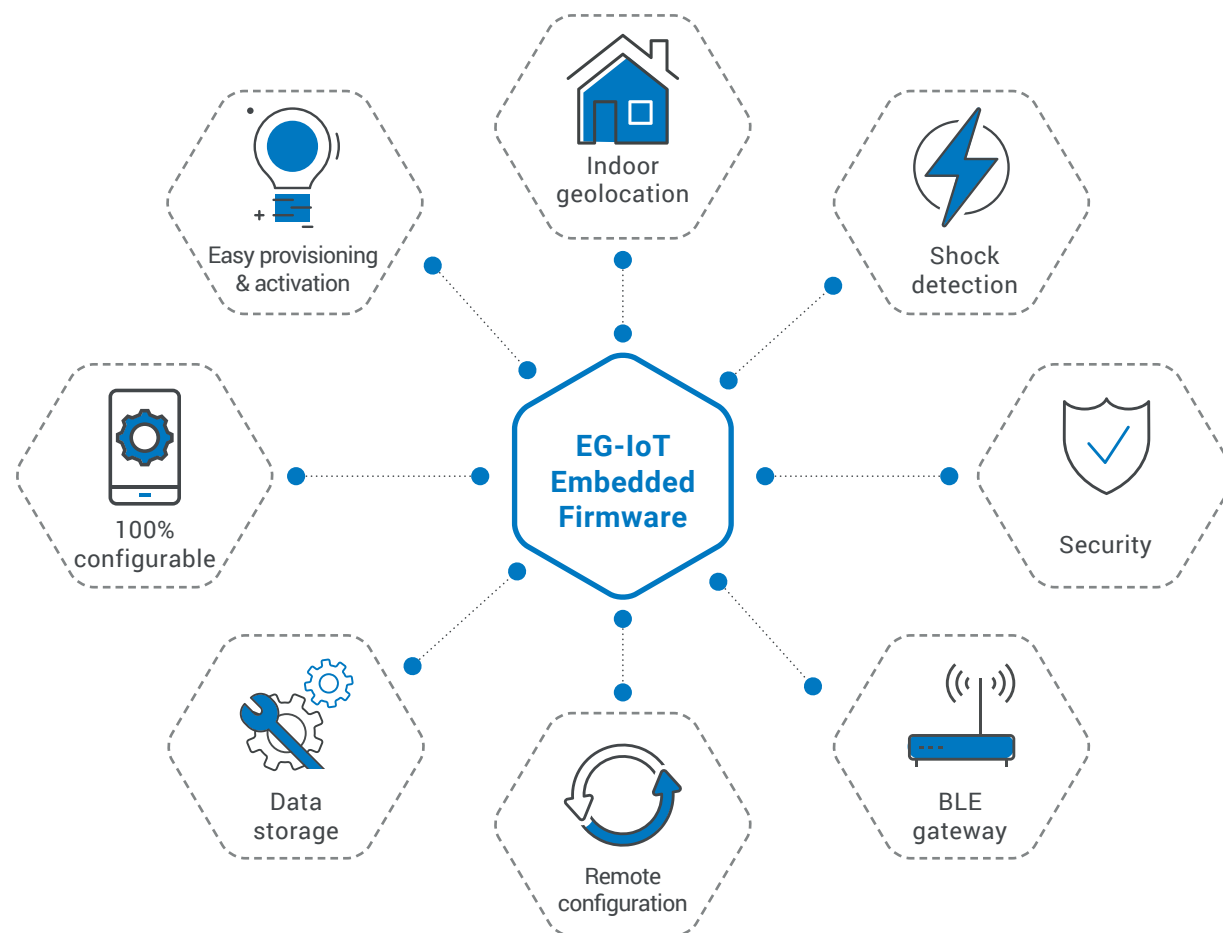
The EG-IoT product range

Functions	EG-IOT 8201	EG-IOT 80B1	EG-IOT 8AB1	EG-IOT 4201	EG-IOT 40B1	EG-IOT 4AB1	EG-IOT 4A01	EG-IOT 0A81	EG-IOT 1AA6	EG-IOT 1AB1	EG-IOT 1A81
Connectivity											
LTE Cat M1									✓	✓	✓
NB-IoT									✓	✓	✓
3G	✓		✓			✓	✓	✓			
GSM / GPRS	✓		✓			✓	✓	✓	✓	✓	✓
LoRa				✓	✓	✓	✓				
Sigfox	✓	✓	✓								
BLE		✓	✓		✓	✓		✓	✓	✓	✓
GNSS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Interface											
Digital inputs		2	2		2	2			2	2	
Digital outputs									1		
Analog inputs 0-10V		2 (or)	2 (or)		2 (or)	2 (or)				2 (or)	
Analog inputs 4-20mA		2	2		2	2				2	
1 RS485 serial port		1	1		1	1			1	1	
1-WIRE			1			1			1		
Accelerometer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnetometer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Internal T°	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Embedded software											
EaseEG-IoT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
API	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Accessories											
Internal antenna	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Primary battery 6 A.h	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
External power supply 8-30 V DC									✓		
Secondary battery 1 A.h									✓		
Programming cable	option	option	option	option	option	option	option	option	option	option	option
Mounting clip	option	option	option	option	option	option	option	option	option	option	option
External sensors	option	option	option	option	option	option	option	option	option	option	option



Focus on the Ease EG-IoT (SW)

Easy to configure, the **Ease EG-IoT** application ensures the recording of the status or location data and its transmission via various networks to a dedicated server. It already integrates many features and smart systems but it can also be **adapted to your use case and specificities**.



Ease_EG-IoT_Config is a configuration tool developed by Ercogener for the Windows™ environment. This tool allows for a quick configuration of the embedded application «**EaseEG-IoT**» without any knowledge of the parameters set.



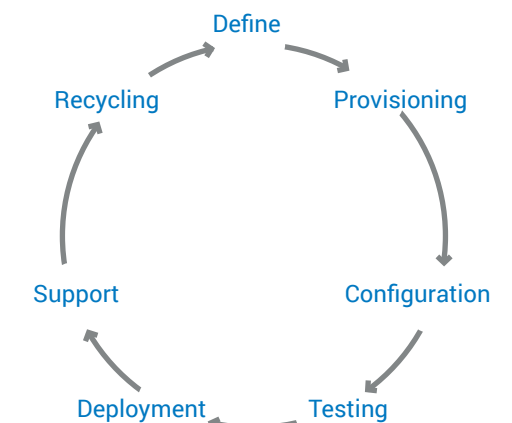
The EG-IoT Lifecycle

Ercogener can accompany you all along the product lifecycle:

- Define the fastening system and activation mode (e.g.: trap opening)
- Select the best partner for the data analysis and viewing platform
- Monitor the state of your devices (autonomy, connectivity, etc.)
- Manage recycling and refurbishment

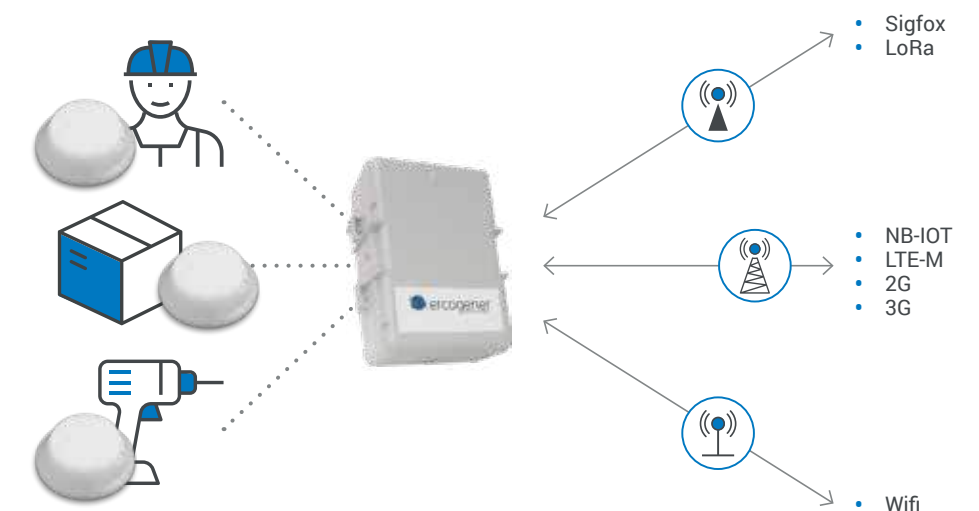


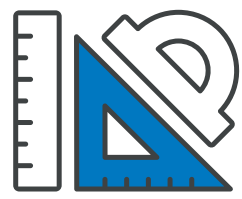
Ercogener is also able to offer a **Business Model** based on the use of your devices and to manage the refurbishment and turnover. For example, we can propose a price per journey with a global stock.



