adeunis

IOT PRODUCTS & SOLUTIONS

ADEUNIS FACILITATES THE DEPLOYMENT OF YOUR IOT PROJECTS,

thanks to its connected sensors and solutions, as well as an expert service

Adeunis,
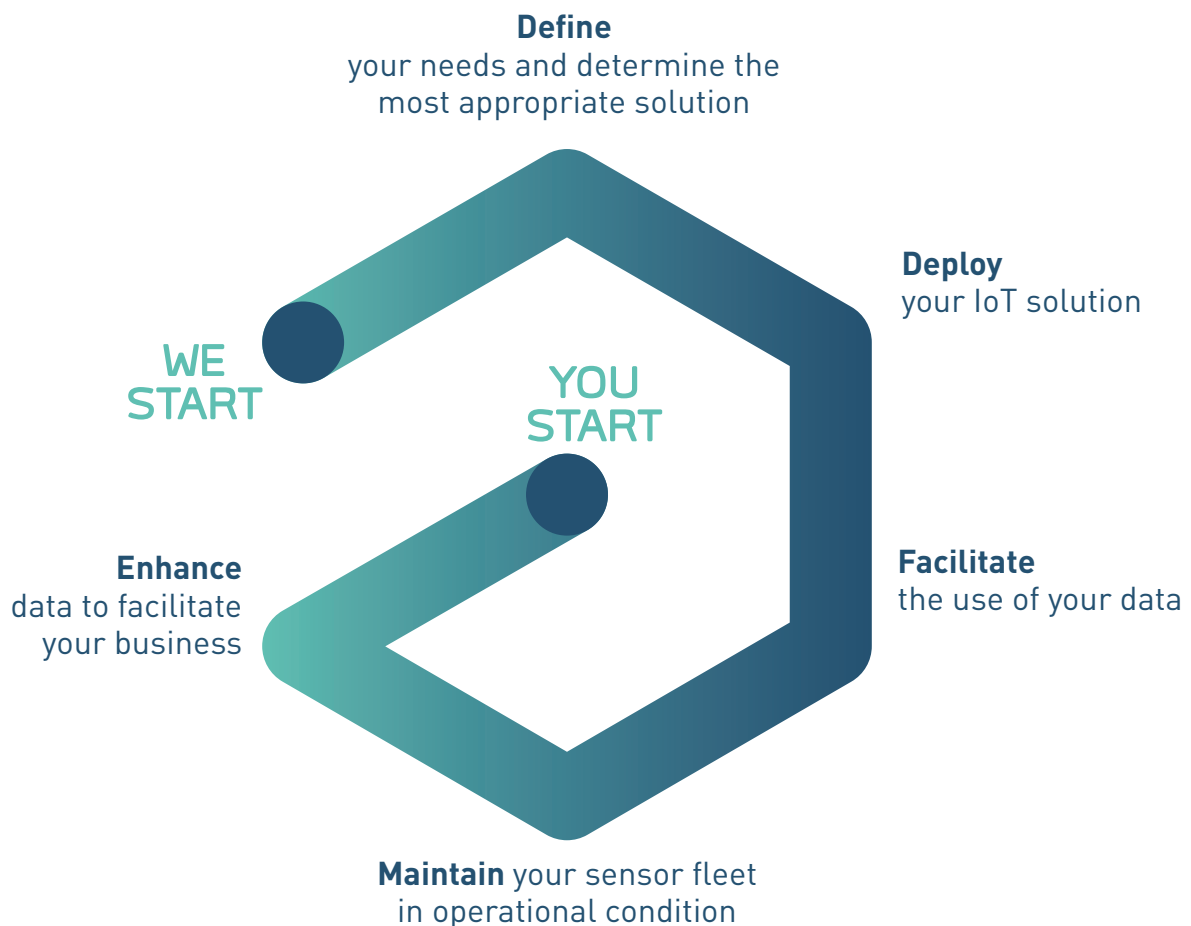# IoT solutions
for digitising your buildings

In a connected world, Adeunis designs, manufactures and markets sensors and wireless solutions used by professionals.

Adeunis is the expert in IIoT solutions dedicated to the smart building.

Our mission: to support you in the digitalization of your equipment and services through IoT for:
- better energy performance,
- better comfort for users,
- optimising the maintenance of your equipment.

Adeunis supports you you throughout the different stages of your IoT digitisation project, thanks to its range of connected solutions and services.

Define
your needs and determine the
most appropriate solution

Deploy
your IoT solution

WE
START

YOU
START

Facilitate
the use of your data

Enhance
data to facilitate
your business

Maintain your sensor fleet
in operational condition

SMART
BUILDING

Office buildings

Collective housing

Industrial buildings

Health care institutions

Schools

Commercial buildings

Building accommodation and catering

Sports and cultural centers

HOTEL

Boost the performance & comfort of your building

Energy performance

Analyse energy consumption, monitor room values (temperature, humidity, etc.) and adapt the use of equipment to improve energy performance.

