Actility Webinar

Air Quality Monitoring for Indoor Environment & Covid 19

Improving productivity & Safety using IoT, by Zenner, DataCake and Actility.

Tuesday January 17th

15:00 CET Paris

Introduction

Shmuel Solomon

The importance of Indoor Air Quality

- We spend **90%** of our time in indoors environments
- IAQ has a measurable impact on **cognitive performance**
- **Poor IAQ is harmful**, particularly to those suffering chronic respiratory and/or cardiovascular diseases, and of course may be used as a **proxy for COVID-19 transmission**
- We solve this through Technology – **simple to install, operate, and affordable**

Actility

Webinar Introduction

Today's speakers:

Shmuel Solomon
Your Partner For Digital Transformation - Enterprise Channel Sales Manager at Actility. Join me on LinkedIn or contact me directly at +33-6-79-27-96-48.
https://www.actility.com/

Boris Stöckermann
Director New Business Areas & eCommerce – Europe
Brunata Minol ZENNER Group
LoRaWAN Ambassador
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Simon Kemper
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https://datacake.co

Webinar Meeting Agenda

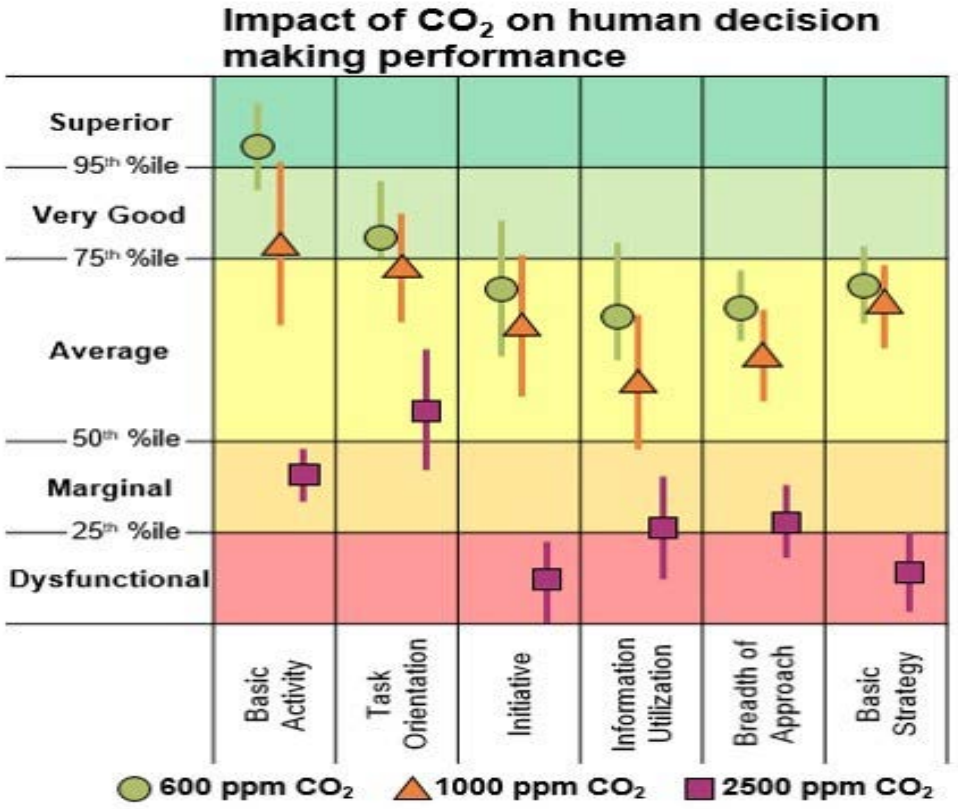
- Introduction – **Shmuel**
- Why Indoor Air Quality Solution? – **Shmuel**
- The Indoor Air Quality Solution – **Shmuel**
- Example use cases – **Boris**
- The ZENNER CO2 Indicator Sensor – **Boris**
- Actility Speeds Up Digital Transformation – **Shmuel**
- An intuitive application by Datacake - **Simon**
- The Indoor Air Quality Solution Live Demo- **Simon**
- Q&A

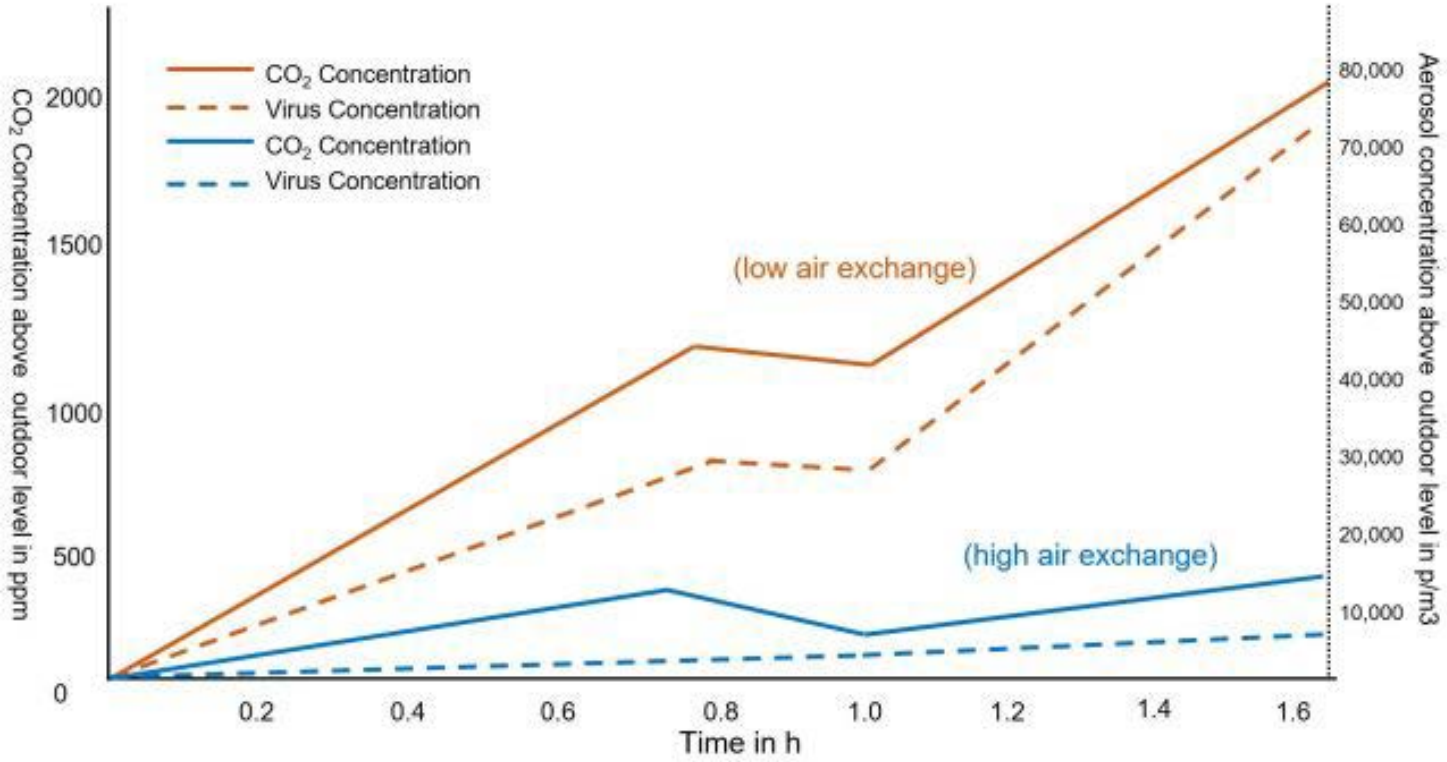
Why Indoor Air Quality Solution?