Focus on BLE gateway

EG-IoT already integrates internal sensors but it can also be used as a Gateway to collect external sensors through **BLE connectivity**.



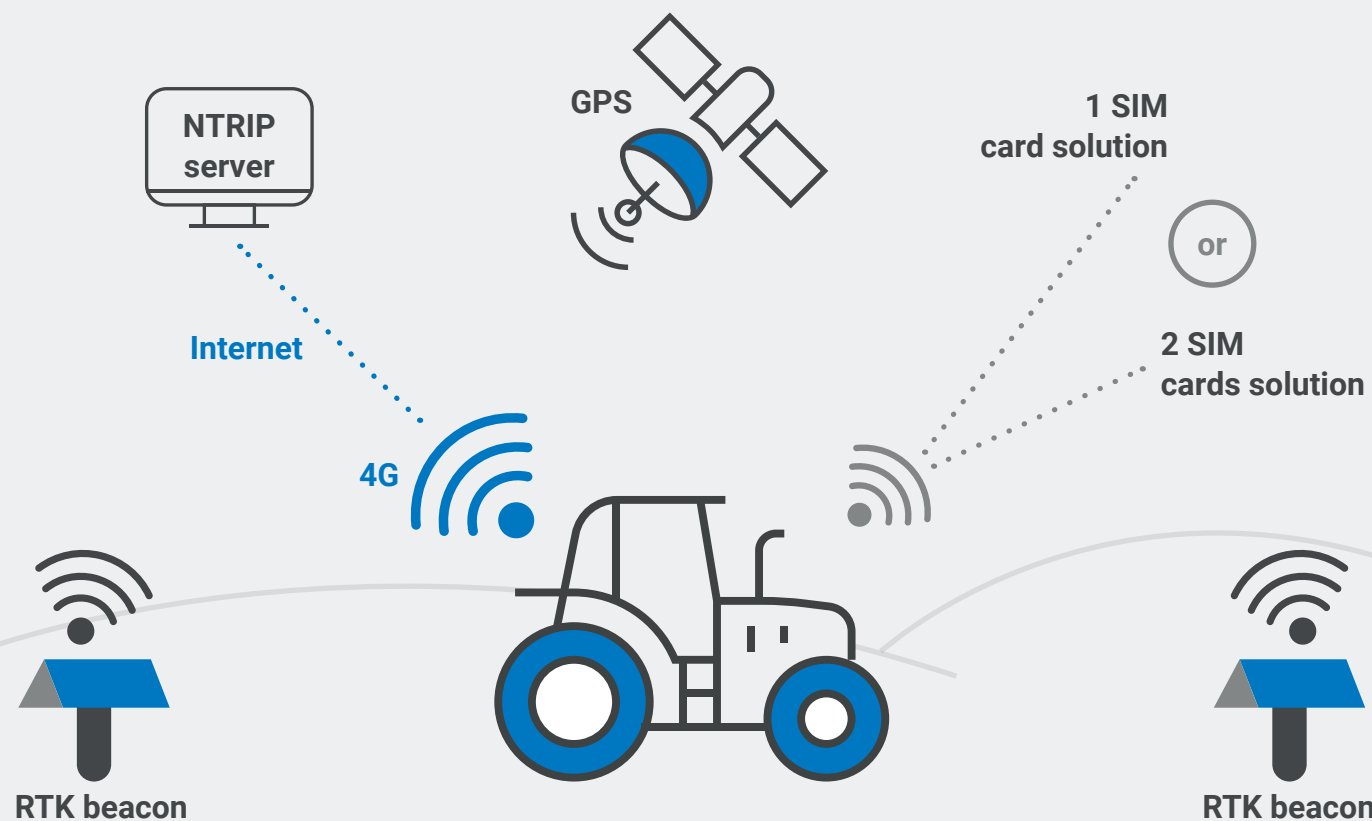


CM TRACKING

Centimetric precision

RTK DEFINITION

Real-time kinematic (RTK) is a satellite location technique that uses phase measurements of the carrier waves of signals broadcast by the GPS, GLONASS, or Galileo systems to determine the position. To attain centimeter-level precision, a reference station offers real-time adjustments.



Focus on the GenPro_Ntrip

GENPRO_NTRIP is a **cellular compact and industrial geolocation device**. With wide-ranging connectivity, it covers a large range of applications thanks to its embedded software possibilities.

The aim is to get **centimetric location accuracy** by connecting to the RS232 port of an onboard **autoguidance system in tractors** or public works vehicles. The principle is to transmit via cellular networks the GPS position of the tractor to the RTK server which returns the position corrected by **triangularization** of 3 RTK beacons (position known by this server).



DIMENSIONS

Size 73 x 54.5 x 25.5 mm

PACKAGE CONTENT:

- 1 GenPro 425e with application EaseNTRIP (S0445E)
- 1 cable 4 wires (power + 1IN + 1OUT) / Micro-Fit 4pts
- 1 cable 2 wires (2IN) / 1Micro-Fit 2 pts
- 2 fixing brackets
- 1 installation sheet

LOW CONSUMPTION:

- LowPower mode : Imoy = 2mA 4G / attached mode : Imoy = 40 mA 4G / data transfer mode : Imoy = 215 mA

ROBUST:

- Aluminum case IP 31

COMMUNICATION:

- Automatic management of PIN code
- RS232 serial link configurable (19.2 kbps by default)
- Compatible with networks 2G, 3G, and 4G
- Roaming management
- Automatic management of Mountpoints solution
- Connection to NTRIP server:
 - Permanent
 - Upon detection of the GGA frames sent by external equipment

OPTIMAL FLOW:

- 4G LTE CAT.4 network

▷ TELEMETRY SENSOR MONITORING

SENSOR DEFINITION

A **sensor** is a device that **monitors and responds** to **environmental input**. Temperature, presence, motion, angles, pressure, or any of a variety of other environmental events might constitute the unique input. The output is usually a signal that is transformed to a human-readable display at the sensor site or sent across a network for reading or additional processing.



Use case

Government projects

Ercogener has assisted numerous local governments and public bodies for several years in the collection of environmental monitoring data. We have also been extensively involved in monitoring river water levels in France for the Ministry of the Ecological Transition and the Regional Environmental, Planning and Housing Directorates (DREAL) (<https://www.vigicrues.gouv.fr/>). Ercogener is also a major player in collecting meteorological

data and works closely with Météo France and Météo Omnium or Météorage. Our communicating systems are used in water treatment plants or telecoms infrastructure, for instance.

Sensitive sites and equipment

Another regular use of our systems is for site security or security of installations. For instance, a fully packaged solution for detecting the opening of inspection covers for buried utility networks. Detection of unauthorized opening is used to warn of

cable thefts, falling or dropping of sensitive equipment, persons or property, by monitoring the verticality of structures.

Uses of our embedded solutions and communicating systems

Use of our sensor data transmission solutions can be divided into 2 categories:

- AC powered devices used to transmit back data from complex systems (flow rates, pressure, operating warnings)
- Self-powered devices that can be easily installed in isolated locations

Focus on wired installation

Our telemetry systems can be used to **connect a large number of sensors** whatever their characteristics and communication protocol. Starting from our hardware and software platforms, we can respond to most field use cases in agricultural, urban, industrial, or isolated environments. We are continually optimizing communications, making analysis more reliable, and reducing the latency time for triggering local actions.

More than **400 types of sensors have been connected** to our devices by our customers, deployed on more than 200,000 devices. Our clients highlight the durability and reliability of our devices as well as the quality of our technical support.

Our aim is to offer packaged solutions with sensors already referenced but also and above all to adapt to the sensors that you have already identified or installed on site.

