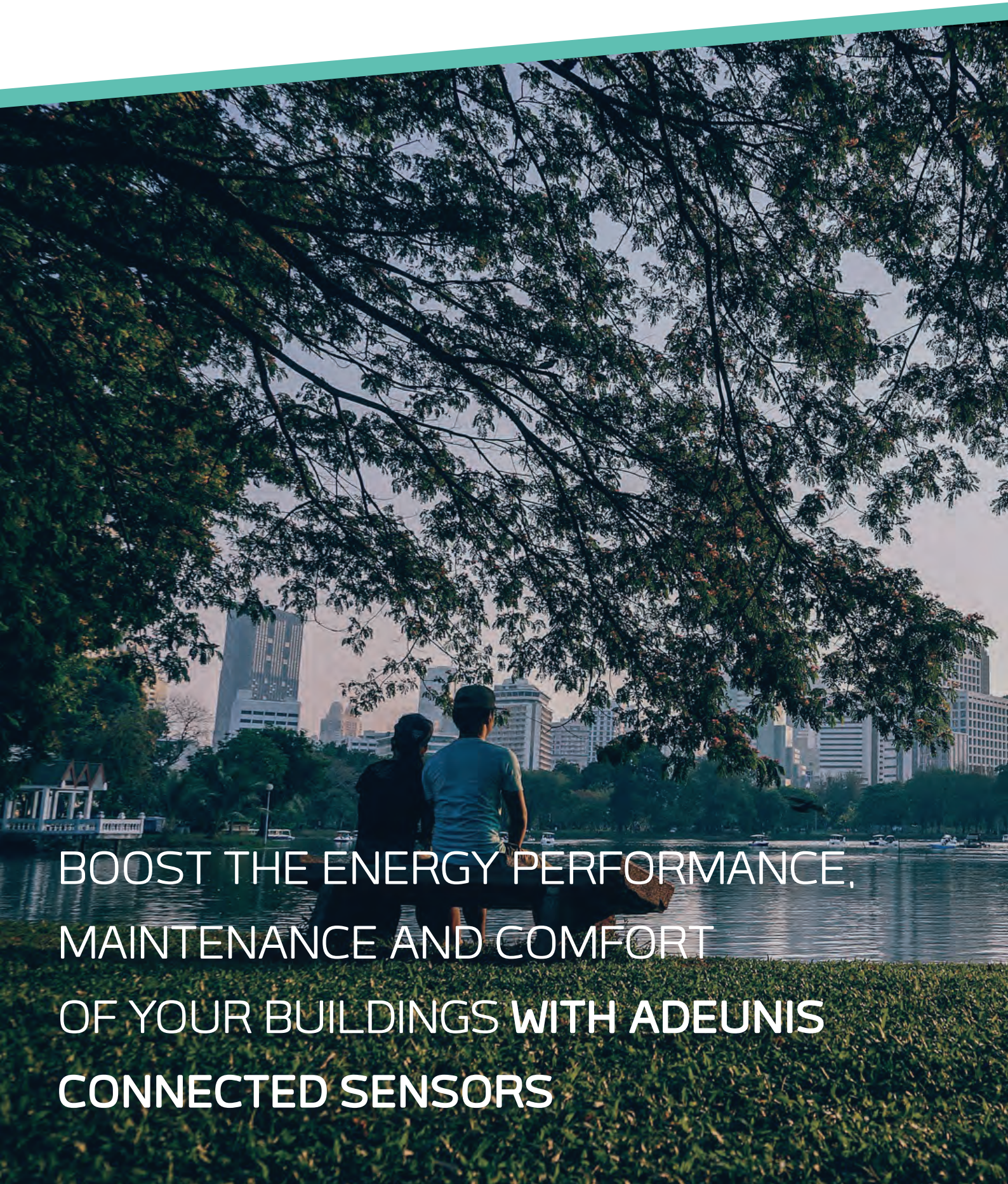
adeunis

IOT PRODUCTS & SOLUTIONS



BOOST THE ENERGY PERFORMANCE, MAINTENANCE AND COMFORT OF YOUR BUILDINGS **WITH ADEUNIS CONNECTED SENSORS**

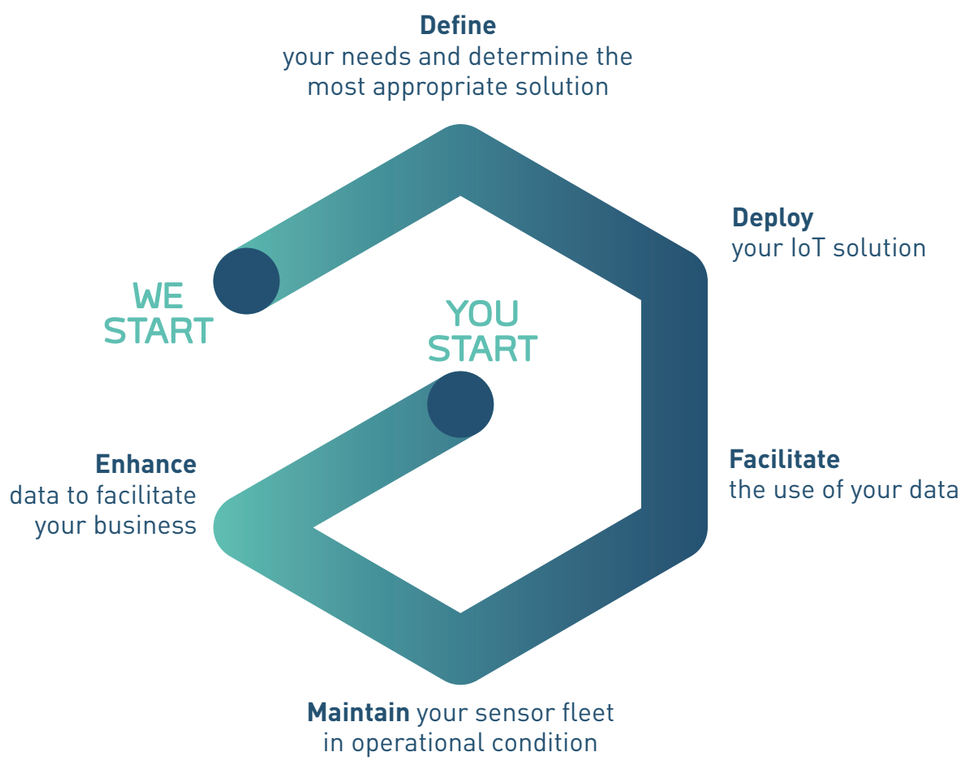
Adeunis,
IoT solutions
for digitising your buildings

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.



SMART BUILDING

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.