Maintenance

Remotely supervise the good condition of equipment, adapt their operation and optimise their maintenance: boiler, domestic hot water network, ventilation system, etc.

User comfort

Collect and analyse information about a building's environment: temperature, humidity, air quality, etc. to improve the quality of life of its occupants.

THE ADEUNIS CONNECTED BUILDING

Check the ventilation system

Control temperature thresholds

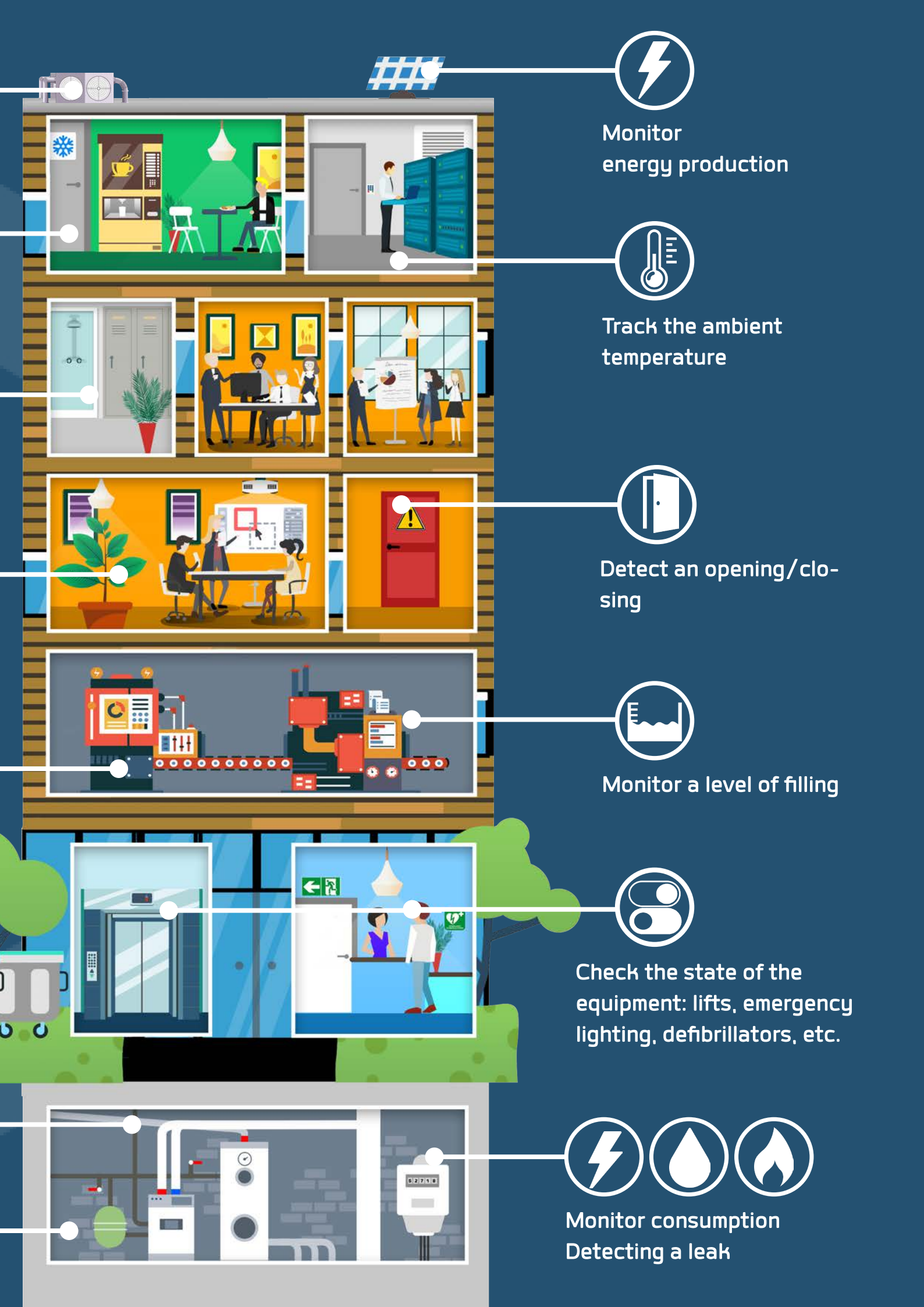Measure the humidity level

Monitor indoor air quality

Check the state
of the equipment

Monitor the temperature at
two separate points

Detect the presence of water

Monitor energy production

Track the ambient temperature

Detect an opening/closing

Monitor a level of filling

Check the state of the equipment: lifts, emergency lighting, defibrillators, etc.

Monitor consumption Detecting a leak

Optimise
the use of ventilation systems

Reduce
electricity consumption

Rationalise
gas consumption

ENERGY
PERFORMANCE

Our IoT solutions make it easy to monitor buildings to reduce energy consumption.

With our solutions dedicated to energy performance, it is possible to meet the challenges of legal, environmental and economic requirements.