Regarding the choice of sensors, it is necessary to look at:

0,123...

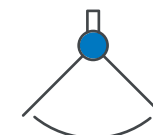
Sensors resolution
(number of digits after the decimal point)



Measurement frequencies



Communication mode



Accuracy in the different measuring ranges



Energy consumption and supply

One of the key features of integrating sensors is defining the power supply mode. The sensors are either powered independently or by the communication box, permanently powered, or only during measurement.

It is, therefore, very important to define the wiring diagram and the control mode of the sensor upstream.



DIMENSIONS

Size 90 x 65 x 35 mm

Weight 160 g

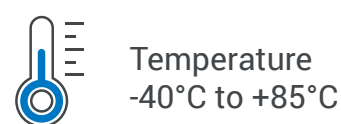
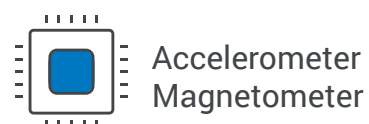
Focus on the EG-IoT product

The rugged products of the **EG-IoT** range are suitable for the harsh external environment. They are all **waterproof** and **shock resistant**. Their **compact size**, their wide-range integrated antennas and their **extensive autonomy** allow them to be easily installed and used. Along with their multiconnectivity possibilities and their embedded smart systems and data analysis they allow our partners to adapt to their use case.

Designed with native sensors (accelerometer, magnetometer and temperature sensor), you can connect additional sensors to them either over BLE or hardwired. They can allow you to collect environmental data and to analyze the status of the monitored equipment (temperature, pressure, humidity, etc.).

3 possibilities: internal sensors, wired sensors, BLE sensors

- With native sensors



- Wired sensors

Based on different references the following options are possible:

- Analogic input 4-20 mA or -15V +15V
- Opto-coupled digital input
- Dry contact input
- Controlled output
- RS485/ RS232
- I2C
- 1 WIRE

- BLE sensors

Based on standard protocols you can connect BLE sensors for these different configurations:

- Analogic input
- Dry contact input
- Distance measurement
- Detection of presence
- Identification
- Vibrations detection
- Door and valve opening / closing

Connectors focus



The EG-IoT product range

Functions	EG-IOT 80B1	EG-IOT 8AA6	EG-IOT 40B1	EG-IOT 4AB1	EG-IOT 0A81	EG-IOT 1AA6	EG-IOT 1AB1	EG-IOT 1A81
Connectivity								
LTE Cat M1						✓	✓	✓
NB-IoT						✓	✓	✓
3G		✓		✓	✓			
GSM / GPRS		✓		✓	✓	✓	✓	✓
LoRa			✓	✓				
Sigfox	✓	✓						
BLE	✓	✓	✓	✓	✓	✓	✓	✓
GNS S	✓	✓	✓	✓	✓	✓	✓	✓
Interface								
Digital inputs	2	2	2	2		2	2	
Digital outputs		1				1		
Analog inputs 0-10V	2 (or)		2 (or)	2 (or)			2 (or)	
Analog inputs 4-20mA	2		2	2			2	
Analog outputs								
1 RS485 serial port	1	1	1	1		1	1	
1-WIRE		1		1		1		
Accelerometer	✓	✓	✓	✓	✓	✓	✓	✓
Magnetometer	✓	✓	✓	✓	✓	✓	✓	✓
Internal T°	✓	✓	✓	✓	✓	✓	✓	✓
Embedded software								
EaseEG-IoT	✓	✓	✓	✓	✓	✓	✓	✓
API	✓	✓	✓	✓	✓	✓	✓	✓
Accessories								
Internal antenna	✓	✓	✓	✓	✓	✓	✓	✓
Primary battery 6 A.h	✓		✓	✓	✓		✓	✓
External power supply 8-30 V DC		✓				✓		
Secondary battery 1 A.h		✓				✓		
Programming cable	option	option	option	option	option	option	option	option
Mounting clip	option	option	option	option	option	option	option	option
External sensors	option	option	option	option	option	option	option	option

Focus on the GENPRO product



Technical alarm transmitters: the aim is to manage technical faults via analog inputs/outputs or thresholds, contact transfer, so that alarms are generated directly from the modem and its embedded intelligence)

The compatible embedded software can **cover a wide range** of applications: permanent data communication, event alerts, remote reading of meters, remote controls, etc. Specifically designed to address the issues related to collection and transmission of all kinds of data, this device is **configurable locally and remotely**.

Focus on embedded, Software: EasePro or EaseIP GenPro + EaseIP > Integrated TCP/ IP functionalities

- Interconnection of equipment: billboards, charging stations, automatic access points, product dispensers, etc.
- Monitoring of weather stations, energy meter, sensors, etc.

GenPro + EasePro > An advanced M2M solution

- GenPro + EaseIP > integrated TCP/ IP features
- Interconnection of equipments: Billboards, charging stations, automatic access points, product dispensers, etc.
- Monitoring of weather stations, energy meters, sensors, etc.
- Measurement and threshold alert (*EasePro*)
- Transmission of SMS alert (*EasePro*)
- Remote control of equipment (*EasePro*)
- Maintenance alert (*EasePro*)

Focus on EasePro _Config

Quickly configure the EasePro application thanks to the simplified programming EasePro_Config interface

- Simple and intuitive interface
- Product configuration injection / recovery
- No specific skills required
- Quick access to the main configuration parameters

Functions	GENPRO 325e	GENPRO 354e	GENPRO 300e	GENPRO 400e	GENPRO 425e
Connectivity					
4G				✓	✓
3G/3G+	✓	✓	✓	✓	✓
GSM/GPRS	✓	✓	✓	✓	✓
Interface					
Digital inputs	3	5			3
Digital outputs	1	3			1
Analog input 0-10V	1 + 1 (option)	2			1 + 1 (option)
Analog input 4-20m A		2 (option)			
Analog outputs					
Serial port RS232	1	1	1	1	1
Add. serial port RS232		2			
Serial port RS 485	1				1
USB serial port			1	1	
ETHERNET port					
BLE					
1-Wire simple	option	✓			option
1-Wire master	option	option			option
L-Line		✓			
BUS CAN controller		option			
Double SIM		option			
Audio			✓	✓	
Modbus RTU / Modbus TCP					
WAN/LAN					
VPN					
DTMF decoding	✓	✓	✓	✓	✓
Accelerometer	option	option			option
Internal antenna					
Internal backup battery	option	✓			option
Accessories & Firmware					
Add. external antenna	mandatory	mandatory	mandatory	mandatory	mandatory
Ext. power supply	mandatory	mandatory	mandatory	mandatory	mandatory
Fixation clip	option	option	option	option	option
Programming cable	mandatory	mandatory	mandatory	mandatory	mandatory
Firmware available	EasePro EaseIP EGM* Transparent	EasePro EaseIP EGM* Transparent	Transparent	Transparent	EasePro EaseIP EaseNTRIP