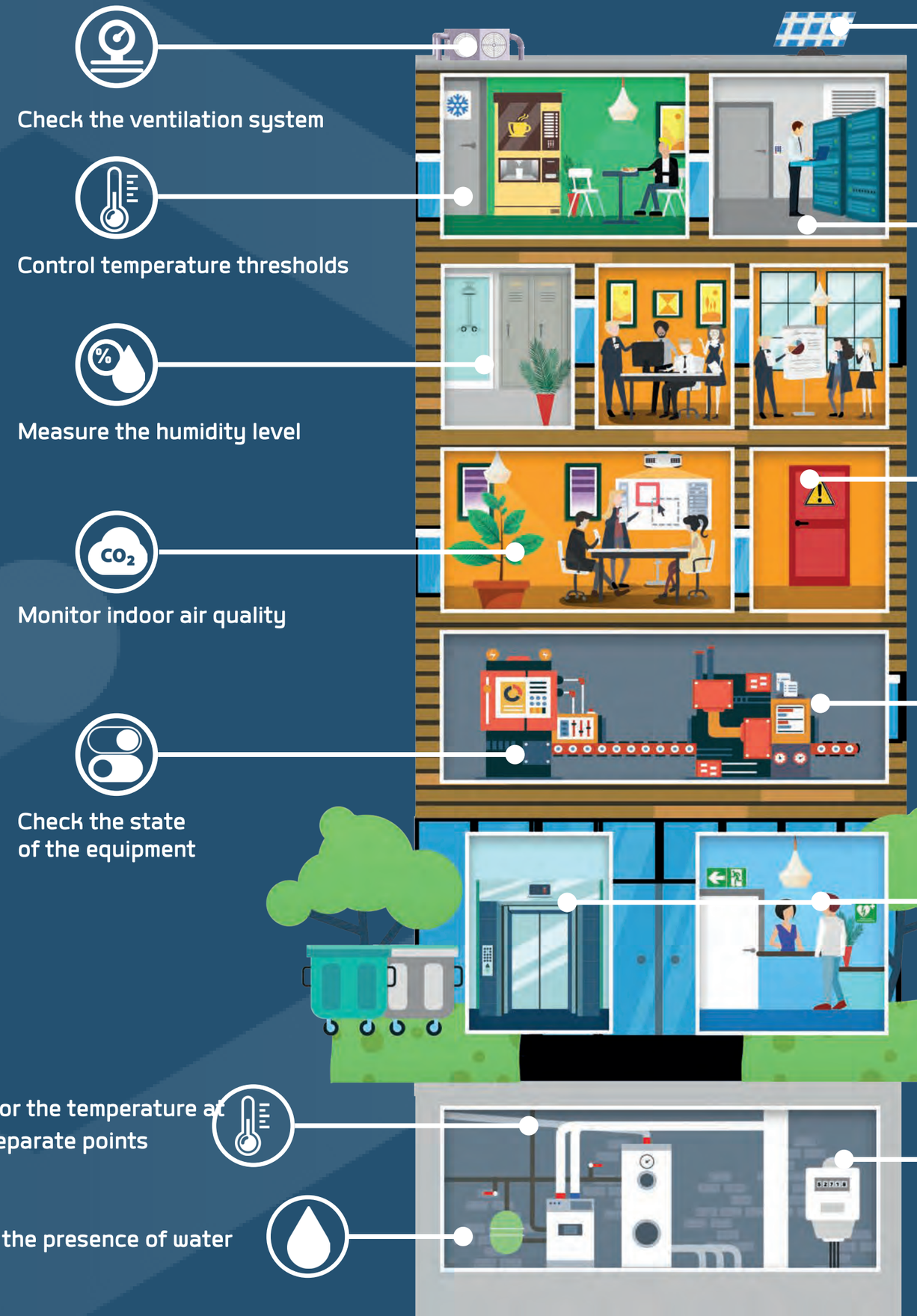
Maintenance

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

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.

Optimise
the use of ventilation systems

Reduce
electricity consumption

Rationalise
gas consumption

Reduce
water consumption

Regulate
the room temperature

Check
the humidity level

