



## IoT SOLUTIONS CATALOG

Maggio'20

# Index

## Overview

1.	About Nettrotter	4
2.	Efficiency, remoteness and low-cost	6
3.	Main features of our IoT Solutions	7

## IoT Solutions Catalog

1.	Efficiency Management	9	
	a.	Energy	10
		1. Telenet Power	11
		2. Volt	12
		3. Ecco Energy	13
		4. Ecco Switch	14
	b.	Environment	15
		1. Termo	16
		2. Ecco Temp	17
		3. Ecco Freeze	18
		4. Ecco VOC-TH	19
	c.	Gas	20
		1. Ecco Gas	21
	d.	Water	22
		1. Telenet Water	23
		2. Telenet Water Alert	24
		3. Telenet Water Pressure	25
2.	Asset and People Geolocation and Management	26	
	a.	High accuracy - Ecco Trail	27
	b.	High accuracy - Ecco Trail+	28
	c.	Location assignment - Ecco Track	29
	d.	Rental Outdoors Sport Tracker - ROST	30



# Index

## IoT Solutions Catalog

3.	Movement Monitoring	31
a.	Motion detector - Watch	32
b.	Motion detector - Ecco Watch+	33
c.	Tampering - Ecco Tamper	34
4.	Request Buttons	35
a.	Just request - Ask	36
b.	With acknowledgement of receipt - Ecco Answer	37
5.	Communication	38
a.	Multiradio Modbus - Ecco Clip	39
b.	Multiradio Gateway - Ecco Gateway	40
6.	Other	41
a.	Badge Reader - Pass	42
b.	Starting with Basic IoT Board - BIB	43

# Overview

## 1. About Nettetrotter



**We are the exclusive provider of the only one IoT Public network in Italy,**  
open and usable by everyone.

Nettrotter is 95% owned by EI TOWERS S.p.A. and THINKTHANK 2000 as a minority shareholder.



**+150**  
**CLIENTS**

**27**  
**SOLUTIONS**  
available at the market

**+300**  
**CASES OF USE**  
In the whole ecosystem

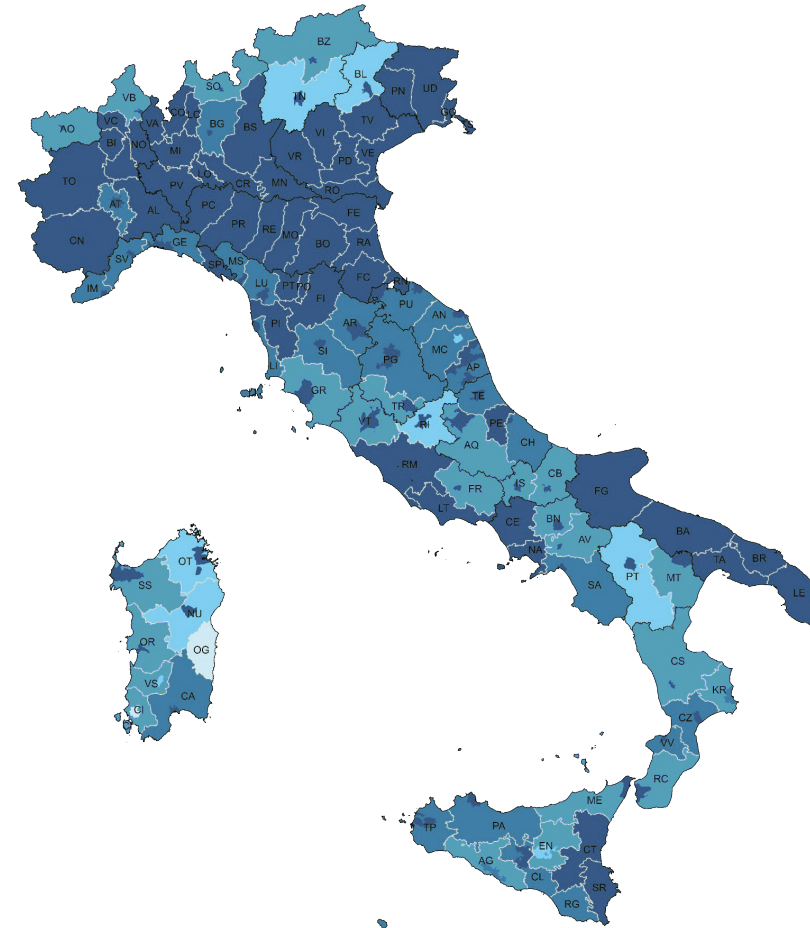
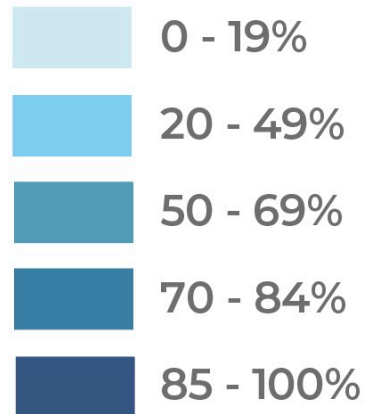
# Overview