Shmuel Solomon

CO2 – Fundamentals

CO2 measurement is an economical system that **allows to know if** the chosen **ventilation system is sufficient** or not. The maximum recommended value of CO2 will depend on the room, its occupation and the activity carried out. In general, studies shows that the risk of contagion rises a lot when the value of CO2 concentration is doubled (approximately 420 ppm).

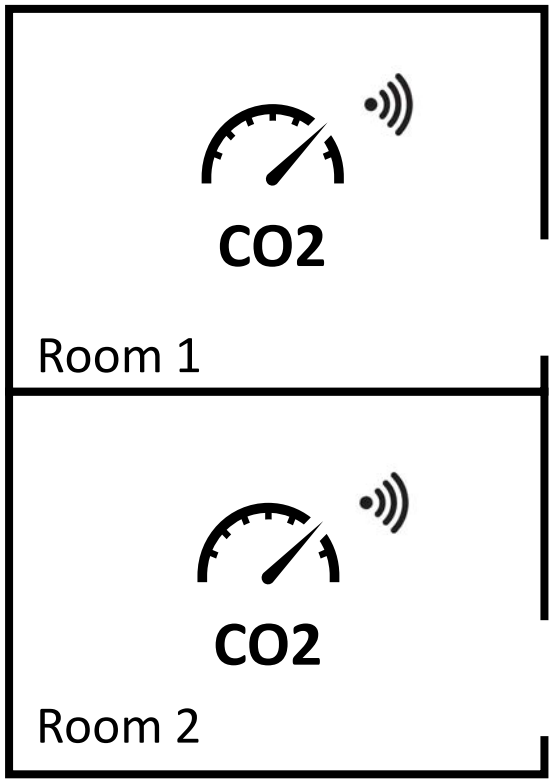




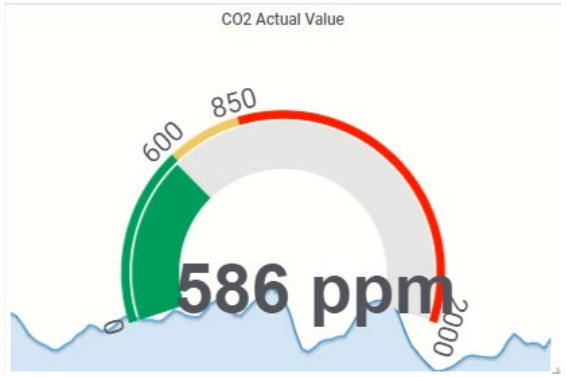
The Indoor Air Quality Solution

Shmuel Solomon

Indoor Air Quality – Solution Debrief



CO2 Metering data



Monitoring Center

Online App

Online platform, reporting, alarms, settings

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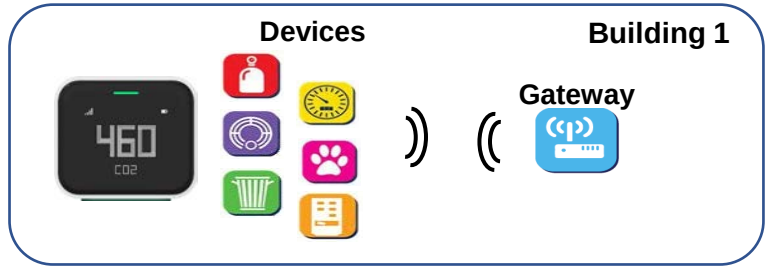
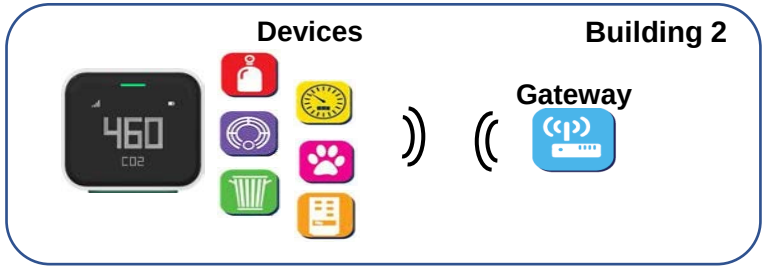
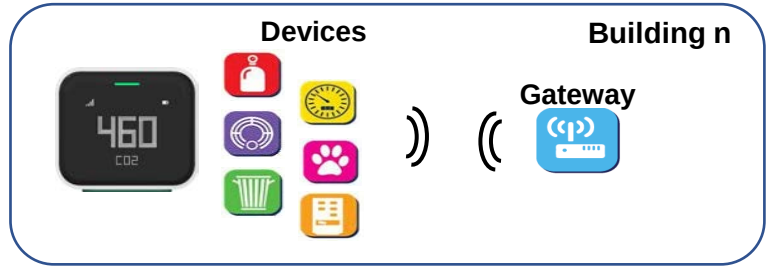
Indoor Air Quality – Solution Architecture







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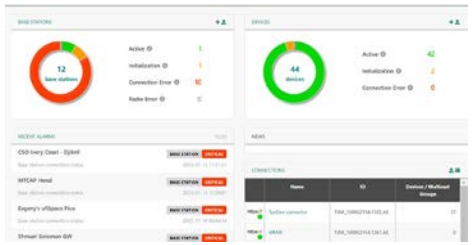
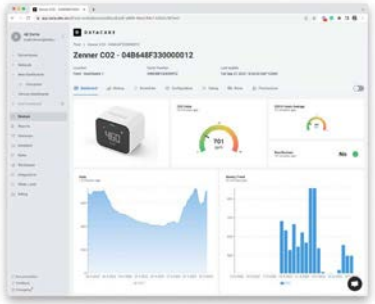
ThingParkEnterprise



Network Server

MQTT, HTTPS

Datacake Platform



Online platform, reporting, alarms, settings

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LoRaWAN

Introduction ZENNER CO2 Sensor

Brunata Minol ZENNER Group

Boris Stöckermann

Director New Business Areas & eCommerce - Europe

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LoRaWAN Ambassador

Member of LoRa Alliance Speaker Bureau

www.linkedin.com/in/borislav-stoeckermann

ZENNER
Indoor
CO_2 monitoring

Example use cases for CO2 Monitoring

OnDesk, Offices, Meetingroom, @ Customer visits,…

Classroom, Kindergarden, School, University,….

Bar, Restaurant, Cantinas, Theater, Cinemas…

@Doctors, @Dentists, @Veterians, waiting rooms and areas…

Shops, Stores, Retailer, SME,…

Hairdresser, Barber Shops, Nail Study, Beauty or Cosmetic Center,…

ZENNER
For more safety and perfect air quality
612
CO2

ZENNER

ZENNER CO_2 INDICATOR for LoRaWAN®

Measures the CO_2 concentration in real time

ZENNER
800
CO2
For perfect working conditions

ZENNER
and aeration as required

ZENNER

For integration into LoRaWAN® networks...

ZENNER

...or stand-alone operation

ZENNER
Easy to install

ZENNER
Easy to install

ZENNER
Digital and sustainable
506
CO2

ZENNER
598
CO2
Always
reliable data

ZENNER
Smart CO_2 monitoring
514
CO2

LoRaWAN Signal Strength indicator.
Flashes when send joining request

Colored LED PPM Indicator

Range (ex works)	Evaluation	LED Farbe
< 800ppm	normal	green
800 - 999ppm	slightly increased	yellow
1.000 - 1.399ppm	high	purple
> 1.399ppm	very high	red

The measuring ranges can be set individually via LoRaWAN® downlink.