Reduce energy consumption

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.

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

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.

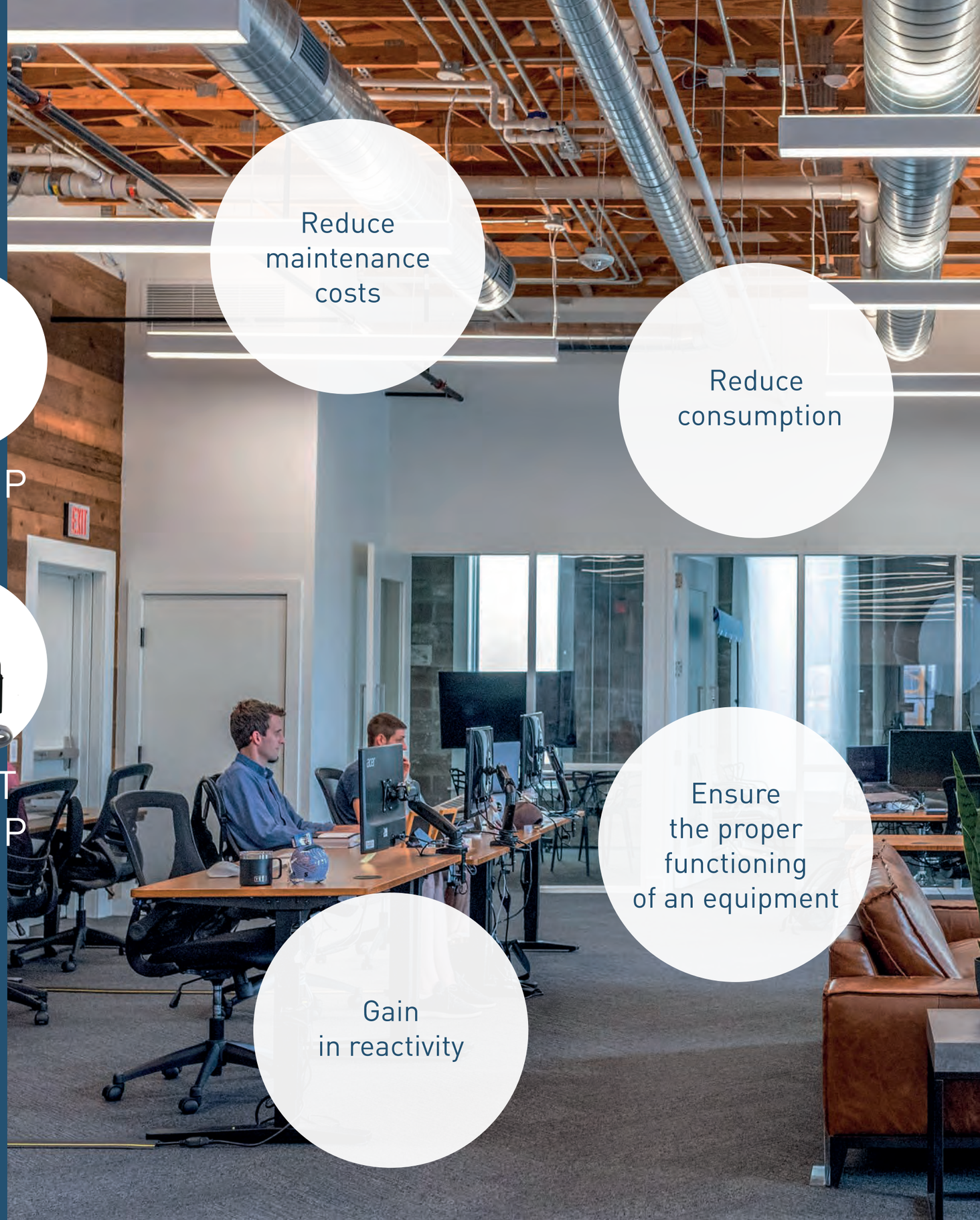
IoT devices monitor the ventilation boxes and allow to anticipate possible malfunctions. Thus, professionals in the sector can:

- 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



Optimising maintenance

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

Optimising maintenance

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

Objectives:

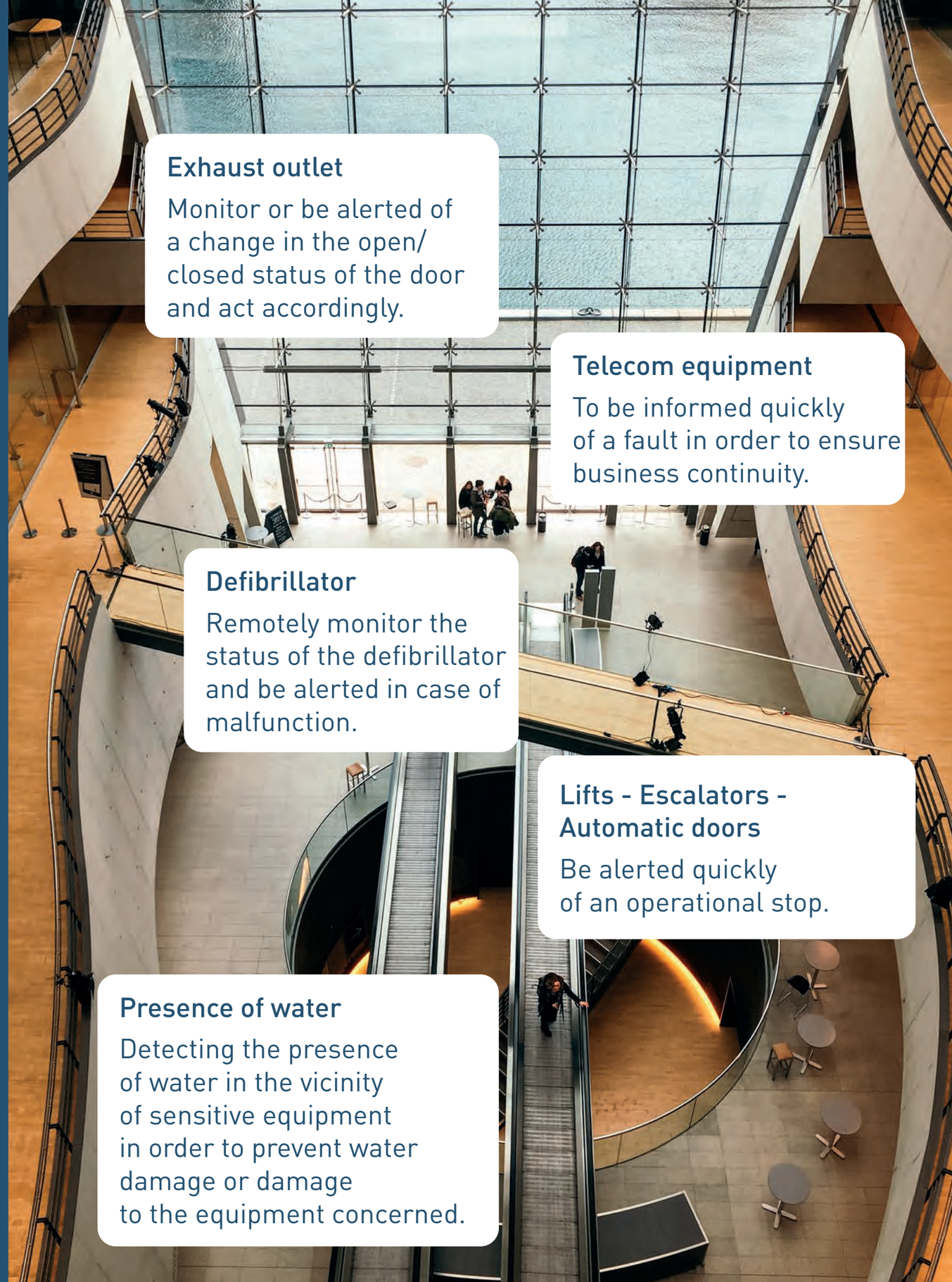
- Dematerialise maintenance monitoring operations
- Guarantee the proper functioning of an equipment
- Ensure continuity of service for an equipment