*EGM = ErcogenerMiddleware

Focus on accessories

Our best runners



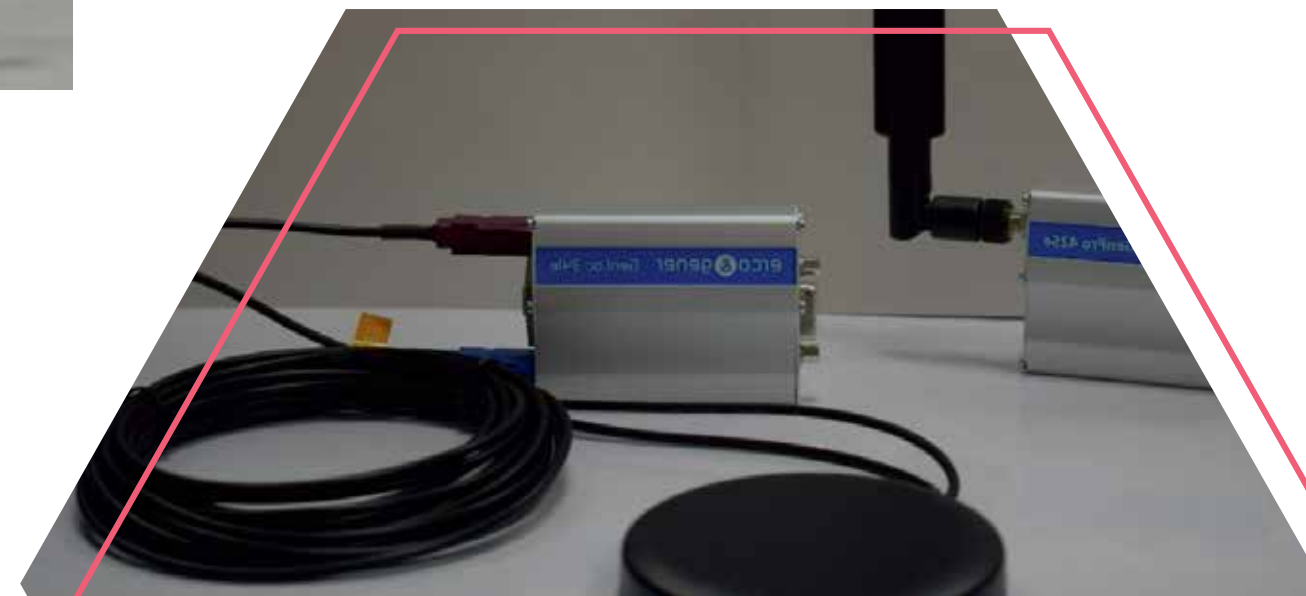
Antennas:

- 644H232500
2G-3G-4G / 2dBi / wall mount / SMA-M / 5m
- 604D332300
2G-3G-4G / 2.5dBi / magnetic mount / SMA-M
- 636Z332161
2G-3G-4G / 3dBi / articulated stick / SMA-M



Miscellaneous:

- 0471210705
Power supply 220VAC / 12VDC / 1.25A - μ FIT 4pts
- 4404000206
Serial cable DATA SubD-HD-15M/SubD 9F L=0.5m
- 4405000012
Adapter FME-M / SMA-M
- 4423462500
Antenna cable RG58 SMA-M/SMA-F L=5m
- K002
DIN-Rail mount kit for GenPro and GenLoc



Focus on specific adaptation

More than just on-the-shelf products, Ercogener accompanies its partners until the installation and running of the global solution. Our products are always integrated into a specific environment so we have to define what will be the solution for attaching, power supply, connecting sensors and also how to offer solutions for difficult installations for radio connectivity (offset or highly sensitive antennas).

Mechanical adaptation

For specific use cases, we can support our partners in the design of specific sensors or accessories.

For example, we have designed for specific purposes:

- fastening claws to integrate our products onto cast iron plates
- a remote I2C T° probe with a measurement accuracy of 0.1°C, powered by EG-IoT
- specific power supplies
- sensors for measuring current intensity based on alligator clips
- ILS sensors for detecting the opening of electrical cabinet doors

Software adaptation

In order to adapt as much as possible to field conditions, we work with our partners to define the data to be transmitted and their characteristics by adapting our software. Parameters can be remotely configured or updated.

To go further, our customers can also train on our onboard software platforms to develop their own business applications from the collected sensors. This is particularly the case when our customers send back information via the CAN bus, Modbus, or I2C buses.

Sensors integration

Ercogener combines a multitude of skills and technical disciplines into a single team. We have decided to adapt ourselves to the existing constraints of our customers rather than develop standard, packaged solutions.

Therefore, using our different product ranges, you can connect your temperature, pressure, humidity or vibration sensors and regardless of which measuring range, accuracy or desired frequency of measurement. Our products can also be matched to the number of sensors to be monitored in their environment.



► REMOTE ACTION

CONTROL AND ACTIVATING ACTIONS

Our smart applications are designed to collect, process, and retransmit information and data to remote equipment. We can create local loops to trigger actions on site autonomously to improve responsiveness and simplify operation.

Our solutions also enable you to trigger remote actions automatically or manually via your supervisory platform, by SMS or via own supervisory gateway for controlling an installed base.

Actuation can be done by communication over a local bus or by a dry contact.

DIFFERENT USE CASES

Our remote services products can be used for various applications:

In the agricultural industry:

- Starting sprinkling depending on ground moisture content and the weather
- Controlling sprinkler heads depending on operating warning signals from the spray header or the pivot

In an urban environment:

- Controlling rolling advertising billboards
- Controlling messages displayed on information signs on motorways or junctions where there is a tailback

In addition, some partners use our solutions to manage their renewable energy production facilities and others to control process automation or industrial machines.



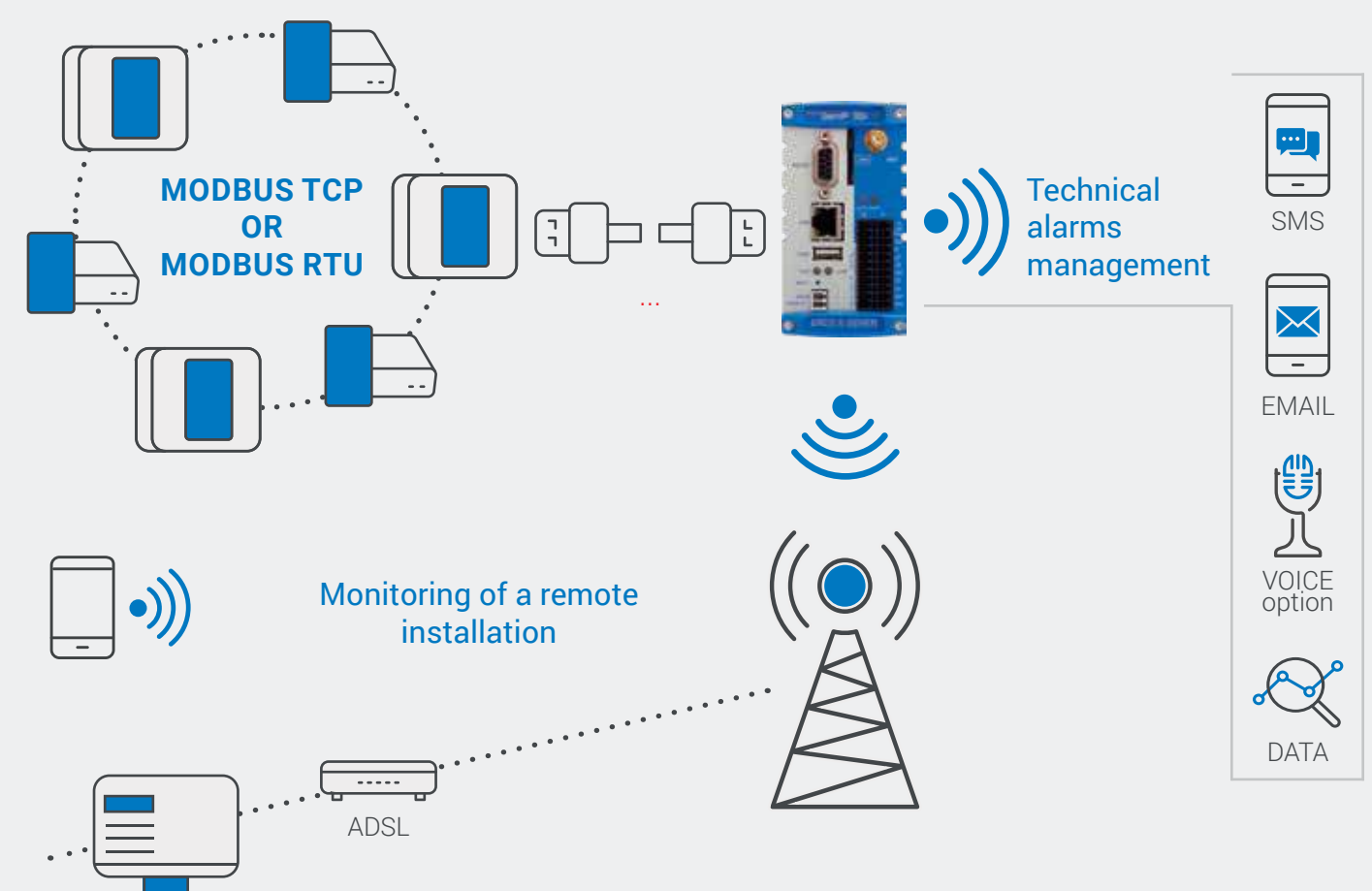
Focus on GenIP 30i

Cellular Calculator Router

Fully dedicated to the most critical and sensitive industrial applications, GenIP 30i combines wired connections (Ethernet/ RS232/ RS 485) with wireless networks (GSM / GPRS / 3G) in an aluminum Rail-DIN box. It is a comprehensive toolbox that you can set up to meet your most specific uses.