Battery Status

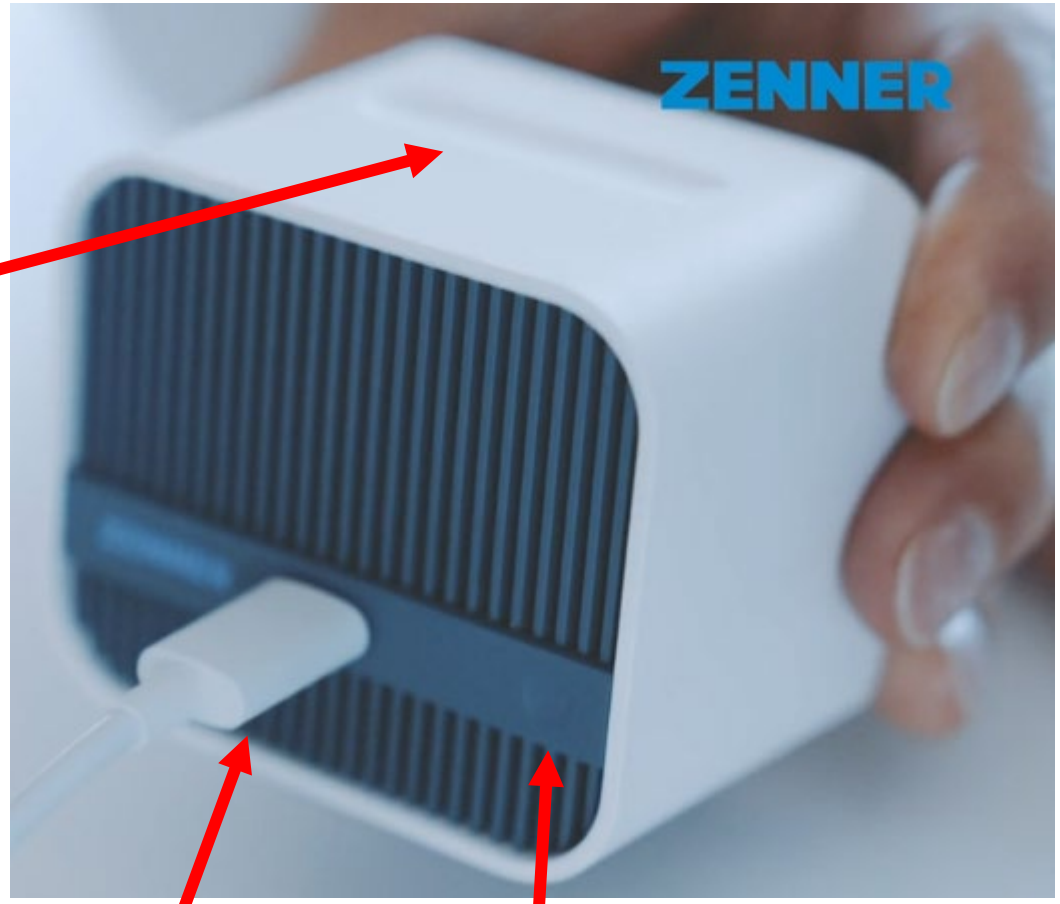
CO2 PPM in real time

Last up to 12 hours in

Energy Saving Mode when the device is being operated via the integrated battery, the display automatically switches off after 4 minutes without operation.
This saves energy and achieves a longer battery life.
The CO2 concentration can always be checked on the LED indicator during this time

Switch for re-setting sensor LoRaWAN Connection

or Callibration



- The sensor measures several times per minute and stores the current CO2 value in ppm
- After 45 minutes, the sensor sends the last three stored CO2 values via LoRaWAN®-values.
- If the measuring range is exceeded, the battery is too low or a hardware fault is detected, the sensor immediately sends a status packet.
- Historical data can be viewed and limit values set via the respective IoT platform
- Limit values can be set.

Actility - Speeds Up Digital Transformation

Shmuel Solomon

Actility

In Short

- ✓ Actility is a **world leader** in LPWAN **industrial-grade connectivity solutions** for the IoT.
- ✓ Also provides revolutionary **ultra-low TCO geolocation technologies** through its subsidiary **Abeeway.**
- ✓ Headquarters **– Paris, France / Worldwide regional offices.**
- ✓ Founded – **2010,** Employees – 130. **60% R&D and Product Managers.**

Mission

✓ Actility believes in a more efficient and sustainable world through **ubiquitous digital-twin technology.** We want to spark this transition and become the **leading global mediation** platform between cloud apps & physical world by 2023.

✓ Actility's ambition is to **put IoT at the service** of cities, citizens, industries, and communities, enabling them **to form a connected ecosystem**.

Wireless connectivity choices before LoRaWAN®

Wired

Costs & delays: only for high-end & core systems

- …costs $6 to $8 per running foot
- …takes time
- …is costly to maintain & troubleshoot

WiFi

2.4GHz has poor wall penetration & coverage + no support for macro-diversity. Suitable only for fixed-powered sensors under WiFi coverage (indoor office areas)

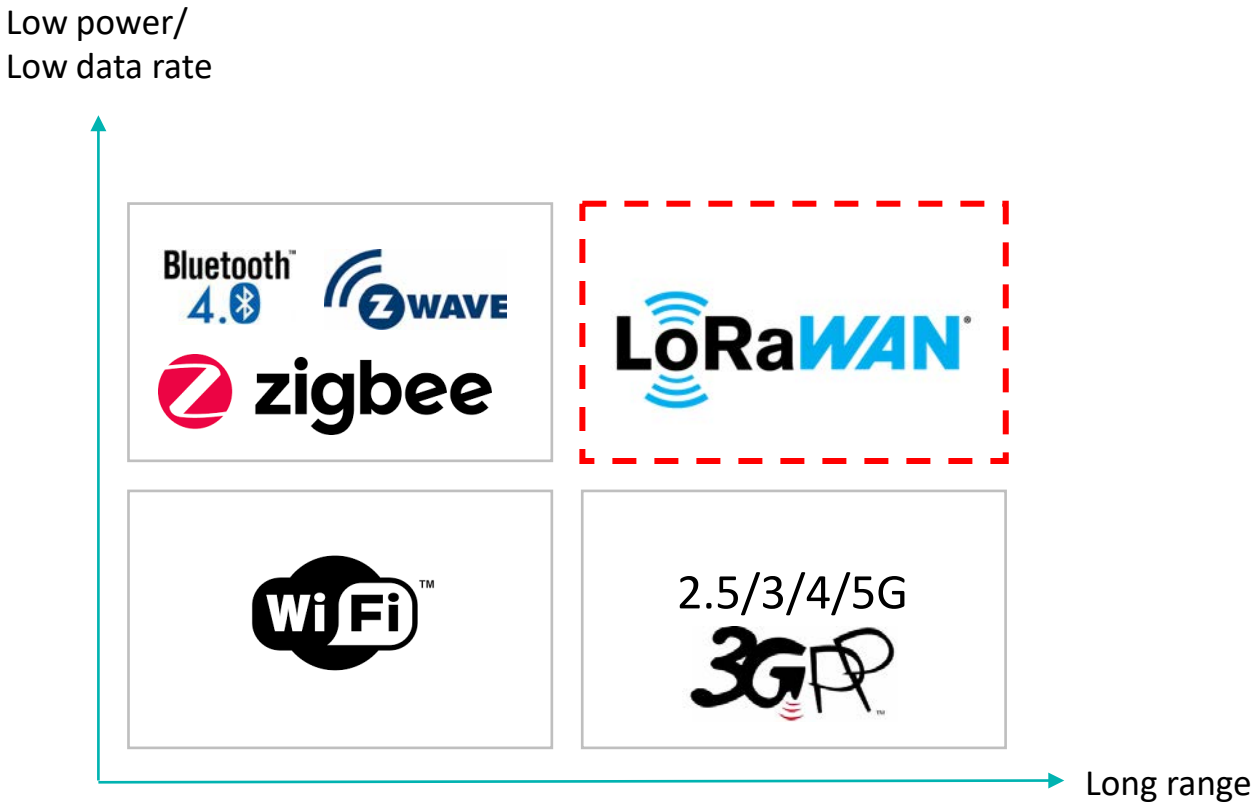
Legacy sub-GHz RF (e.g. wMbus)