Reduce
water consumption

Regulate
the room temperature

Check
the humidity level

Monitoring and analysing the evolution
of gas, electricity and water consumption

Objectives:

• Detect a leak
• Detect abnormal consumption
• Detect high consumption items
• Recommend actions to be taken to reduce consumption

By installing IoT sensors on water, gas, electricity or thermal energy meters, it becomes possible to monitor and analyse changes in consumption. The data collected can be used to define ways of optimising the use of energy-consuming equipment.
An alert system also makes it possible to be informed in the event of so-called abnormal consumption, in order to act as quickly as possible to regulate it.

Sub-counting

Our IoT solutions are used for sub-metering, to isolate and measure the consumption of a specific room or specific equipment.

Ideal for measuring gas consumption in ATEX zones.
The PULSE ATEX is certified for zone 1 and 21.

PULSE

PULSE ATEX

TIC

MODBUS

Reduce energy consumption

Analyse the environmental factors and adapt the use of **technical equipment** to actual needs

Objectives:

- Reduce electricity consumption
- Reduce gas consumption

In addition:
- Ensure user comfort
- Protect the building from potential damage

IoT sensors can be used to record, measure and analyse the environmental factors in a room (temperature, humidity, CO2...). The analysis of the data collected makes it possible to adjust the use of equipment to the actual conditions of use of the building, in order to achieve energy savings.

Preserving the built environment

Monitoring temperature and humidity levels on a daily basis also helps to protect the building from potential damage and to act quickly if thresholds are exceeded.

Heating and cooling

Analyse the ambient temperature in order to regulate the use of heating and cooling.

Ventilation

Monitor the humidity and CO2 levels to adjust the operation of the ventilation system.

COMFORT SERENITY

COMFORT

DELTA P

The IoT makes it possible to remotely collect data on the operation of technical equipment. There is no longer any need to travel, as the information is automatically and regularly collected. An alert system also makes it possible to be informed and to intervene as soon as a malfunction appears.

The implementation of IoT systems offers many benefits to maintenance teams, including: anticipation of maintenance operations, increased reactivity in the event of breakdowns, guarantee of the reliability of an installation, improvement of the service provided, etc.

1 Check the proper functioning of ventilation systems

2 Check the temperature on technical equipment

3 Track the change of state of an equipment

4 Act remotely on a machine or a setpoint

TECHNICAL PERFORMANCE

Optimising maintenance

Checking and analysing the correct functioning of **ventilation systems**

The ventilation system is essential in a building: it ensures the renewal of air and the protection of the structure against deterioration due to humidity and mould.

IoT devices monitor the ventilation boxes and allow to anticipate possible malfunctions. Thus, professionals in the sector can:

- detect a drop in the pressure delta between the inside of the box and the atmospheric pressure,
- anticipate an engine failure,
- detect a repetitive malfunction.

On curative aspects, an alert can be issued when:
- an engine stops working,
- a filter is clogged,
- a problem with the belt operation appears,
- a pressure switch is faulty.

DELTA P

SMART DELTA P

Reduce
maintenance
costs

Reduce
consumption

Ensure
the proper
functioning
of an equipment

Gain
in reactivity

Monitor and control **the temperature on a technical equipment**

Balancing of the domestic hot water (DHW) network

With their temperature sensors, IoT sensors measure and read the temperature at various points in a DHW network. The data collected allows for hydraulic balancing of the network.

Objectives:
- Reduce health risks
- Save energy and water (by reducing temperatures and waiting time)
- Contribute to a better life span for the installations
- Optimise the organisation of maintenance operations

Controlling the non-proliferation of legionella

Thanks to IoT solutions, it is possible to control, without having to go on site, the maintenance of the water temperature in the DHW networks at at least 55°C, between the point of distribution point and the drawing point.
An alert is also issued when the threshold is exceeded, allowing rapid action to be taken to prevent the spread of the bacteria.

Objectives:
- Reduce health risks
- Meet legal obligations
- Optimise the organisation of maintenance operations
- Reduce maintenance costs
- Improve reactivity

TEMP

TEMP2S

Monitor the **change of state** of a piece of equipment

Objectives:

• Dematerialise maintenance monitoring operations
• Guarantee the proper functioning of an equipment
• Ensure continuity of service for an equipment

With IoT solutions, it is possible to detect any change in the status of a piece of equipment and act accordingly.

Depending on the needs, the solutions used allow to :

• detect a fault,
• be alerted of a development (change of state, triggering of an action, etc.),
• control a state and its duration,
• monitor changes in state over time,
• measure the time of use of an equipment,
• remote control of equipment.

DRY CONTACTS

Exhaust outlet

Monitor or be alerted of a change in the open/closed status of the door and act accordingly.

Telecom equipment

To be informed quickly of a fault in order to ensure business continuity.

Defibrillator

Remotely monitor the status of the defibrillator and be alerted in case of malfunction.

Lifts - Escalators - Automatic doors

Be alerted quickly of an operational stop.