Autonomous, easy to set (intuitive and multi-language web interface) and highly efficient, it can help you in all your industrial applications as an alarm and event manager, network interconnection (Ethernet, Modbus), routing, script, shell, security, and storage of critical information.

- Connection WAN 3G
- Ethernet / RS232/RS485/USB
- Client/Server DHCP
- ModBus gateway TCP/RTU/ Master/Slave
- Remote access and configuration via PC/Smartphone/Tablet
- Function HTTP/HTTPS/MAIL/ FTP/TCP/SMS/MP3/DTMF
- Digital / Analog inputs and outputs
- Embedded scripts for adaptation to your environment



Focus on the Geneko product range



The **Geneko** product range is **designed to provide remote connectivity** over cellular networks through a reliable, high-performance solution.

The GWR Cellular router series offers **low transmission delay** and **very high data rates** offered by existing cellular networks and completely eliminates the need for expensive wired infrastructure. GWG products provide cellular capabilities for fixed and mobile applications such as data acquisition, smart metering, remote monitoring, and management. Coupled with the rich embedded intelligence, they are the perfect choice for a broad set of M2M solutions.

Functions	GWG-40	GWR-352	GWR-462-2-W	GWR-462-5
Connectivity				
4G			✓	✓
3G/3G+	✓	✓	✓	✓
GSM/GPRS	✓	✓	✓	✓
Interface				
Digital inputs	3			
Digital outputs	3			
Analog inputs 0-10V	1			
1 main RS232 serial port	1	1	1	1
1 RS485 serial port	1			
1 USB serial port	1	1	debug only	debug only
1 ETHERNET port	1	1	2	5
SIM Double deck	✓	✓	✓	✓
Modbus RTU / Modbus TCP	✓			
WAN/LAN	✓	✓	✓	✓
VPN	IPSec / OpenVPN / PPTP / L2TPv3	IPSec / OpenVPN / PPTP / L2TPv3	IPSec / OpenVPN / PPTP / L2TPv3	IPSec / OpenVPN / PPTP / L2TPv3
Accessoires & Firmware				
Antenna	require	require	require	require
Alimentation	require	require	require	require
Programming cable	require	require	require	require
Fixation	option	option	option	option
External sensors	option	option	option	option

Focus on the Geneko GWG product



The **Geneko GWG** gateway is **a compact and cost effective communications solution** that provides cellular capabilities for fixed and mobile applications such as data acquisition, smart metering, remote monitoring, and management.

GWG supports a variety of radio bands options on 2G, 3G, and 4G cellular technologies. It is **a reliable solution** thanks to its **high performance hardware** platform and VPN/Security powerful options. When coupled with the rich embedded smart systems, it is the **perfect choice for a broad set** of M2M solutions.

INTERFACE

- RS232/485
- Ethernet
- 2/2 Digital I/O
- 1 Analog input
- 1-wire

EMBEDDED APPLICATION

- Standard features of configuration
- Environment for specific script development (LUA, Perl and C/C++)

DIMENSIONS

Size	101 x 88 x3 0 mm
Weight	205 g

SECURITY

- Ipsec (IKEv1 and IKEv2)
- OpenSSL
- OpenVPN

OPTIMAL FLOW

- LTE Cat. 4
- 3G HSPA+

FUNCTIONALITIES

- Cellular capabilities for M2M applications
- Support for remote management and control
- Protocols: TCP/IP, UDP/IP, DNS, DHCP client, DHCP server, DynDNS, MODBUS Gateway
- Routing capabilities: NAT, Static routes, PAT, Port forwarding, RIP, OSPF, VRRp, DMZ Support, Firewall (IP Filtering, MAC Filtering)
- Application: Remote configuration via SMS, SMS sending, Telnet/SSH, SNMP, NTP, CLI, remote monitoring
- 2/2+1/1 digital I/O, analog input

ROBUST

- 0.8 mm steel case
- IP 31

The GWG 40 is a multi-purpose product that can address a wide range of issues thanks to its multiple wire connection options and its high performance radio transmissions. Already integrating many features, you can go even further by developing your own applications. Its small size and easy installation make it suitable for demanding applications. The GWG Gateway can be used on a desktop or mounted on a DIN rail.

► SPECIFIC DEVELOPMENT

The communicating solutions market now demands specific tailoring for each project to match the client's needs as closely as possible. For that reason, we combine the development of standard products and solutions based on open hardware and software with tailored developments or modifications.

By starting with standard hardware and software platforms, our clients can produce proofs of concept and value using standard industrial components. This accelerates the transition to industrial implementation and our teams can support you to tailor it and manage the industrialization constraints.

We have advanced capabilities in:

- Development of embedded software
- Control of mobile cellular networks 5G-IoT (LTE-M1, NB-IoT), local communication (BLE, Wi-Fi), satellite IoT (Kinéis) and LPWAN (LoRa, Sigfox)
- Electronic design
- Energy consumption management
- Test and qualification
- Project management to ensure responsiveness and the quality of our deliverables.
- Mechanical engineering, using the capabilities of another group subsidiary SAPELEM (<https://www.sapelem.com/>)
- Industrialization thanks to the group capacities (www.azkedia.fr, www.cequad.fr)

Focus on EGM

EGM is a **software development platform** for embedded products allowing for a **quick and easy customization** of applications for Ercogener communicating systems equipped with ARM7 technology. **EGM** consists of libraries and services which make the embedded application completely independent from the hardware components. The M2M savoir-faire of Ercogener, which has been recognized by the industry since 1981, has brought together in this platform a large group of services in order to make the development of embedded applications **completely customizable** as well as being quick and easy.

After two days of training, our partners are able to develop and implement their know-how and expertise within our products.



Only one file (OS + application) < 500 Ko

CUSTOM applications

YOUR SOLUTION

Datalogger	Tracking	Geofencing	Alerts
Audio / Visual indication	Movement detection	Driver identity (iButton)	Sensor measurements
Messaging	Security	Traceability	...

Programming in language C

FREE Tools (Open Source Eclipse IDE + GCC Compiler)

EGM (Erco & Gener Middleware)

OUR M2M KNOWLEDGE

Drivers :

- GSM / GPRS communication
- GPS location
- Flash memory, Battery
- Accelerometer 3D
- I / O, RS232, 1-Wire, CAN ...

Services :

- Energy management
- Management of transmissions
- A-GPS (fast location)
- Management of inputs / outputs
- Remote update (DOTA)

Security :

- GSM / GPRS monitoring
- Secured data storage
- DEBUG mode
- Watchdog

EGOS Multi-task environment for embedded systems.

Light, fast, complete stack IP

HARDWARE (ARM 7, RAM 2Mo, SFlash 2Mo, GPRS module, GPS module, 3D accelerometer, digital and analog inputs / outputs, RS232, 1-wire...)

▶ TRAINING PROGRAMS AND CONSULTING SERVICES

As there are so many technologies and platforms, your success relies on your capacity to choose the ones that will fulfill your company's needs and to implement them.

Coming with **40 years of experience and adept skills**, **Groupe ZeKat** provides training courses and consulting services.

TRAINING CENTER PROGRAMS

Standard courses:

- **Digitalize your environment**: main principles of IoT, evolution of the process, method toward the product, impact on project management. Punctuated by in-the-field examples of connected products and services and a time for a hands-on workshop.
- **Multi-connectivity at the edge of IoT**: improving Quality of Service, improving battery consumption, and reducing the Total Cost of Ownership while providing Security.
- **Part I** "Introduction and demonstration" for everyone.
- **Part II** "Technical implementation" for developers and experts.

On request courses:

The IoT expertise you need on specific technical IoT topics.