## 1. About Nettetrotter



**90% of the italian  
population covered**

% COVERAGE





# Overview

## 2. Efficiency, remoteness and low-cost

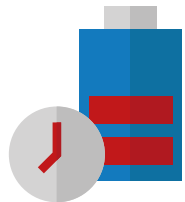
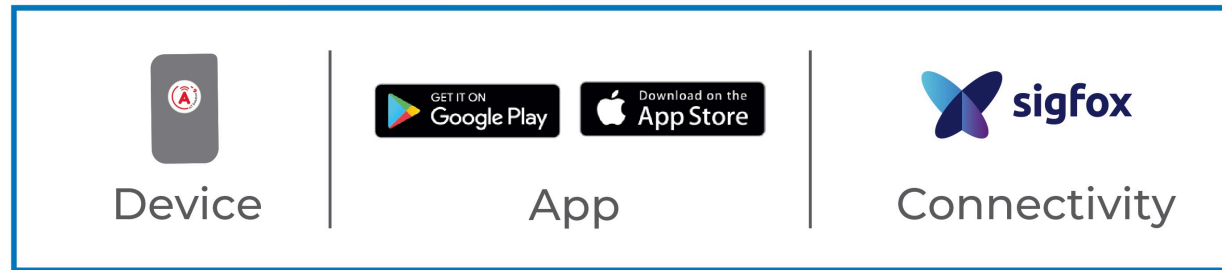


# Overview

## 3. Main features of our IoT Solutions

### Nettrotter competitive advantages

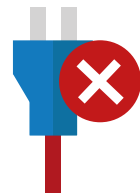
We offer end-to-end solutions, which only need activation:



Long lasting  
battery



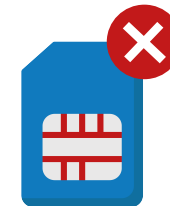
Plug & Play



No wiring  
required



No WiFi  
needed



No SIM card  
needed



Low cost

# Solutions

## Categories



1. Efficiency  
Management



2. Asset and People  
Geolocation and  
Management



3. Movement  
Monitoring



4. Request Buttons



5. Communication



6. Other



# IoT Solutions

## 1. Efficiency Management



# IoT Solutions

## 1. Efficiency Management

### a. Energy

#### Use cases





## 1. Telenet Power

### Challenge

Remote monitoring of consumption of electricity at various facilities with the aim of optimizing consumption energy.

### Solution

Remote reading of electricity consumption and costs power peaks and their optimization. Periodic sending of data to the platform Telenet Power.

### Benefits

- ✓ Remote monitoring of consumption.
- ✓ Real time identification of any anomalies.
- ✓ Long battery life.
- ✓ Reduction of operating costs.
- ✓ Control and reduction of consumption penalties.



Battery life 15 years.



Collection and transmission real time data. Coverage up to 15 km.



Peak power detection; active and reactive energy.



Compact and easy to install.



Two-way communications.





## 2. Volt

### Challenge

Volt constantly monitors the presence of electricity. It notifies you if detects a power outage and when power is restored.

### Solution

Volt is a device that monitors electric current to ensure your appliances are working properly all year round.

### Benefits

- ✓ Alarm notification when the power goes off.
- ✓ Battery level monitoring.
- ✓ Daily note on the status of the electricity grid and number of alarms transmitted in the last 24 hours.



Sigfox Internal antenna.