Presence of water

Detecting the presence of water in the vicinity of sensitive equipment in order to prevent water damage or damage to the equipment concerned.

Optimising maintenance

Act remotely on a piece of equipment or a setpoint

Objectives:

- Reduce travel
- Gain in reactivity
- Optimise maintenance costs

Some IoT sensors can be used to act remotely on equipment to activate or deactivate a setpoint.
It is thus possible to act in real time following the triggering of an event.
The IoT solution also allows the user to be informed that the setpoint has been taken into account.
The setpoint can be activated for a defined period of time or until a new action is triggered.
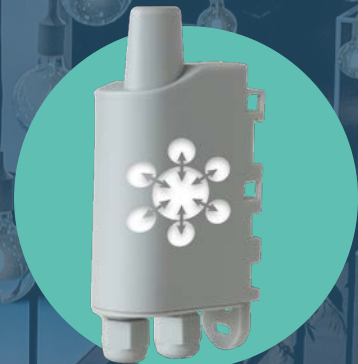
Example of use

- Switching a light on or off
- Controlling a valve
- Opening or closing a network

DRY CONTACTS

MODBUS

Taking into account the comfort of the occupants of a building is essential. Whether they are customers, residents, employees, schoolchildren or users of an activity, taking into account their comfort has a non-negligible impact on the main activity of the building.

Temperature, humidity, air quality, all these factors must be taken into account for a better quality of life.

Improve
thermal comfort

Monitor Indoor Air
Quality

OCCUPANT
COMFORT

Ensuring good **indoor air quality**

Today, all buildings are concerned with indoor air quality.
Beyond the CO2 concentration rate, data relating to temperature, humidity, fine particles or VOCs can provide a concrete response relating to the comfort of occupants in the building.

The analysis of this data and the implementation of concrete actions resulting from it allow to respond to legal obligations, health issues or economic issues.

Control health
risks

Ensure user
comfort

Act in real time on
identified risks

Comply with
legal obligations

Analyse **environmental factors** and adapt the use of technical equipment to real needs

Objectives:

- Ensure user comfort
- Protect the building from potential damage

In addition:
- Reduce energy consumption

In order to ensure the comfort and satisfaction, as well as the productivity of the users of a building, it is important to analyse the different environmental factors of a room.

To obtain conclusive results, these factors can be monitored at different locations in the same room.

IoT sensors can easily be placed in a room to measure temperature, humidity or lighting levels.

This data can also be coupled with presence indicators for added relevance.

The combined analysis of these data allows for the improvement of equipment settings according to the actual use of the building.

Heating - Air conditioning

Analyse the ambient temperature in different parts of a room and regulate the use of heating and cooling equipment accordingly.
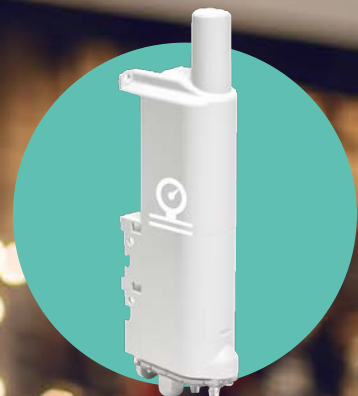
COMFORT SERENITY

COMFORT

Ventilation

Check the humidity and CO2 levels and adjust the operation of the ventilation system.

DELTA P

Our sensors

LoRaWAN / Sigfox

	PULSE	TEMP	TEMP2S	DRY CONTACTS
Usage	Pulse meter	Temperature 1 ambient + 1 remote probes	Temperature 2 remote probes	Dry contacts, Control
Sensor features				
Technical specifications	Up to 2 pulse inputs / Configurable for pulse output type: dry contacts, REED, open collector or S0 / Input frequency <100 Hz / Fraud and leak detection / Flow monitoring / Data logging / Available in: PULSE CBL 2 cables / 3 wires	Room sensor - Temperature range: -25°C / +70°C / Remote sensor - Sensor temperature range: -55°C + 155°C / Remote sensor - Cable temperature range: -30°C +105°C / Remote probe - Cable length: 2m / Accuracy [0°C/+60°C]: +/- 0.2°C / Accuracy [-35°C/0°C]: +/- 0.5°C / Data logging		4 digital inputs/outputs / Maximum input voltage: 24 Vdc / Max. output current: 100 Ma / Available in a pre-wired version for monitoring: - Fluid level - Presence of water - Opening
Sending the data	Periodic and/or event-driven (programmable thresholds exceeded)			
Classe	LoRaWAN: A Sigfox: 0	LoRaWAN: A and C (with external power supply 5V) Sigfox: 0		LoRaWAN: A and C Sigfox: 0
Mechanical characteristics				
Weight (including battery)	107.2 g	148 g	185 g	87 g
Dimensions	132 x 62 x 34 mm	132 x 62 x 34 mm	132 x 62 x 34 mm	132 x 62 x 34 mm
IP	IP68	IP68	IP68	IP68
Fastening system	DIN-rail, tube, wall, clamp			
Terms of use				
Temperature	-25°C / +70°C			
Humidity	0 to 85% HR			
Power supply	1 connectorised battery pack	1 connectorised battery pack or external 5V power supply		1 removable battery or external 5V power supply
Configuration	IoT Configurator Via network KARE+	IoT Configurator Via network KARE+	IoT Configurator Via network KARE+	IoT Configurator Via network KARE+
Certifications				
Certifications	Directive 2014/53/UE (RED) | US: FCC- Title 47 CFR Part 15 | Canada: RSS-247 Issue 2 | AS/NZS 4268			
Zones / Networks and corresponding part numbers				
LoRaWAN	EU863-870 US902-928 AU915-928 AS923 — ARF8230ABA ARF8230BRA ARF8230IRA ARF8230JRA	EU863-870 US902-928 AU915-928 AS923 — ARF8230BCA ARF8230BRA ARF8230IRA ARF8230JRA	EU863-870 US902-928 AU915-928 AS923 — ARF8180BCB ARF8180BRB ARF8180IRB ARF8180JRB	EU863-870 US902-928 AU915-928 AS923 — ARF8170CA ARF8170BRA ARF8170IRA ARF8170JRA
Sigfox	RC1 RC2 RC4 — ARF8230CRA ARF8230DRA ARF8230KRA	RC1 RC2 RC4 — ARF8181BCA ARF8181DRA ARF8181KRA	RC1 RC2 RC4 — ARF8181BCB ARF8181DRB ARF8181KRB	RC1 RC2 RC4 — ARF8170BA ARF8170DRA ARF8170KRA