Limited ecosystem, metering centric. Older generation RF layer with fixed data rate, lack of macro diversity, limited sensitivity which makes it hard to avoid dead-spots. Limited adoption also means higher prices.

Mesh (WirelessHART)

Suitable for fixed indoor assets only: meshed networks relay positions are engineered to reach fixed devices

Low-Power & Long-Range



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LoRaWAN – A Leading Choice For Indoor Air Quality

Coverage
- ✓ **5-15 km range**
- ✓ Deep indoor
- ✓ Star network
- ✓ **Bidirectional communication**

Cost
- ✓ **Minimal infrastructure**
- ✓ **License-free spectrum (ISM band)**
- ✓ **Low power consumption**
- ✓ 10+ years battery life

Eco-System
- ✓ **Availability of end-products to ensure ROI of network deployment**
- ✓ Strong ecosystem to ensure quality and longevity of the solution

Security
- ✓ **Secured communication protocol**
- ✓ Two layers of security: one for the network and one for the application
- ✓ AES encryption is used with key exchanges

Usage
- ✓ Any NW - Public & private, Satellite
- ✓ Network scalability
- ✓ **Easy to install, simple to operate and do not rely on wires**

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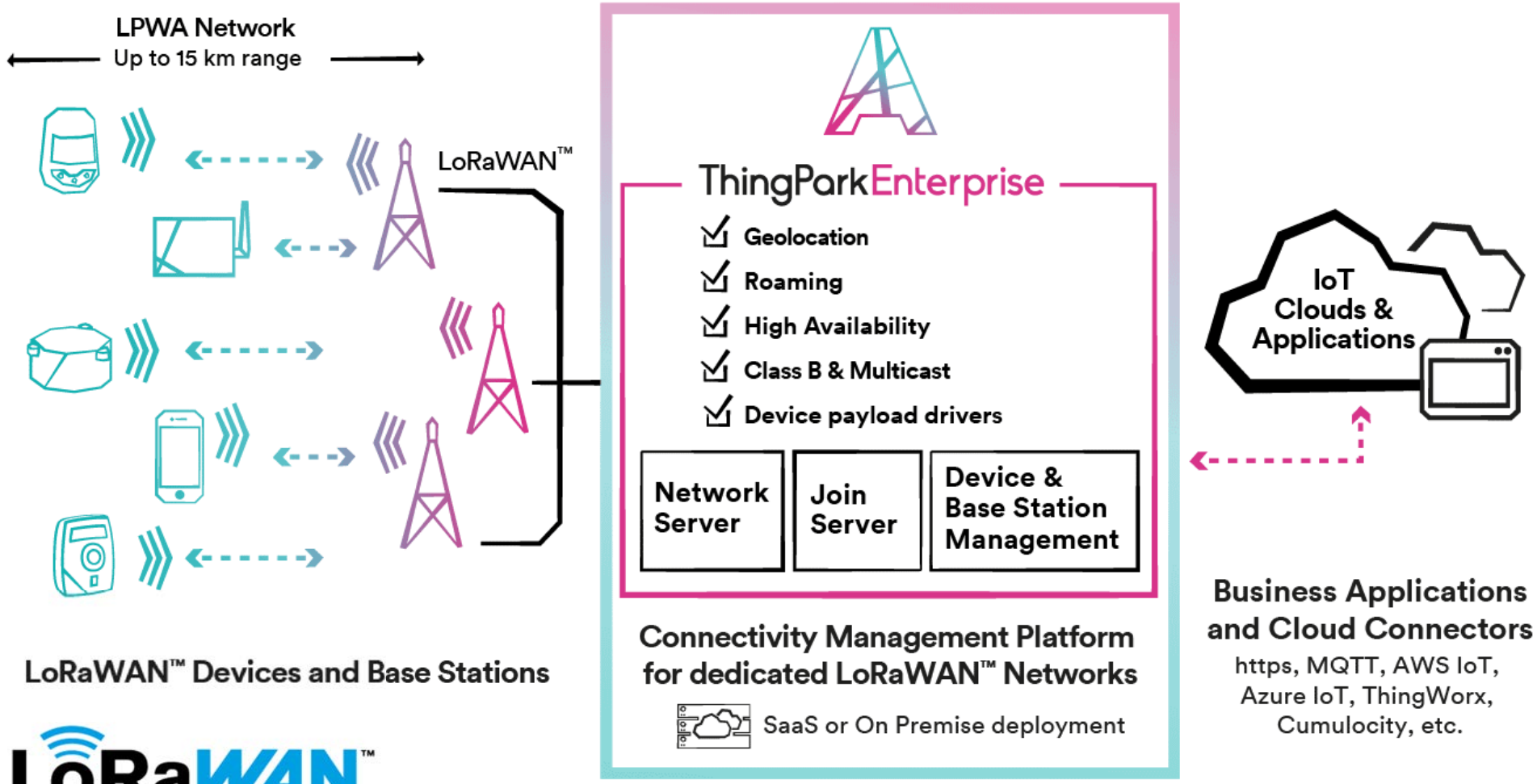
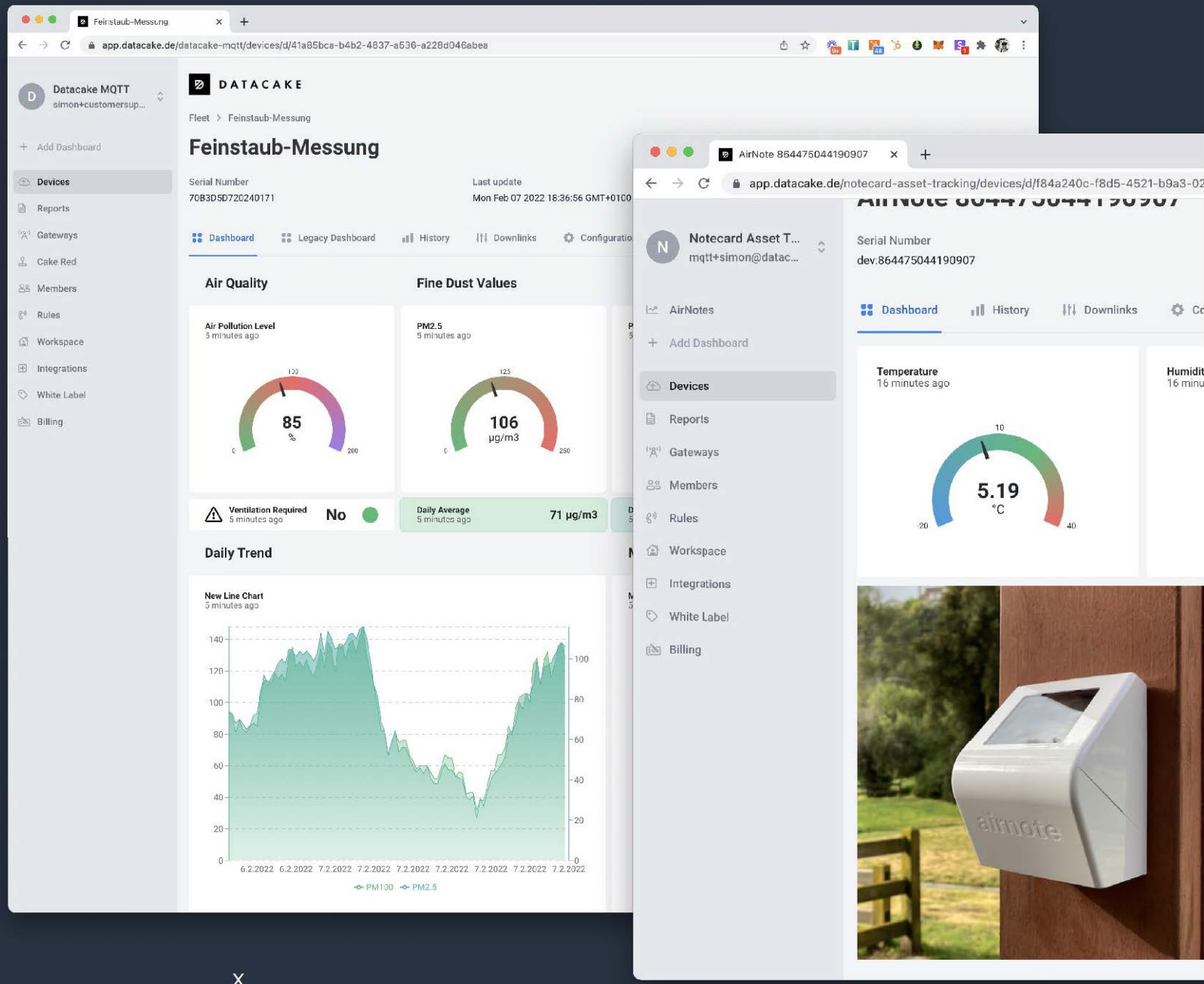
ThingPark Enterprise powers industrial grade LoRaWAN™ Networks