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

OCCUPANT COMFORT

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

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.

Ensuring occupant comfort

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

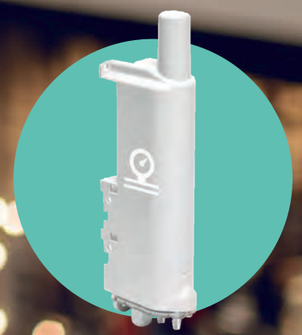
Analyse the ambient temperature in different parts of a room and regulate the use of heating and cooling equipment accordingly.

Ventilation

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

COMFORT
SERENITY

COMFORT



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)			
Class	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	128 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	ARF8230ARA ARF8230BRA ARF8230IRA ARF8230JRA	EU863-870 US902-928 AU915-928 AS923	ARF8230ARA ARF8230BRA ARF8230IRA ARF8230JRA	EU863-870 US902-928 AU915-928 AS923	ARF8180ARB ARF8180BRB ARF8180IRB ARF8180JRB	EU863-870 US902-928 AU915-928 AS923	ARF8170ARA 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)			
Class	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 Ext.supply	ARF8190BA ARF8200AA	EU863-870	ARF8230FA	EU863-870 US902-928 AS923	ARF8240AA ARF8240B ARF8240J	EU863-870	ARF8283AA
Sigfox RC1	Battery Ext.supply	ARF8191BA ARF8201AA	RC1	ARF8230GA	RC1	ARF8240CA	RC1	ARF8283CA