LoRaWAN / Sigfox

	ANALOG	PULSE ATEX	MODBUS	DELTA P
		ATEX: Zone 1, Groupe IIC and Zone 21 ATEX II 2 G D / Ex ib IIC T4 Gb / Ex ib IIIC T135°C Db / -20°C<=-Ta<=40°C		
Usage	Analog input	ATEX Pulse meter	Interface for «Modbus slaves	Maintenance of ventilation systems
Sensors features				
Technical specifications	2 analog inputs: configurable as 4-20 mA or 0-10 V Analog input resolution 12 bites Available in pre-wired version: - 50A current measurement - 100A current measurement Or - External power supply Measurement and transmission controlled by digital input(s)	Up to 2 pulse inputs Configurable for pulse output type: dry contacts, REED, open collector or S0 Input frequency <100 Hz Flow monitoring Data Logging Available with BINDER or GAZPAR connectors	Modbus RTU, RS485/RS232 compatible Supervision of up to 20 slaves Possibility to read and write registers (Modbus function 3,4 and 10) Transfer and control of power to the slave 6 configurable periodic frames Downlink read request	2 digital inputs 1 analog input 0-10V Pressure delta Measuring range: -500/+500 Pa Available in Smart Delta P version (with AI) Data Logging
Sending the data	Periodic and/or event-driven (programmable thresholds exceeded)			
Classe	LoRaWAN: A Sigfox: 0	LoRaWAN: A Sigfox: 0	LoRaWAN: A and C Sigfox: 0	LoRaWAN: A Sigfox: 0
Mechanical characteristics				
Weight (including battery)	70 g	70 g	97g	145 g
Dimensions	105 x 50 x 27 mm	105 x 50 x 27 mm	105 x 50 x 27 mm	200 x 63.5 x 34 mm
IP	IP67	IP67	IP67	IP68
Fastening system	DIN-rail, tube, wall, clamp			
Terms of use				
Temperature	-25°C / +70°C (with battery) -25°C / +40°C (supplied power version)	-25°C / +70°C		
Humidity	0 to 85% HR			
Power supply	1 removable battery	1 soldered battery	External power supply 6-30V DC	1 connectorised battery pack
Configuration	IoT Configurator Via network KARE	IoT Configurator Via network KARE+	IoT Configurator Via network KARE+	IoT Configurator Via network KARE+
Certifications				
Certifications	Directive 2014/53/UE (RED)	Directive 2014/53/UE (RED)	Directive 2014/53/UE (RED) US: FCC- Title 47 CFR Part 15 Canada: RSS-247 Issue 2 AS/NZS 4268	Directive 2014/53/UE (RED)
Zones / Networks and corresponding part numbers				
LoRaWAN	EU863-870 : Battery · ARF8190BA Ext.supply · ARF8200AA	EU863-870 · ARF8230FA	EU863-870 · ARF8240AA US902-928 · ARF8240B AS923 · ARF8240J	EU863-870 · ARF8283AA
Sigfox RC1	Battery · ARF8191BA Ext.supply · ARF8201AA	RC1 · ARF8230GA	RC1 · ARF8240CA	RC1 · ARF8283CA

Our sensors

	COMFORT	COMFORT SERENITY	BREATH
	LoRaWAN / Sigfox		
Usage	Temperature, Ambient humidity	Temperature, Humidity, CO2, VOCT	PM1, PM2.5, PM10 et COVT