Datacake

Datacake is a multi-purpose, low-code IoT platform that requires no programming skills and minimal time to create custom IoT applications that can be brought into a white label IoT solution at the push of a button.

- ✅ Low Code IoT Platform
- ✅ 12k Users in 30+ Countries
- ✅ Among the Top 10 IoT platforms



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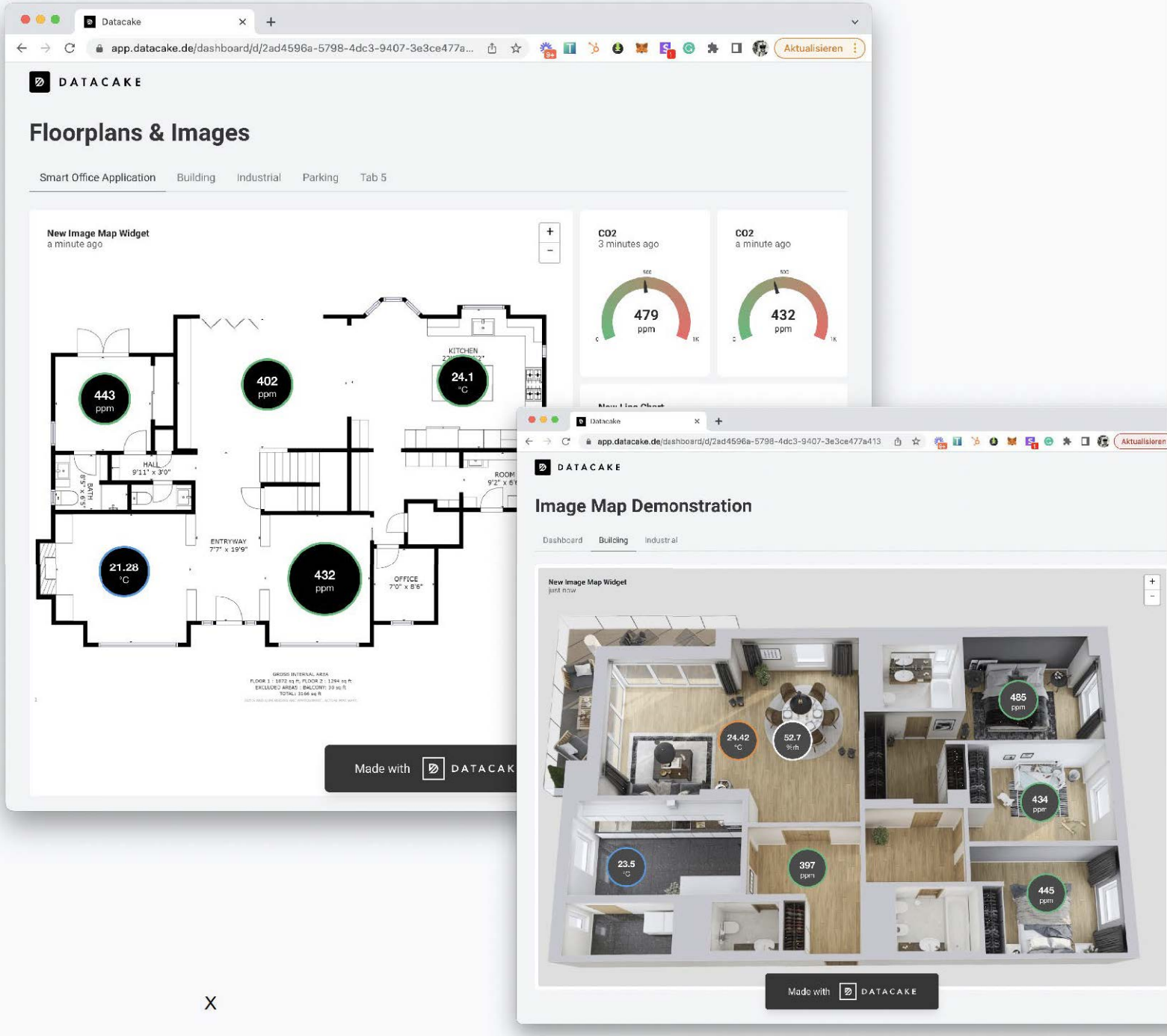
Build IoT **Indoor CO2** Monitoring Solutions