Compact and easy to install, Plug&Play.



Daily note on the status of the electricity grid.



Battery level.



Management via mobile app included.



### 3. Ecco Energy

#### Challenge

To monitor energy consumption in real time with a simple and easy solution to handle.

#### Solution

Ecco Energy is a radio transmitter ready to the use that allows you to acquire and transmit the data relating to the increase of electricity consumed.

#### Benefits

- ✓ To reduce costs on your bill.
- ✓ To identify anomalies.
- ✓ To make your consumption more efficient.
- ✓ To read your electric meter remotely.



Collection and transmission of data in real time and/or asíncrono.



Compact and easy to install (no more than 5').



Alarms on consumption thresholds (optional).



Battery status monitoring.



Low energy consumption.



Firmware and sensor interface completely customizable.



## ECCO SWITCH

### 4. Ecco Switch

#### Challenge

Monitoring of status changes of a clean contact.

#### Solution

Ready-to-use radio transmitter that allows to detect the variation of a clean contact (e.g. relay output or switch reed) and transmit the data relating to variation. Device enabled to detect e transmit an ON/OFF status change.

#### Benefits

- ✓ Radio transmission of data via Sigfox network not subject to jamming.
- ✓ Bipolar cable 30 cm long (customizable).
- ✓ Status changes transmitted to one or more e-mail addresses or via callback a client server.
- ✓ Battery autonomy up to 10 years depending on transmissions / day.
- ✓ Coverage up to 15 km.



Data collection and transmission in real time.



Compact and easy to install (no more than 5').



Alarms on consumption thresholds (optional).



Battery status monitoring.



Two-way communications.



Low energy consumption.



Firmware and sensor interface completely customizable.



# IoT Solutions

## 1. Efficiency Management

### b. Environment





## 1. Termo

### Challenge

Temperature and humidity monitoring of interior environments with a simple and easy to manage solution.

### Solution

Termo is the ready-to-use solution to control temperature and humidity without need of WiFi or SIM card, with alarm.

### Benefits

- ✓ Monitors temperature and humidity of any indoor environment.
- ✓ Receive automatic notifications when predefined thresholds are exceeded.
- ✓ Receive temperature and humidity data online on your smartphone.



Data collection and transmission in real time and/or asincrono.



Compact and easy to install (no more than 5').



Alarms on thresholds of temperature and humidity.



Battery status monitoring.



Low energy consumption.



Management via mobile app included.



## ECCO TEMP

### 2. Ecco Temp

#### Challenge

Temperature and humidity monitoring of interior environments with a simple and easy to manage solution.

#### Solution

Ecco Temp is the ready-to-use solution to control temperature and humidity without need of WiFi or SIM card, with alarm.

#### Benefits

- ✓ Monitors temperature and humidity of any indoor environment.
- ✓ Receive automatic notifications when predefined thresholds are exceeded.
- ✓ Receive temperature and humidity data online on your smartphone.



Data collection and transmission in real time and/or asincrono.



Compact and easy to install (no more than 5').



Alarms on thresholds of temperature and humidity.



Battery status monitoring.



Low energy consumption.



Firmware and sensor interface completely customizable.



### 3. Ecco Freeze

#### Challenge

To accurately detect temperature e humidity in cold storage, wells, fridge and to transmit situations of poor coverage of the signal.

#### Solution

The Freeze solution (master) with Minion (beacon), uses two devices for the detection of temperature and humidity parameters and predicts the installation of the beacon inside the cold room for the detection and the transmission of Temperature parameters and moisture on the client's platform.

#### Benefits

- ✓ Radio transmission of data through the Sigfox network.
- ✓ Double input for temperature and humidity measurement.
- ✓ Sensitivity: T +/- 0.2°C; U +/- 2%.
- ✓ Battery autonomy up to 6 years depending on transmissions/day.

**ecco**  
**FREEZE**



Data collection and transmission in real time and/or asincrono.



Compact and easy to install (no more than 5').



Possibility of alarms on thresholds of temperature and humidity.



Battery status monitoring.



Low energy consumption.



Firmware and sensor interface completely customizable.



## ECCO VOC-TH

### 4. Ecco VOC-TH

#### Challenge

To monitor the air quality in different contexts.