CONSULTING SERVICES

- **Use case & Technology**: a method to achieve real world convergence together
- **System architecture**: support to help you making the best choice, taking into account goals, operating experience feedback, cost, feasibility, and viability
- **Developers and experts for implementation**: expert resources



▶ CSR APPROACH

RESPONSIBLE USE OF DIGITAL TECHNOLOGY

Digital awareness has been the focal point of our activities since the connected world took off. In our future developments and in all of our processes, **Ercogener** intends to put **sustainable development and ethics at the heart** of the business. This requires incorporating eco-designed processes or responsible design as well as considering the responsible use of digital technology. This also involves **making sure that personal rights and privacy** are respected by implementing the French General Data Protection Regulations (RGPD).

In addition, our supply chain and choice of partners prioritizes suppliers that are geographically close, French companies, and partners that share the same CSR approach.

CSR CERTIFICATIONS

Ercogener has been assessed by the independent body Ecovadis and awarded a silver medal for being above the standards of the industry. **Ercogener** is also currently undergoing ISO 14001 certification at our Bellevigne-les-Châteaux site.



► DEDICATED PARTNER

USER SUPPORT

All of our datasheets, quick installation and user guides are available at www.ercogener.com in English and French.

SALES SUPPORT

The technical support team is also in charge of after-sales service and provides first-level remote assistance. If necessary, this team may transfer the request to our R&D team in charge of processing level 2 and 3 support tickets.

Four experienced technicians are dedicated to pre-sales and after-sales support. You can contact them from 9 a.m. to 6 p.m. on workdays.

QUALITY PROCESS

Following the quality standard, **Ercogener has certified ISO 9001-2015** its services.

Each product has an associated service-life file archived in an internal database. This live sheet allows tracing the following data:

- Product identification
- Manufacturing date
- Exemption (if any)
- Hardware version
- Software version
- Configuration
- Delivery date
- End user
- Warranty
- Technical support
- Etc.

Moreover, our project managers are aware of:

- EMC, Radio, Electrical Safety, environmental, mechanical standards requirements
- Environmental requirements: WEEE, REACH, RoHS, Conflict minerals, eco-design
- Certifications specific to certain countries outside the EU: UL, CSA, RCM, etc.
- Normative requirements associated with the development of safe industrial machines: EN13849, EN61508 (SIL2, SIL3)

To ensure equipment qualifications, **Ercogener** relies on partners: EMITECH, CETECOM, UL France, LCIE, LNE etc.

Our production lines are ISO 9001-2015 (certificate number FR06/01120 SGS), EN 9100-2016 (certificate number FR06/01119 SGS) and ROHS2 Expert (SNESE). Certificates are available on request.

The personnel have been qualified **classes 1, 2, and 3 of the IPC-A-610 since 2009**.

If any difficulty comes up on one of the production lines, **Ercogener** can switch to its second production unit while still meeting the same process and quality.

► LUCIO

► PRESENTATION

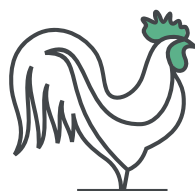
QUALITY,
MODULARITY, AND
REUSABILITY



A RICH SET OF
COMPONENTS



100% MADE
IN FRANCE



LUCIO is a Groupe ZeKat start-up **founded in 2017** and employing 12 engineers in Beaucouzé, France

LUCIO was born from the need to solve three main IoT topics while designing quality industrial IoT devices:

- 1/ How to ensure true portability for any hardware platform.
- 2/ How to remove connectivity white spots
- 3/ How to reduce energy consumption

To boost customers projects success, LUCIO proposes a portfolio

- **MY LUCIO**: Reusable Software Components-based Framework
- **LUCIO SCAP LTP**: multi-connectivity stack
- **LUCIO IOT Consulting Services**: to make the best choice



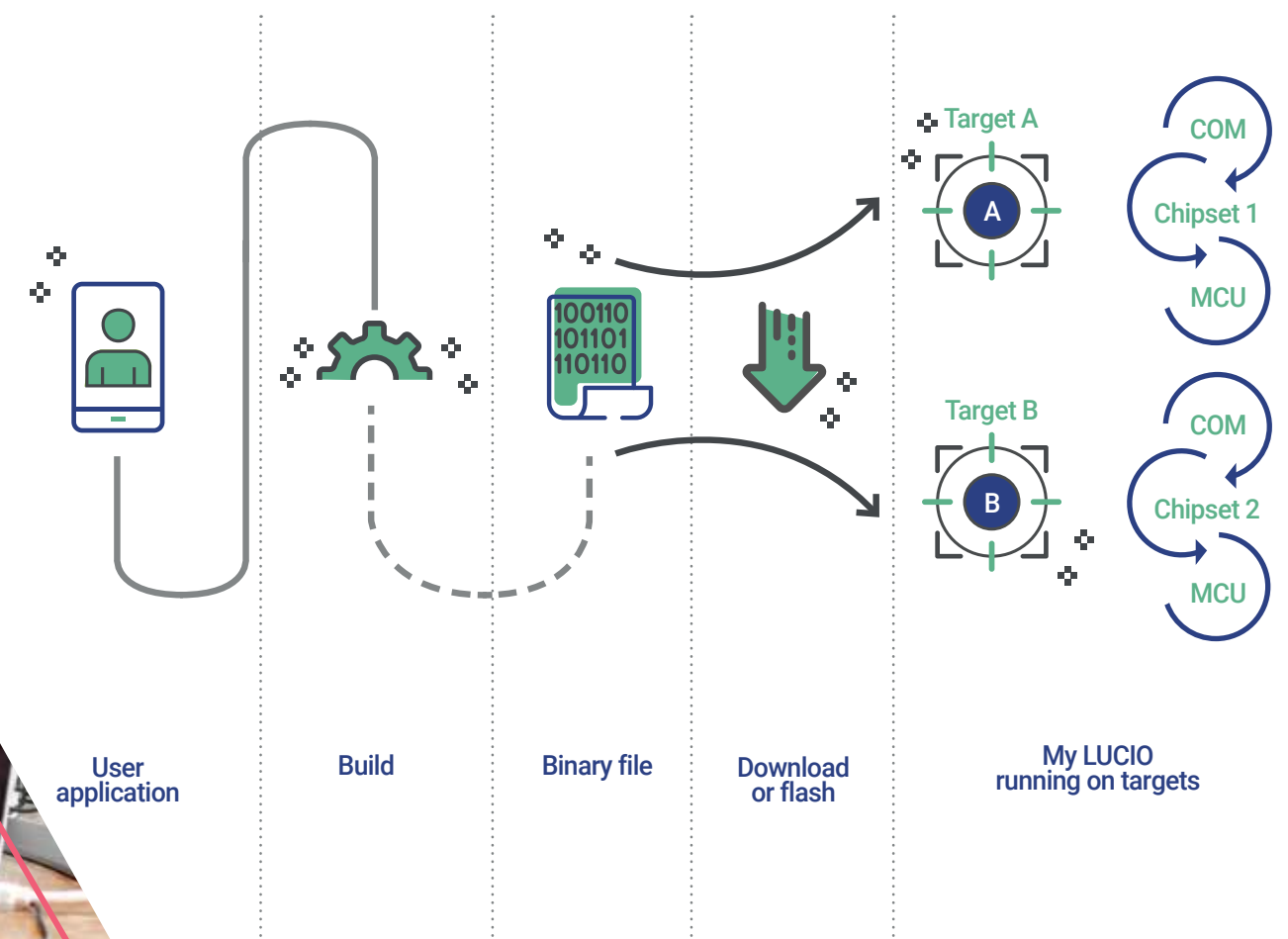
► MY LUCIO SOLUTION

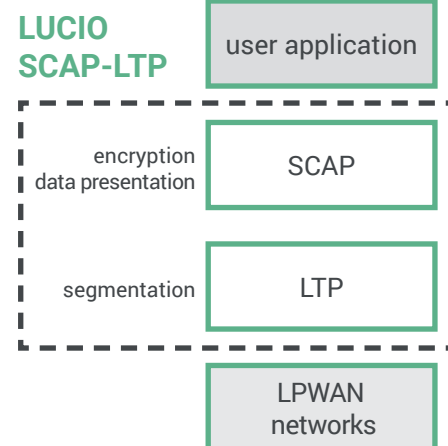
My LUCIO is a Reusable Software Components-based Framework.