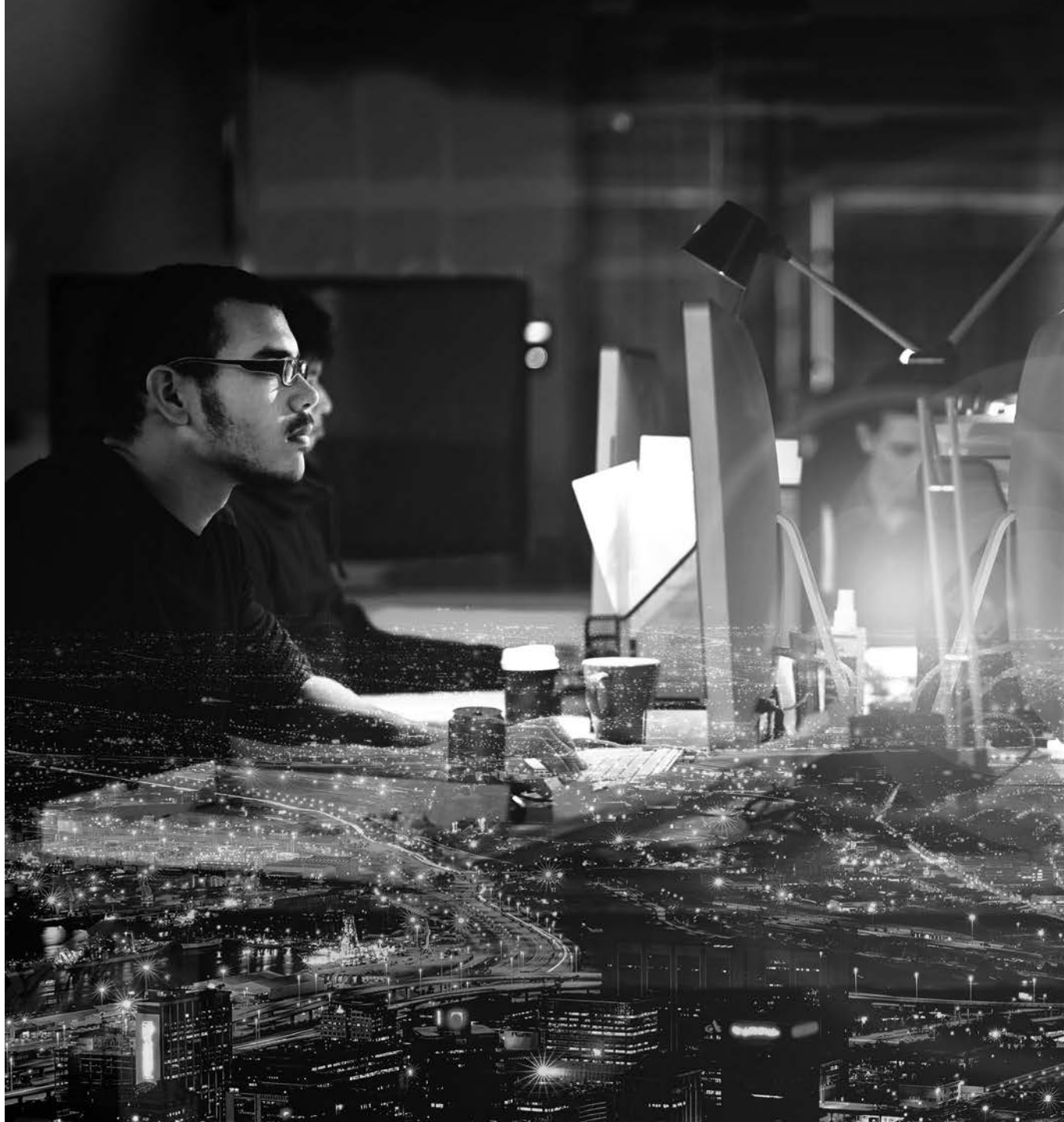
With the Datacake platform you get a complete visualization and customer management tool for your business. Fully compatible with the Actility LNS and Zenner CO2 sensors, it offers you a perfect start into indoor IoT CO2 monitoring.

- ✅ **Upload custom building floor plans**
- ✅ **SMS and email alert for critical values**
- ✅ **Customer and building management**
- ✅ **Create and share dashboards for your customers**