#### Solution

Ecco VOC-TH is a radio transmitter ready to use which allows to detect and transmit air quality data (VOC, Temperature and Humidity) of interior environments.

#### Benefits

- ✓ Radio transmission of data through the Sigfox network.
- ✓ Battery life of 2-6 years depending on transmissions/day.
- ✓ Triple input for measuring temperature and humidity of VOC.



Data collection and transmission in real time and/or asincrono.



Compact and easy to install (no more than 5').



Alarms on thresholds of temperature/humidity/VOC.



Battery status monitoring.



Two-way communications.



Low energy consumption.



Firmware and sensor interface completely customizable.

# IoT Solutions

## 1. Efficiency Management

c. Gas 





### 1. Ecco Gas

#### Challenge

Remote monitoring of gas consumption at different facilities with the objective to optimize consumption.

#### Solution

Ecco Gas is a radio transmitter ready to use to acquire and transmit related data to the increase of consumed gas; provided with a second entrance to manage the corrector if counter supported.

#### Benefits

- ✓ It is a pulse counting device specific for gas meters with impulsive output.
- ✓ Number of inputs equal to 2 with acquisition capacity equal to 1000 pulses per second.
- ✓ Radio transmission of data through the Sigfox network.
- ✓ Battery life of 2-6 years depending on transmissions/day.



Data collection and transmission in real time.



Compact and easy to install (no more than 5').



Alarms on consumption thresholds (optional).



Battery status monitoring.



Low energy consumption.



Firmware and sensor interface completely customizable.

# IoT Solutions

## 1. Efficiency Management

### d. Water







## 1. Telenet Water

### Challenge

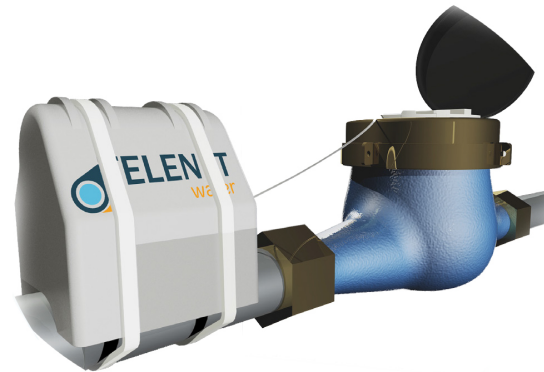
To solve the main issues of the water sector (lack of visibility, water leaks, lack of service, frauds) with an economic solution of easy management.

### Solution

Remote and automatic consumption reading and process optimization billing and debt collection. Loss alarm. Real time monitoring of distribution infrastructures e optimization of their management.

### Benefits

- ✓ Increased productivity (identification of losses).
- ✓ Creation of value added services to the customer.
- ✓ Billing based on real consumption.
- ✓ Reduction of maintenance and control costs.



Battery life 15 years.



Real time data collection and transmission.



Direct flow detection, reverse.



Tamper alarm, pipeline interruption and fault.



Integrated platform for remote control.



## 2. Telenet Water Alert

### Challenge

To detect the presence of liquids in a particular environment.

### Solution

Telenet Water alert is a transmitter radio ready to use that allows you to transmit, in a simple way, information on the presence of liquids / water of the controlled area.

### Benefits

- ✓ Transponder with sensors that detect the presence of liquids / water.
- ✓ Radio transmission of data through the Sigfox network.
- ✓ With two inputs, it allows you to monitor adjacent or different areas depth levels.
- ✓ Battery status monitoring.



Up to 15 years of autonomy.



Transmission of the alert in real time.



Compact and easy to install.



Two-way communications.



Low energy consumption.



Firmware and sensor interface completely customizable.



### 3. Telenet Water Pressure

#### Challenge

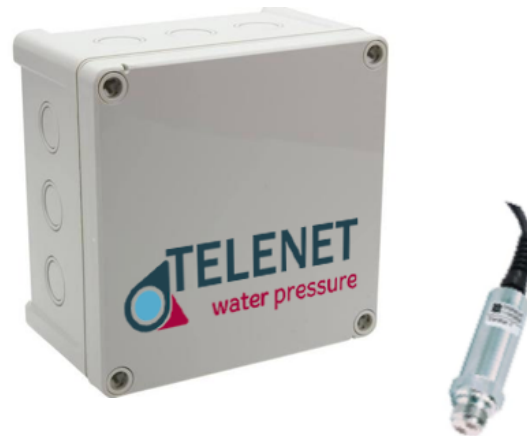
Telenet Pressure is a transmitter radio ready to use that allows you to transmit, in a simple way, the water pressure inside hydraulic pipes, according to manager's needs.