Sensor features

	COMFORT	COMFORT SERENITY	BREATH
Technical specifications	1 Bouton alerte + 1 entrée TOR		

	4 in 1 product: temperature, humidity, alarm button, dry contact input
	
	Measuring range:
	 Temperature: -40 to +125°C
	 Humidity: 0 to 100 HR%
	Redundancy
	Data logging
		6 in 1 product: temperature, humidity, CO2, VOC, alarm button, dry contact input
		Measuring range:
		 Temperature: -40 to +125°C
		 Humidity: 0 to 100 HR%
		 CO2: 400 to 5000 ppm (technology NDIR)
		Automatic or manual CO2 calibration
		Indicator light on the case
			Measuring range:
			 Fine particles:
			  Typique: 0 / 1000 µg/m3
			  Max: 65534 µg/m3
			 COVT: 0 / 270 mg/m3
			Historisation
			Redundancy
			Indicator light on the case

Sending the data	Periodic and/or on events (programmable thresholds exceeded)		
Classe	LoRaWAN: A Sigfox: 0	LoRaWAN: A Sigfox: 0	LoRaWAN: A and C Sigfox: 0

Mechanical characteristics

	COMFORT	COMFORT SERENITY	BREATH
Weight (including battery)	102 g	146 g	107,5 g
Dimensions	111 x 61 x 40 mm	111 x 61 x 40 mm	111 x 61 x 40 mm
IP	IP20		
Fastening system	Wall		

Terms of use

	COMFORT	COMFORT SERENITY	BREATH
Temperature	-20°C / +60°C	0°C / +50°C	0°C / +50°C
Humidity	0 to 85% HR		
Power supply	1 connectorised battery pack	1 dual connectorized battery pack	External power supply included
Configuration	IoT Configurator Via network KARE+	IoT Configurator Via network KARE+	IoT Configurator Via network KARE+

Certifications

	COMFORT	COMFORT SERENITY	BREATH
Certifications	Directive 2014/53/UE (RED) | US: FCC- Title 47 CFR Part 15 | Canada: RSS-247 Issue 2 | AS/NZS 4268		Directive 2014/53/UE (RED)

Zones / Networks and corresponding part numbers

	COMFORT		COMFORT SERENITY		BREATH	
LoRaWAN	EU863-870 US902-928 AU915-928 AS923	ARF8275AR ARF8275BRA ARF8275IRA ARF8275JRA	EU863-870 US902-928 AU915-928 AS923	ARF8373AB* ARF8373BRA ARF8373IRA ARF8373JRA	EU863-870	ARF8377AA
Sigfox	RC1 RC2 RC4	ARF8275A ARF8275DRA ARF8275KRA	RC1 RC2 RC4	ARF8373CB* ARF8373DRA ARF8373KRA	RC1	ARF8377CA

*On these zones, the reference shown corresponds to the COMFORT CO2 sensor.

NB-IoT / LTE-CAT-M1

	COMFORT	C.SERENITY	PULSE
Usage	Temperature, Ambient humidity	Temperature, humidity, CO2, VOCT	Pulse meter
Technical features			
Technical specifications	Measuring range: Temperature: 0 à +65°C Humidity: 10 à 90 HR% Compatibility with LwM2M and MQTT protocols Data logging Black out Time stamping Automatic diagnosis of network quality	Measuring range: Temperature: 0 à +65°C Humidity: 10 à 90 HR% CO2: until 10 000 ppm COVT : Index scale from 1 to 500 points Compatibility with LwM2M and MQTT protocols Data logging Black out Time stamping Automatic diagnosis of network quality Indicator light on the box	Up to 2 pulse inputs Configurable for pulse output type: dry contacts, REED, open collector or S0 Input frequency <50 Hz Compatibility with LwM2M and MQTT protocols Data logging
Sending the data	Periodic and/or on events (programmable thresholds exceeded)		
Protocol			
Network	NB-IOT LTE-CAT-M1		
Mechanical characteristics			
Weight (including battery)	140 g	146 g	163 g
Dimensions	111 x 61 x 40 mm	111 x 61 x 40 mm	200 x 63,5 x 34 mm
IP	IP20	IP20	IP68
Fastening system	Wall	Wall	DIN-rail, tube, wall, clamp
Terms of use			
Temperature	-10°C /+70°C		-25°C / +70°C
Humidity	0 à 85% HR		
Power supply	Double battery pack or external power supply	Double battery pack or external power supply	Double battery pack 8000 mAh
Configuration	NFC IoT Configurator Via network		
Certifications			
Certifications	Directive 2014/53/UE (RED) US: FCC- Title 47 CFR Part 15 Canada: RSS-247 Issue 2 AS/NZS 4268		
Part numbers			
Part number	ARF8394AA	ARF8394AB	ARF8420AA

IAMo: Indoor Air Monitoring

A global solution for monitoring air quality and indoor comfort

IoT sensors + IAQ and comfort indicators + Data visualisation

API → IAMo platform / Third party services

Objectives

- Monitor Indoor Air Quality over time
- Observe and guarantee the comfort of users
- Detect ventilation anomalies

Highlights

- A turnkey solution
- A data pre-processing service
- Easy to deploy
- APIs for easy integration

- Concrete indicators based on the monitoring of:
  - Temperature
  - Humidity
  - CO2
  - TVOC
  - PM
  - Ventilation

OPERATION

IAQ Indicators and COMFORT indicators

Allows for quick identification of problem areas

Monitoring indicators VENTILATION monitoring indicators

Allows to identify a ventilation failure or a clogged filter and to adjust the ventilation accordingly.