Our sensors

LoRaWAN / Sigfox

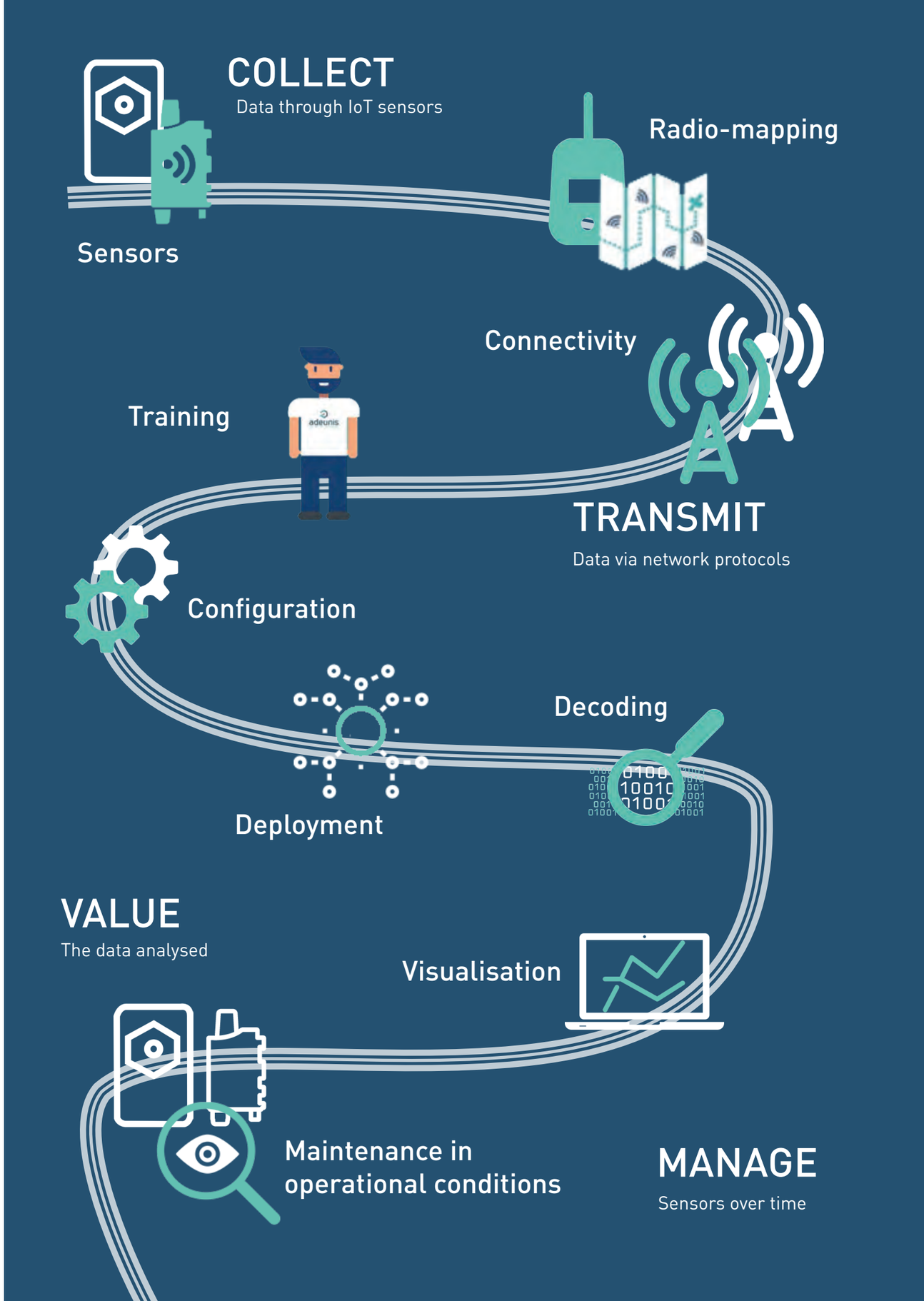
	COMFORT	COMFORT SERENITY	BREATH
			
Usage	Temperature, Ambient humidity	Temperature, Humidity, CO2, VOCT	PM1, PM2.5, PM10 et COVT
Sensor features			
Technical specifications	1 Bouton alerte + 1 entrée TOR 4 in 1 product: temperature, humidity, alarm button, dry contact input Measuring range: Temperature: -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)		
Class	LoRaWAN: A Sigfox: 0	LoRaWAN: A Sigfox: 0	LoRaWAN: A and C Sigfox: 0
Mechanical characteristics			
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			
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			
Certifications	Directive 2014/53/UE (RED) I US: FCC- Title 47 CFR Part 15 I Canada: RSS-247 Issue 2 I AS/NZS 4268		Directive 2014/53/UE (RED)
Zones / Networks and corresponding part numbers			
LoRaWAN	EU863-870 US902-928 AU915-928 AS923	ARF8275ARA ARF8275BRA ARF8275IRA ARF8275JRA	EU863-870 US902-928 AU915-928 AS923	ARF8373ARA ARF8373BRA ARF8373IRA ARF8373JRA	EU863-870	ARF8377AA
Sigfox	RC1 RC2 RC4	ARF8275CA ARF8275DRA ARF8275KRA	RC1 RC2 RC4	ARF8373CRA ARF8373DRA ARF8373KRA	RC1	ARF8377CA

NB-IoT / LTE-CAT-M1

	COMFORT	C.SERENITY	PULSE	DRY CONTACTS
				
Usage	Temperature, Ambient humidity	Temperature, humidity, CO2, VOCT	Pulse meter	Dry contact
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	Remote monitoring of simple data such as: Detect states (on/off), Count events, Count time spent in a state. 2 configurable digital inputs, read 0/1 status (dry contact), allowing connection to 2 independent sensors
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	163 g
Dimensions	111 x 61 x 40 mm	111 x 61 x 40 mm	200 x 63,5 x 34 mm	200 x 63,5 x 34 mm
IP	IP20		IP68	IP68
Fastening system	Wall		DIN-rail, tube, wall, clamp	DIN-rail, tube, wall, clamp
Terms of use				
Temperature	-10°C /+70°C		-25°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	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	ARF8420ABA

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.



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.

Connectivity

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

Together, we'll define the network solution and operator best suited to your needs. Private network? Public network? We take into account your needs, usage and target environment.

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.

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.

Training

Adeunis offers generic IoT training courses designed to the world of connected objects, as well as dedicated support for the dedicated support for the development of each solution.

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.

adeunis

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