#### Solution

Alert messages are programmable on specific pressure values outside the scheduled scheduling. Particularly powerful, it allows the transmission with deep positioning indoor.

#### Benefits

- ✓ Transponder with sensors that detect the water pressure in the pipes.
- ✓ Radio transmission of data through the Sigfox network.



Up to 10 years of autonomy.



Transmission of pressure values in real time.



Compact and easy to install.



Two-way communications.



Low energy consumption.



Firmware and sensor interface completely customizable.

# IoT Solutions

## 2. Asset and People Geolocation and Management





### ECCO TRAIL

#### a. High accuracy - Ecco Trail

##### Challenge

To detect objects position and to trace objects route with low consumption of battery and in remote environments.

##### Solution

Device equipped with GPS capable of providing locations and routes of any person / vehicle / moving object.

##### Benefits

- ✓ Store all the stops & go.
- ✓ Position message includes room temperatura value with the device and the battery level.
- ✓ GPS module able to receive up to 3 GNSS (GPS, Galileo e GLONASS).
- ✓ Triaxial acceleration sensor in ultra low power MEMS technology.
- ✓ Possibility to add external GPS and Sigfox antennas with degree of protection based on customer needs.



Sigfox 868MHz radio module, 14dBm E.R.P.  
Sigfox omnidirectional antenna.

Omnidirectional GPS antenna and receiver with -167dBm of sensitivity and reception of 72 channels.



Compact and easy to install, Plug&Play.



During movement send position to pre-set regular intervals including moving speed in GPS and network coverage.



Battery monitoring.



Ability to add GPS and antennas Sigfox, external with degree of protection based on customer needs.



Customizable case based on specifications needs.



### ECCO TRAIL+

#### b. High accuracy - Ecco Trail+

##### Challenge

To detect objects position and to trace objects route with low consumption of battery and in remote environments.

##### Solution

Device equipped with GPS capable of providing locations and routes of any person / vehicle / moving object.

##### Benefits

- ✓ Store all the stops & go.
- ✓ Position message includes room temperatura value with the device and the battery level.
- ✓ GPS module able to receive up to 3 GNSS (GPS, Galileo e GLONASS).
- ✓ Triaxial acceleration sensor in ultra low power MEMS technology.
- ✓ Possibility to add external GPS and Sigfox antennas with degree of protection based on customer needs.



Sigfox 868MHz radio module, 14dBm E.R.P.  
Sigfox omnidirectional antenna.



Omnidirectional GPS antenna and receiver with -167dBm of sensitivity and reception of 72 channels.



Compact and easy to install, Plug&Play.



During movement send position to pre-set regular intervals including moving speed in GPS and network coverage.



Battery monitoring.



Ability to add GPS and antennas Sigfox, external with degree of protection based on customer needs.



Customizable case based on specifications needs.



### ECCO TRACK

#### c. Location assignment - Ecco Track

##### Challenge

Detect the position of goods traveling between recurring sites

##### Solution

Device capable of providing positions of any moving object through Sigfox Atlas service.

##### Benefits

- ✓ Remote configuration.
- ✓ Plug&Play, no installation required.
- ✓ Remote viewing of tracking.
- ✓ Customizable operations (e-mail, SMS, redirection, IFTTT and others).



Sigfox 868MHz radio module, 14dBm E.R.P.  
Sigfox omnidirectional antenna.  
International tracking service via Sigfox Atlas (no roaming).



Compact and easy to install, Plug&Play.



Default daily message to keep alive.



Battery monitoring.



Management via web platform included.



### d. Rental Outdoors Sport Tracker - ROST

#### Challenge

The first rental consumer GPS tracker dedicated to outdoor sports.

#### Solution

The best system for long time / distance live GPS tracking. Hiking, trail running, biking or sailing, let your beloved ones follow your challenges or races from their smartphone or their computer.