To design a true portable application for different chipsets **My LUCIO** uses a dynamic dispatching mechanism that finds the right function to call.

User application is loaded as a runtime binary program on the equipment already embedding **My LUCIO**.

The same user application binary program runs on two hardware targets: one with chipset1 from one manufacturer and another with chipset2 from another manufacturer. Both targets use the same COM driver but implemented for two different chipsets.





► LUCIO SCAP-LTP

Multi-connectivity & Security over LPWAN

LUCIO SCAP-LTP optimizes and **secures** your application regardless of the LPWAN protocols. It improves QoS, performance, switching between operators and adds end-to-end security from energy saving device to application.

GLOBAL ROAMING FOR IOT APPLICATIONS

Lucio SCAP-LTP is an independent library that breaks down technical barriers of global roaming to manage international services. It provides global roaming with automation between private and public networks.

MULTI-CONNECTIVITY

Multi-connectivity increases the quality of services for logistics, mobilities, and other markets needing relevant information without white spots, saving energy consumption and improving total cost of ownership. The Digital pole holds 1 patent dedicated to the multi-connectivity.

BETTER QoS & PERFORMANCES

LTP uses optimized automatic segmentation. It transforms the user application message in data packets and manages their communication over the configured networks. LTP fully respects the protocols and manages the rejoin process in LoRaWAN™. Those developments have been explained in two Lucio patents.

AUTHENTICATION & ENCRYPTION

SCAP secures the messages by providing authentication and encryption. It provides:

- **Privacy:** protect your data from unauthorized read access
- **Authentication:** certify the identity of the emitter terminal
- **Integrity:** guarantee the detection of data corruption upon receipt

► DEVELOPMENT KIT

The kit is based on an STMicroelectronics evaluation board, the STM32 NUCLEO-L476RG.

This card has the advantage of integrating an “ST-Link” debugger also compatible with the “J-Link” tools from SEGGER.

It also includes an expansion port compatible with Arduino “Shields”, as well as 2 proprietary expansion ports.

In order to keep the modular and evolving aspect of the evaluation kit, the choice was made to be able to integrate MikroElektronika modules in “mikro BUS” format.

A Lucio expansion card has been created to accommodate 3 MikroElektronika shields in the proprietary “mikro BUS” format (www.mikroe.com).

- 2 Mikroe modules are pre-assembled on the expansion card:
- 1x “LSM303AGR Click” accelerometer module (reference MIKROE-2684)
 - 1x “LoRa Click” IoT telecommunication module (reference MIKROE-1997)

This expansion card also features several user-configurable LEDs and switches.

The switch on the Nucleo 81 (User) and B2 (Reset) card as well as LED 2 (LD2) have been moved to the card to be able to use them when the Lucio expansion card is attached to the Nucleo card.

The kit is delivered fully assembled and preloaded with the latest version of the Lucio on-board system.

Consulting and Technical support

- System architecture: support to help you make the best choice, taking into account goals, operating experience feedback, cost, feasibility, and viability.
- Developers and experts for implementation: expert resources.
- Use case & technology: a method to achieve real world convergence together.
- Reactive support for your technical team.
- Direct access to developers.



SERVICE

► HL2GENER

▷ PRESENTATION

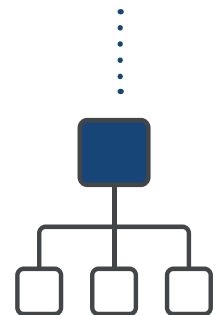


AI & TELECOMMUNICATION EXPERTISE



ANALYSIS

Understanding of useful business information
Identification of raw data available
Identification of the necessary algorithms



DEPLOYMENT

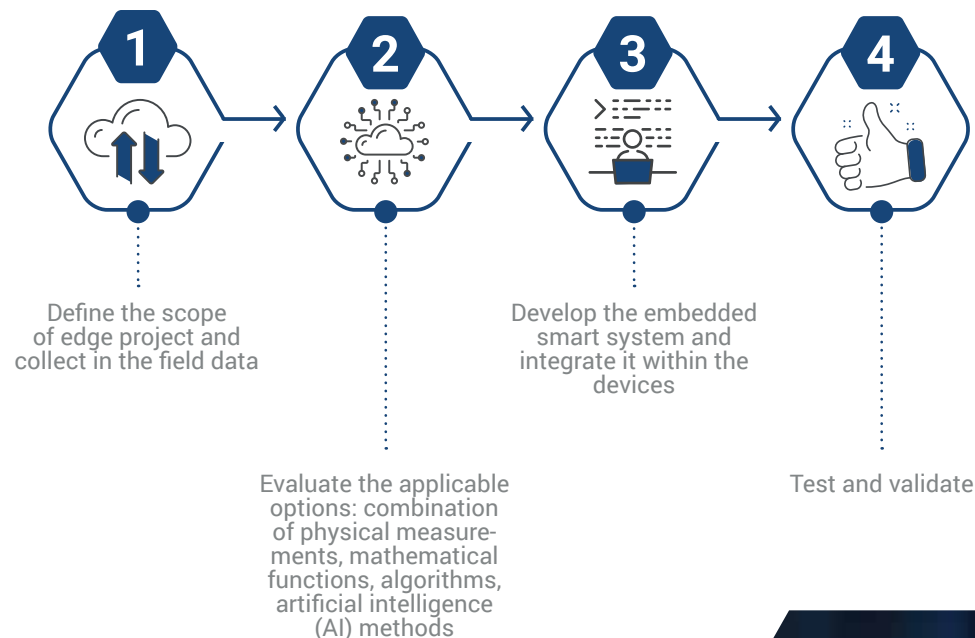
Development of embedded algorithms
Porting on deployed equipment
Testing and validation

Our expertise in onboard intelligence allows you to transform a raw signal into business-oriented information.

HL2gener works on Edge Computing in order to integrate more and more intelligence within the IoT devices from the pole. It works on multiple signals: noise, mechanical vibrations, movements, heating, shocks, etc.

The integration of smart systems into connected objects makes it possible to enrich the potential of technologies and to move from data collection to the reporting of business information. In this spirit, ENGIE Axima and HL2gener teamed up to build and market a novel device that aims to prevent Air Treatment Unit failures by anticipating maintenance needs.

For that, we have defined a standardized process:



► IOF

▷ PRESENTATION

IoF and Groupe ZeKat hope to make the **usage of linked items easier** by bringing together varied skills. Their teams blend technical expert profiles with operational profiles in the field. Exchanges are regular and the emulation is complete between these experts in the users' "business" demands and a cutting-edge technological resource.

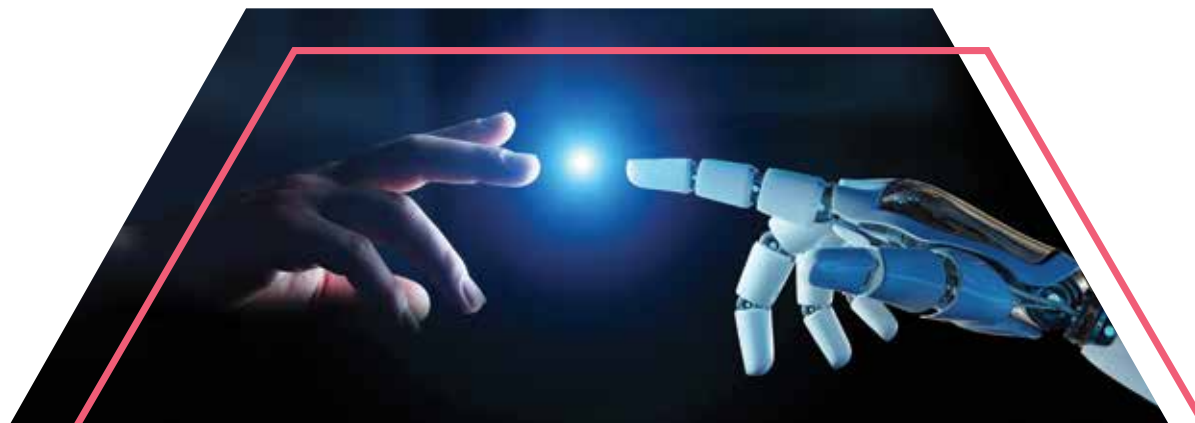
AUTOMATIC TRACEABILITY, YOUR ASSET IN BIG DATA

Because the best information is based on excellent data! Our solutions, whether they're apps or linked items, make it **easy to track your field operations** and provide you with additional services.