Users

Become aware of their environment, become aware of indoor air quality.

Maintenance team

Controls maintenance actions, intervenes in the event of a breakdown and adapts the instructions in the BMS.

Building Management System

Allows to adapt the flow rates and to control the renewal of the indoor air.

ACCOMPANYING YOU IN THE REALISATION OF YOUR IOT PROJECTS

To ensure that your digitalization projects run smoothly, we develop tools to facilitate the deployment of IoT solutions and provide expert advice.
In addition, Adeunis offers you the benefit of its network of partners for connectivity and data processing.

COLLECT
Data through IoT sensors

Sensors

Radio-mapping

Connectivity

Training

TRANSMIT
Data via network protocols

Configuration

Decoding

Deployment

VALUE
The data analysed

Visualisation

Maintenance in operational conditions

MANAGE
Sensors over time

Start the project

Prepare your project well to ensure its success over time

On-site radio-mapping

Radio mapping is an essential step in any IoT project. It ensures the success of the project on the ground and avoids disappointment when the sensors are deployed.

This study is carried out on site, with the help of the Adeunis network tester, the FTD (Field Test Device). It determines the network availability at different measurement points. This data is used as a basis to verify the deployment possibilities and to validate the correct implementation of the forecasted use cases.

Training

The world of IoT
Adeunis offers generic training courses on IoT themes to enable everyone to learn more about the world of connected objects, as well as dedicated support for the development of each solution.

Connectivity

Need to deploy IoT sensors and choose the most suitable network(s) for your project?

Together we define the network solution and the operator that best meet your expectations. Private network? Public network? We take into account your needs, your uses case(s) and the target environment.

PRIVATE NETWORKS

- Supply of infrastructure elements
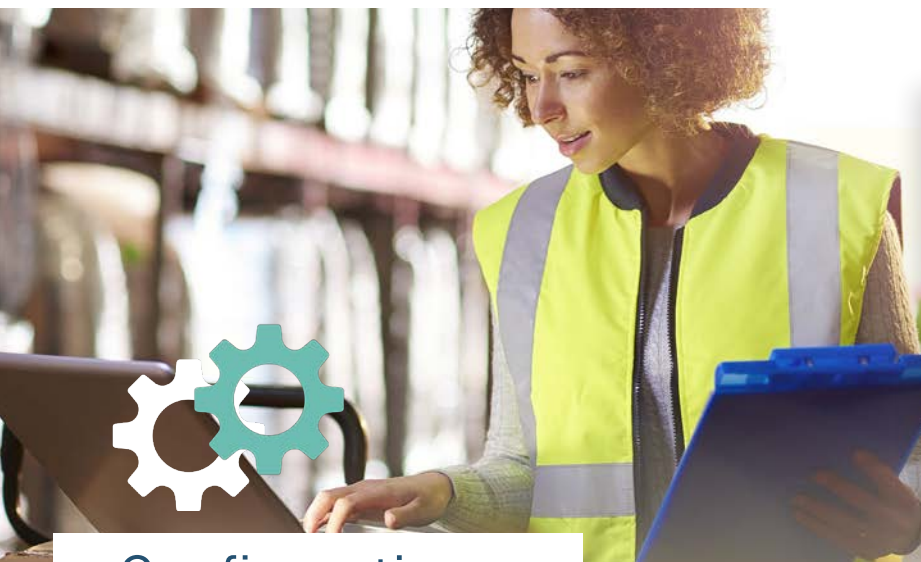- Support for the implementation
- Support for deployment

PUBLIC NETWORKS

- Subscription
- Object provisioning
- Data redirection to your application server

LoRaWAN CERTIFIED™   **sigfox**   **NB-IoT**   **LTE-M**

Technical set-up

Deploy connected objects easily thanks to configuration tools

Would you like support in setting up your sensors?

Our solutions facilitate the installation and configuration of your connected objects.

Configuration

Pre-Configuration
Delivery of ready-to-use products already configured.

NCF / IoT Configurator
Local configuration via USB port on your sensor.

KARE +
Remote sensor monitoring and configuration by fleet.

With the IoT Configurator and KARE+ you have user-friendly & intuitive applications to facilitate the configuration of your sensors.