#### Benefits

- ✓ Share your adventures live.
- ✓ Send email/SMS to reassure your friends.
- ✓ Export your tracks (Strava, Garmin...).





# IoT Solutions

## 3. Movement Monitoring





### a. Motion detector - Watch

#### Challenge

To detect movements even in the absence of electricity and WIFI network and transmit the alarm on the network in real time.

#### Solution

Watch is a PIR sensor that allows you to generate alarms against a movement detected by the double sensor technology, infrared and microwave.

#### Benefits

- ✓ Switching the alarm on and off via bluetooth connection can be activated from any smartphone.
- ✓ App and Web app for device registration and configuration of one or more smartphone recipients of the alarms.
- ✓ Easy to install, no wiring.
- ✓ Certificate for operation on Sigfox network and protected by electromagnetic interference; neither disturb or interferes with other devices at home.



Data collection and transmission in real time and/or asincrono.



Compact and easy to install (no more than 5').



Alarms in case of motion detection.



Battery status monitoring.



Low energy consumption.



Firmware and sensor interface completely customizable.



### ECCO WATCH+

#### b. Motion detector - Ecco Watch+

##### Challenge

To detect movements even in the absence of electricity and WIFI network and transmit the alarm on the network in real time.

##### Solution

Ecco Watch+ is a motion sensor detector with double technology (**infrared + microwave**) which sends alarms through the SIGFOX network to a mobile phone app. The device is battery operated, has 2 years autonomy and can be fixed on the wall through its base (available both parallel to the wall or overhang).

##### Benefits

- ✓ Mobile App for device registration and configuration of one or more smartphone recipients of the alarms.
- ✓ Easy to install, no wiring.
- ✓ Certificate for operation on Sigfox network and protected by electromagnetic interference; neither disturb or interferes with other devices at home.



Data collection and transmission in real time and/or asincrono.



Compact and easy to install (no more than 5').



Alarms in case of motion detection.



Battery status monitoring.



Low energy consumption.



Firmware and sensor interface completely customizable.



### ECCO TAMPER

#### c. Tampering - Ecco Tamper

##### Challenge

To detect a movement and transmitting real-time network alarm with a simple and easy solution to handle.

##### Solution

Ecco Tamper is a radio transmitter ready to the use that allows to detect a movement of a fixed element (opening or closing of doors, windows..) or mobile (moving vehicles) and send it to one or more e-mail addresses. Includes an accelerometer.

##### Benefits

- ✓ Radio transmission of data via Sigfox network not subject to jamming.
- ✓ Status changes transmitted to one or more e-mail addresses or via callbacks to the client's server.
- ✓ 3-axis MEMS accelerometer for vibration or movement detection.
- ✓ Battery autonomy up to 4 years depending on transmissions/day.
- ✓ Coverage up to 15 km.



Data collection and transmission in real time.



Compact and easy to install (no more than 5').



Alarms on consumption thresholds (optional).



Battery status monitoring.



Two-way communications.



Low energy consumption.



Firmware and sensor interface completely customizable.

# IoT Solutions

## 4. Request Buttons





### a. Just request - Ask

#### Challenge

#just1click to send your message: to ask for help, to say «just arrived», to say «I'm not feeling good».

#### Solution

Ask is a smart button that lets you send a predefined message with a simple click.

#### Benefits

- ✓ Transmission: 1 clic – 1 Sigfox message.
- ✓ Daily keep alive message.
- ✓ Battery level monitoring.



Sigfox Internal antenna.



Battery level monitoring.



Low energy consumption.



Management via mobile app included.



## ECCO ANSWER

### b. With acknowledgement of receipt - Ecco Answer

#### Challenge

To send a message and receive feedback concerning the order of a product, the request for a service, the activation of a process... just with a click!

#### Solution

Ecco ANSWER is a smart button that allows you to send with a simple click a default message and receive a feedback on the device.

#### Benefits

- ✓ Transmission: 1 click - 1 Sigfox message.
- ✓ Default daily keep alive message.
- ✓ Battery status monitoring.



Data collection and transmission in real time.



Battery status monitoring.



Low energy consumption.



Firmware and sensor interface completely customizable.