They allow us to track all of your interventions so that we

can **enhance your traceability** now and make your data the finest predictors of the future. Take command of your data.

Decide whether to share, distribute, or transmit data to your partners. Your information becomes more valuable! **You get control over your life!**



▶ SMARTBOX

Cultivate your agricultural data



Data applied to the field

SMARTBOX is directly connected to the tractor and records the type of intervention, the date and the field. It is used with a handheld scanner that reads barcodes to scan inputs (plant protection products, fertilizers, etc.), and 5 beacons to be positioned on the work tool to enable the information to be transferred directly to **MesParcelles®**.

The farmer can **access their data** from the **online platform** and **on a smartphone**, from the **MesParcelles®** application. They can thus check in real time the recording of their data and complete them, if necessary. They then validate their interventions on **MesParcelles®**.

AUTOMATE
data collection



Does not change the daily tasks of farmers.

Automatically collects all the data related to their daily operations by tracking their movements and those of their agricultural machinery.

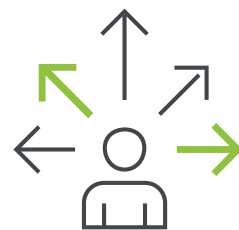
STREAMLINING
SEIZURE
data collection



Save time by avoiding manual entry and then re-entry on farmers management software or FMIS.

A simple validation of the automatically collected data is enough on their phone or computer.

FLUIDIFY
the data



Gain visibility into farmers daily, monthly, and annual operations.

They share their tractors, **compare** their results, **and benefit** from new services.

▶ MY KEYFIELD

Use your agricultural data

My KeyField is a management application for your devices and agricultural data. It allows you to manage all your equipment, your interventions, and to share information with your network.

As an external service store, your data can be used in other free or paid agricultural services available from **My KeyField**.

My KeyField is your data portal from which you can subscribe to and download numerous agricultural services



EASILY
ACCESS
trade in confidence



Traceability of interventions and equipment: **reliable, instantaneous and modifiable** data.

Farmers have direct access to their data.

CHOOSE
your data sets



They control their data.

Farmers agrees whether or not to share their data with other agricultural applications.

USE
in his hand



They interact with their networks of farmers.

Their data consolidates your services and offers you specific service opportunities.

► IOL-INTERNET OF LOGISTICS

► PRESENTATION

Pursuing its commitment to create open and specialized ecosystems in specific sectors, **Groupe ZeKat** has decided to step up its presence in the **logistics sector** by **developing a first dedicated brand, IoL (Internet of Logistics)**, which will combine all its knowledge and build specific offers.

With a **€4 M investment**, this project aims to develop a multi-protocol mobile logistics platform. This gateway will integrate an open software architecture allowing for the remote management of embedded algorithms to ensure globalized logistics monitoring. This data collection and analysis architecture must allow any stakeholders to **develop and deploy** their own services.

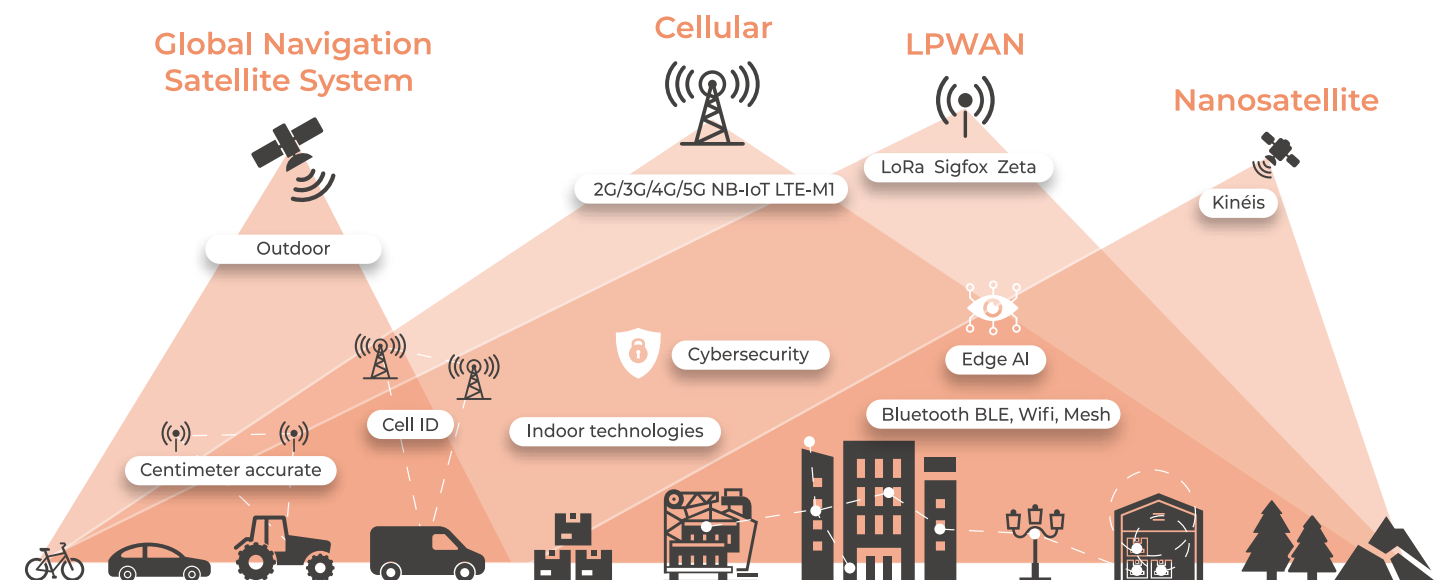
Call for expressions of interest!

The mobile platform will provide even more value as it will be interoperable and it will share common bricks between multiple stakeholders. To do this, we want to work with several major players in logistics to set up a consortium of manufacturers. Its objectives will be to test, develop, and promote the solution as soon as the pre-production series are produced.

This consortium will have to share a certain number of communication and data exchange requirements and to validate them through the publication of a repository to promote a sovereign French solution that can be used by multiple stakeholders.

Technical objectives

- A mobile platform providing 5G connectivity, Wi-Fi, BLE but also IoT connectivities (Sigfox, LoRa, LTE-M1, NB-IOT, etc.).
- Embedded software allowing for the development and combination of embedded intelligence algorithms based on models specific to different use cases. Thus, third parties (insurance, trucking companies, logistics providers, etc.) will be able, remotely, to deploy their own service and send information to their customers.
- A blockchain compatible with the gateway computing powers and an embedded smart system to select only critical data to integrate and to make reliable through this technology.
- A set of BLE beacons to deploy specific sensors.
- A fleet management platform to manage the deployment of new services, remotely, by creating a digital twin and distributed intelligence models.
- A modernized production line to improve traceability, automation, and security.



*Behind every digital application, there is
a connected industrial solution made by*

Groupe
ZeKat



©Groupe écho - 5732



LUCIO

4 rue des Ajoncs
49070 BEAUCOUZÉ
ANGERS - FRANCE

www.lucio-zekat.com



IOF

7 rue du Grenier à Sel
51000 CHÂLONS-EN-CHAMPAGNE
02 51 46 78 65

iof.eu.com



HL2

Futuropolis 5, Teleport 4
Avenue Thomas Edison
86960 FUTUROSOCPE-CHASSENEUIL



ERCOGENER Saumur

2, rue Docteur Weiss
Z.I. de Chacé
49400 CHACE - FRANCE

ERCOGENER Angers

4, rue des Ajoncs - Z.I.
49070 BEAUCOUZE - FRANCE

ERCOGENER Pologne

3A Waryńskiego street,
5th floor
00-645 VARSOVIE, POLOGNE

ERCOGENER CANADA

430 Sainte Hélène St,
Bureau 201,
Montréal, H2Y 2K7

www.ercogener.com

From idea to deployment, we provide you with proof of
concept, pre-existing platforms, standards, and the capacity to
manufacture devices for specific purposes.

groupezekat.com