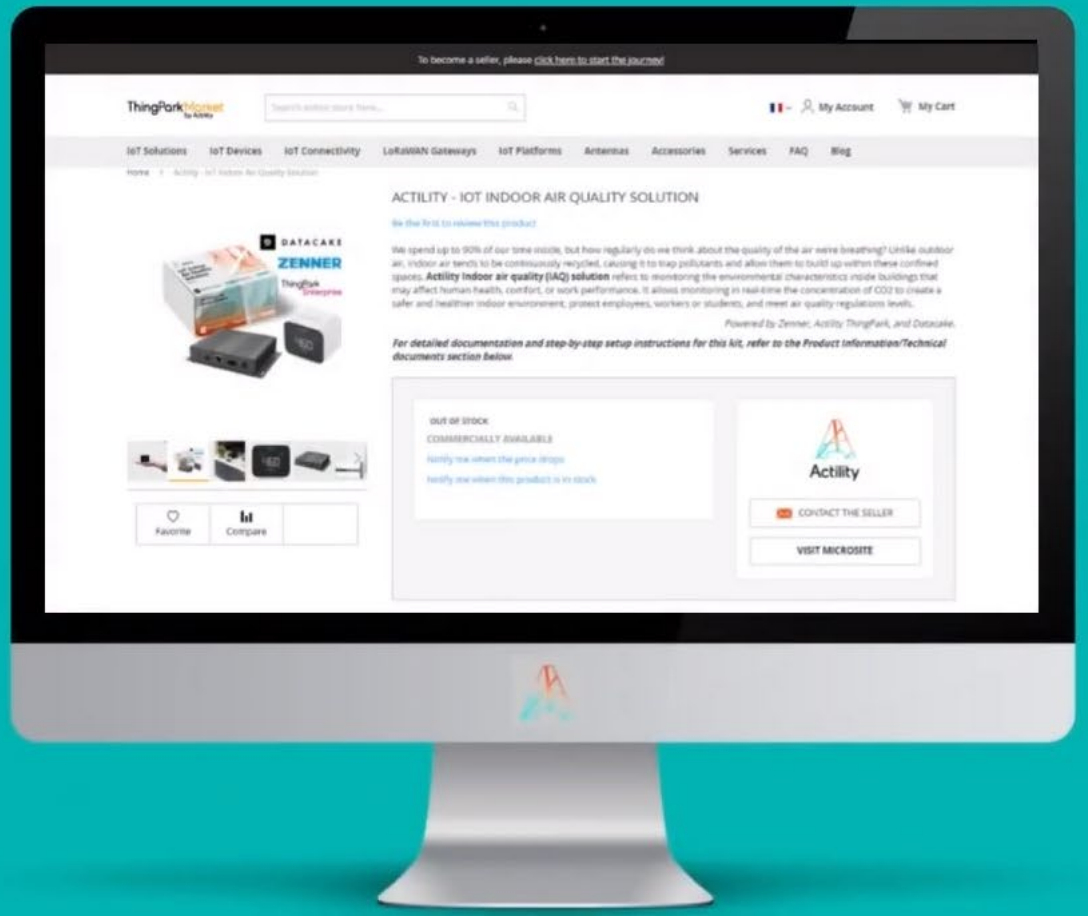


Q&A

Simon Kemper
Stöckermann Boris
Shmuel Solomon

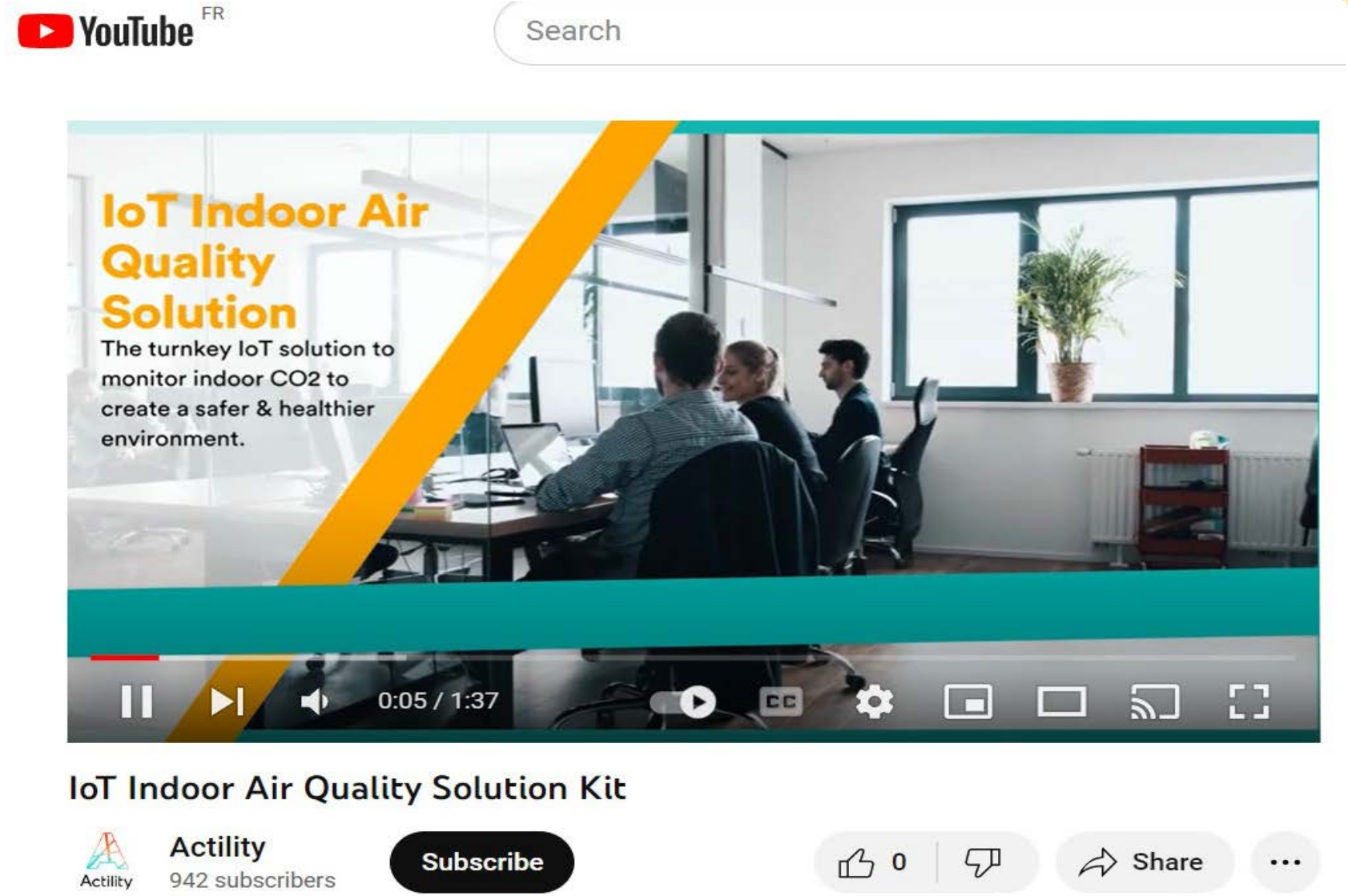


Buy this IoT solution on ThingPark Market!



Scan & buy!

Click Me – and learn the entire solution in a 1:37 min video



Q&A

Questions and Answers

Thank You!

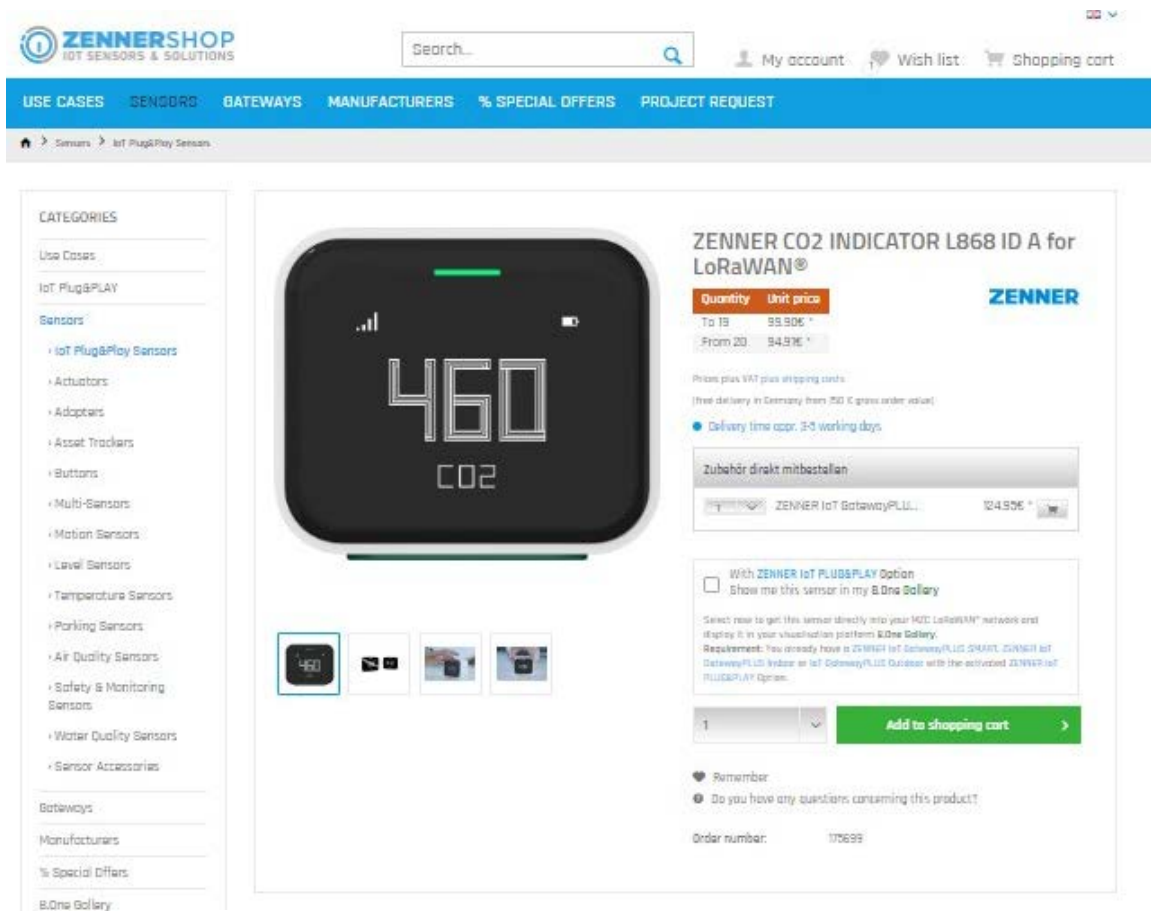
Continue the discussion and contact Datacake, Zenner and Actility

Technical and commercial experts directly at:

Simon Kemper simon@datacake.de

Stöckermann Boris boris.stoeckermann@minol.com

Shmuel Solomon shmuel.solomon@actility.com



ZENNER CO2 INDICATOR L868 ID A for LoRaWAN®

The ZENNER CO_2 INDICATOR is a compact indoor LoRaWAN® radio sensor (868MHz) for measuring the CO_2 content of indoor air. This product uses the photoacoustic principle to detect the CO_2 concentration (ppm) in real time, enabling more efficient ventilation behaviour and faster response time. With the integrated display and the colour-changing LED display, the sensor always provides real-time information about the current CO_2 value, the battery level and the status of the LoRaWAN® connection. An optimal stationary and mobile companion in the company, at the workplace, in the meeting room at a meeting or in the canteen. It can be placed on any flat surface. In addition, the device can also be used "stand alone", i.e. without a LoRaWAN® connection, e.g. at a meeting outside the company, when visiting a customer or a restaurant outside the range of the LoRaWAN® network. Without LoRaWAN® connection, however, no remote monitoring or alarming can take place. The CO_2 limits can be set individually by radio command (downlink). The device can be operated with the integrated rechargeable battery or permanently powered by a standard USB-A power supply unit 5V. Please note that only the USB-A to USB-C charging cable is included, a power supply unit is also required.