# IoT Solutions

## 5. Communication







## a. Multiradio Modbus - Ecco Clip

### Challenge

Easy retrofitting and remote monitoring through the implementation of radio modems/Ecco Clip Modbus for the acquisition of data from existing systems and their communication on LPWA network.

### Solution

Ecco Clip is equipped with serial ports. Numerous configurations depending on of the specific application area and of the parameter(s) to be measured.

### Benefits

- ✓ Remote monitoring.
- ✓ Real time alert.
- ✓ Long battery life.
- ✓ Low operating costs.
- ✓ Flexibility.





## Gateway Modem

### b. Multiradio Gateway - Ecco Gateway

#### Challenge

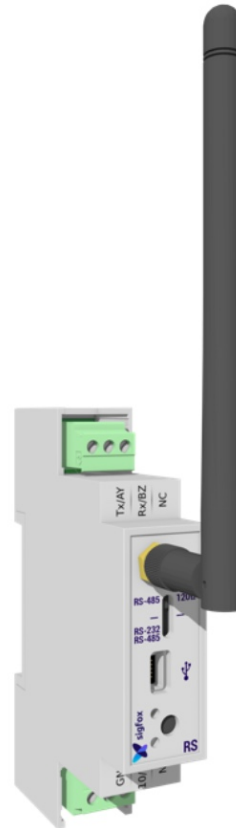
Easy retrofitting and remote monitoring through the implementation of radio módems/Modbus gateway for data acquisition from existing systems and their communication on LPWA network.

#### Solution

Gateway equipped with serial ports. Numerous configurations depending on of the specific application area and of the parameter(s) to be measured.

#### Benefits

- ✓ Remote monitoring.
- ✓ Real time alert.
- ✓ Long battery life.
- ✓ Low operating costs.
- ✓ Flexibility.



# IoT Solutions

## 6. Other +





## a. Badge Reader - Pass

### Challenge

Ideal for maintenance visits, technician slots scheduling, high people flow locations (hotel, condos...), multiservice locations, remote locations (Works, quarries, onfield cabinets) and many others.

### Solution

Pass is the only autonomous solution for remote people Access badging.

### Benefits

- ✓ Autonomous solution for people access control.
- ✓ To check frame and duration of service.
- ✓ Workforce optimization.



Sigfox Internal antenna.



Battery level monitoring.



Low energy consumption.



Management via web app included.

## b. Starting with Basic IoT Board - BIB

### Challenge

Use your BIB for rapid prototyping of your Smart Object and test its functionality. The basic version of the card is equipped with a GPS module and a triaxial accelerometer, the ideal combination for the development of applications for tracing intelligent objects.

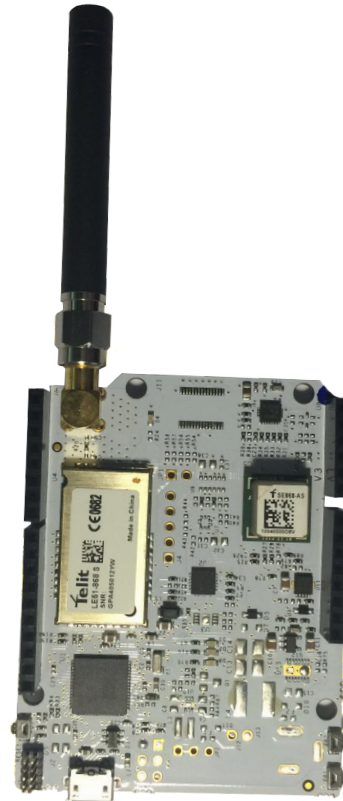
### Solution

BIB has been specifically designed to facilitate the rapid start of solutions development activities: BIB is in fact supplied with a demo out of the box and includes 12 months of Sigfox connectivity for the rapid start of development activities.

### Benefits

- ✓ Device tracking, location and route display.
- ✓ Monitoring of the environmental parameters.
- ✓ Monitoring and certification of activities.

BIB  
Basic IoT Board



# Contact us!

Visit our website [www.nettrotter.io](http://www.nettrotter.io)

Write to [info@nettrotter.io](mailto:info@nettrotter.io)

Follow us:



Nettrotter



@NettrotterIo



@NettrotterItaly

Download our catalog:  
[www.nettrotter.solutions](http://www.nettrotter.solutions)