Field deployment

If you would like us to provide you with personal support, we can come to your site to carry out the installation and deployment of your sensors and solutions. Our experts will provide you with their knowledge to facilitate these steps.
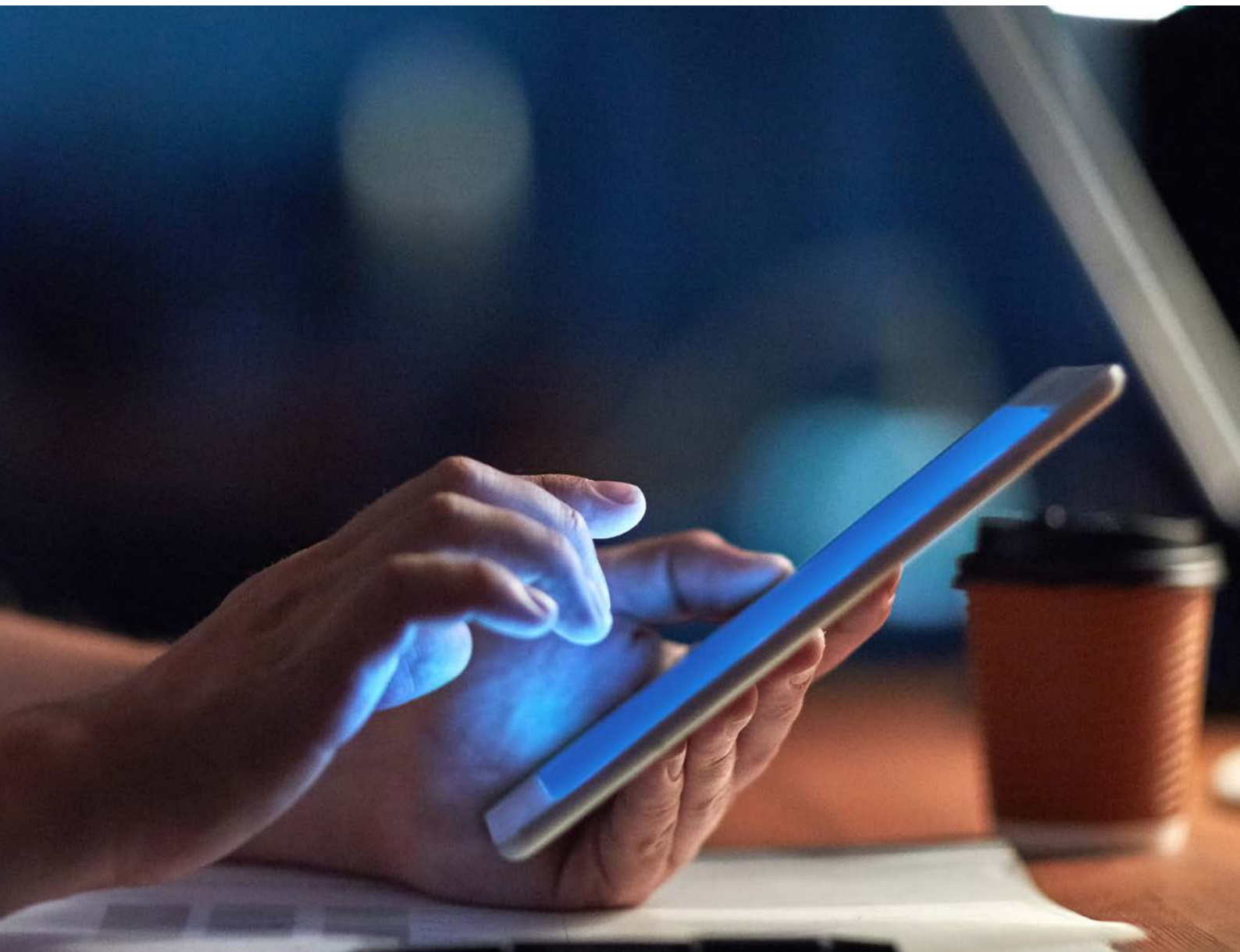
Data processing

Quickly decode the data to exploit it over time

Decoding

Save precious time on the data decoding phase, thanks to our Codecs and the KARE platform.

Data processing

Take advantage of our partnerships to choose the IoT data visualisation and processing platform that best suits you.

Maintenance in operational condition

Guarantee the performance, proper functioning and data security of the sensors

Adeunis provides device management tools enabling you to manage your sensors centrally. Using these tools simplifies configuration, monitoring and maintenance.

KARE+

LoRa / Sigfox sensors

A Device Management platform and Over The Air (OTA) update application, designed by Adeunis, to visualise, analyse and act on the performance and configuration of Adeunis sensor fleets.

LwM2M

NB IoT / LTE-M

A protocol from the Open Mobile Alliance, specifically designed for operational management, data feedback, provisioning and lifecycle management of Internet of Things (IoT) devices.

Optimize your operating costs
By taking action on site at the right time and avoiding
unnecessary trips

Consolidate your business model
By ensuring the proper lifetime of the products and
adjusting their configuration.

Increase the satisfaction of your end customers
By allowing continuity in the service provided.