NOW NEW OPTIONAL with ZENNER IoT PLUG&PLAY:

Simply select the **ZENNER IoT PLUG&PLAY Option** by clicking on the selection box. Selecting the function ensures that your purchased **ZENNER CO_2 Indicator** is directly created in the **MZC LoRaWAN®-Netz EUROPE** and automatically added to your **B.One Gallery** visualisation platform. Without manual configuration, setup and authentication. **Prerequisite for visualisation:** You already have a ZENNER IoT GatewayPLUS SMART, ZENNER IoT GatewayPLUS Indoor or Outdoor with the IoT PLUG&PLAY Option selected in use.

Order, plug in, switch on and view the sensor data in your **B.One Gallery**. See the measurement data, actions and progressions of your sensor directly there. Design and view your graphics, charts and reports. Create graphical reports of your data and share them with your colleagues, partners, customers or service providers simply via WebLink. The reports can be updated and the recipients only need a web browser.

NOW NEW also available and expandable within the Actility ZENNER DataCake Starterkit on ThingPARK.

Download CO2 Sensor Actility ZENNER Datacake Bundle

Link to ThingPARK Actility ZENNER DataCake AirQuality Solution

ZENNERSHOP
CO2 Sensor Page

ZENNERSHOP
CO2 Sensor Page

Product Features

- Modern design
- Display with CO_2 indication (ppm) as well as quality of LoRaWAN connection and battery status
- LED traffic light
- Integrated battery
- Configuration Over the Air (OTA)

Evaluation of the CO2 measured values

Range (ex works)	Evaluation	LED Farbe
< 800ppm	normal	green
800 – 999ppm	slightly increased	yellow
1.000 – 1.399ppm	high	purple
> 1.399ppm	very high	red

The measuring ranges can be set individually via LoRaWAN® downlink.

Specifications

Model	CO2 INDICATOR L868 ID A
Weight	115g
Size	63,6 x 46,0 x 54,6mm
Display Size	59,9 x 49,9mm
LoRaWAN®	Klasse A
Frequency	863 – 870MHz
Transmit Power	max. 14dBm
Battery	2.000mAh
Power Input	5V= 1A (Hinweis: im Lieferumfang ist kein Netzteil enthalten)
Operating Temperature	0 – 40°C
Operating Humidity	0 – 99%rH (nicht kondensierende Umgebung)
CO_2 Measuring Range	400 – 9.999ppm
Accuracy of	400 – 2.000ppm --> ±50ppm
Accuracy of	2.000 – 9.999ppm --> no guarantee

ZENNERSHOP
CO2 Sensor Page

RELATED LINKS TO "ZENNER CO2 INDICATOR L868 ID A FOR LORAWAN®"

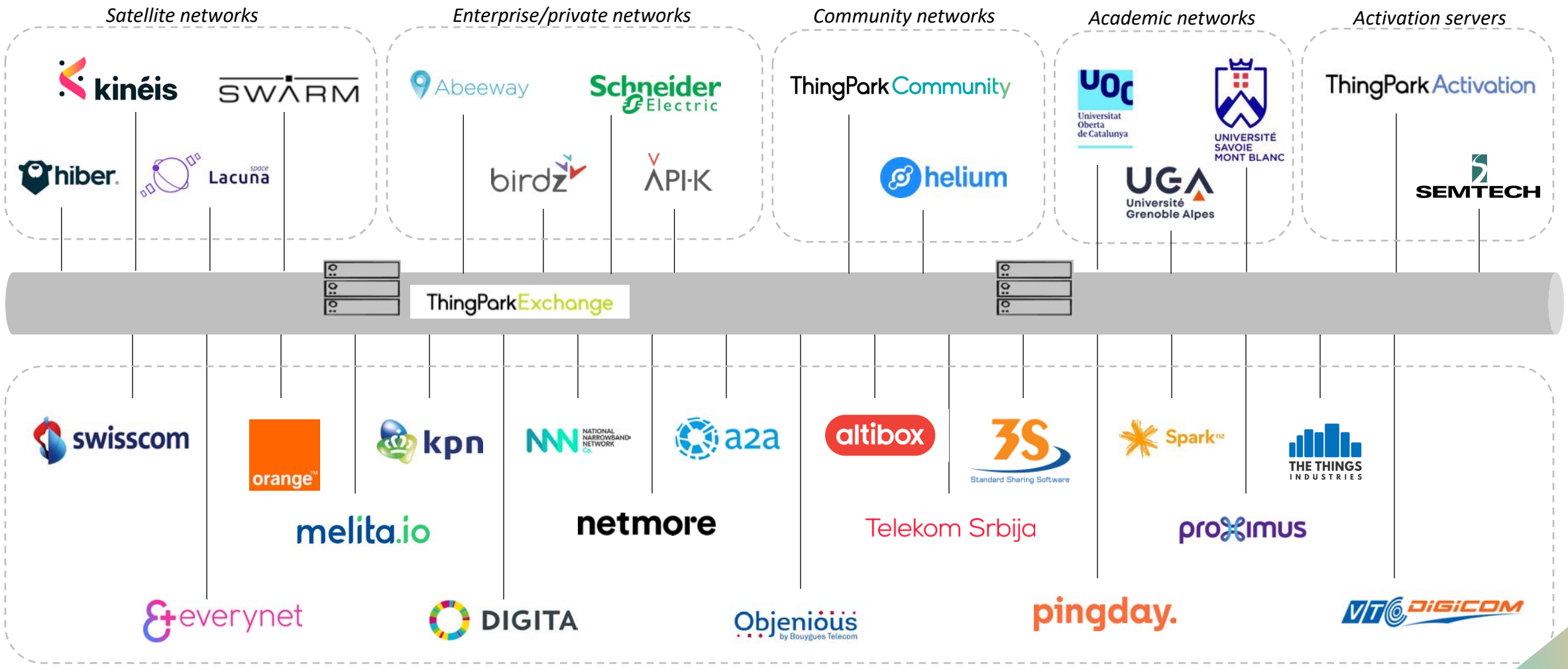
- Do you have any questions concerning this product?
- Werde Mitglied in der B.One Community
- Blogbeitrag Gesundes Raumklima mit ZENNER CO2-Indicator - Grundlagen & Sensorik
- Blogbeitrag Gesundes Raumklima mit ZENNER CO2-Indicator - Anbindung IoT-Plattform
- LINK to ThingPARK Actility ZENNER DataCake AirQuality Solution
- Further products by ZENNER

AVAILABLE DOWNLOADS:

- Download Konformitätserklärung / Declaration of Conformity
- Download Bedienungsanleitung / User Manual ZENNER CO2 INDICATOR
- Download Datenblatt/Datasheet ZENNER CO2 Indicator deutsch
- Download Datenblatt/Datasheet ZENNER CO2 Indicator english
- Download CO2 Sensor in Actility ZENNER Datacake Bundle

https://market.thingpark.com/actility-iot-indoor-air-quality-solution.html

LPWAN Backbone – Towards Everywhere Massive IoT



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