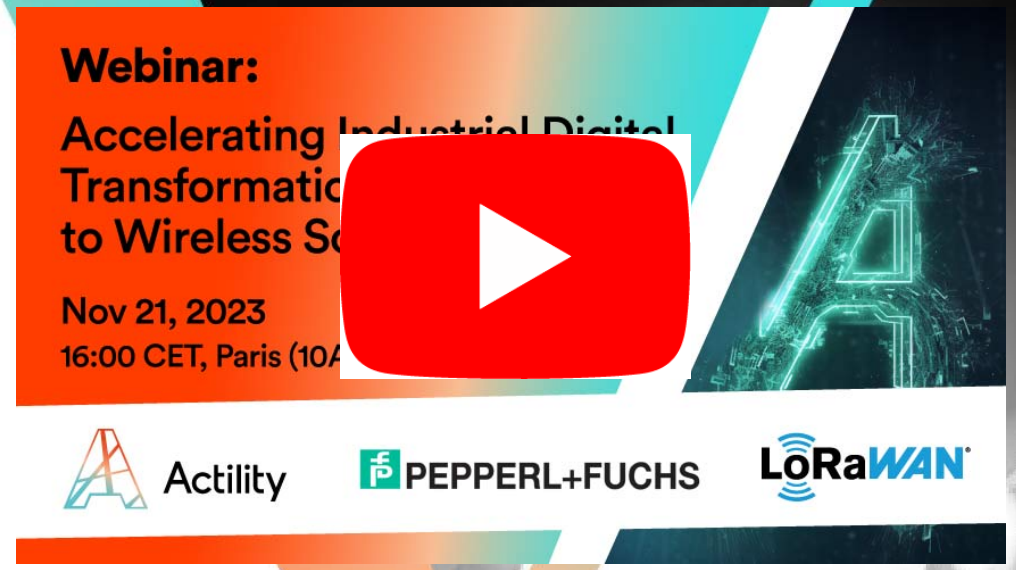
Pepperl-Fuchs – Actility Webinar Accelerating Industrial Digital Transformation, From Cabled to Wireless Solutions



Building Industrial grade ready to use solutions with LoRaWAN

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Ready to use solution – scan me

Webinar:

Accelerating Industrial Digital Transformation, From Wired to Wireless Soluti

Nov 21, 2023

16:00 CET, Paris (10AM ET, New York)

Actility

PEPPERL+FUCHS

LoRaWAN®

Agenda

- Grid monitoring – Technology in the use of smart cities
- The Pepperl+Fuchs story
- Sensors Technologies
- Achieve more with the WILSEN solution
- Actility
- Digital transformation technology challenges and solutions
- Connecting the dots

Accelerating Industrial Digital Transformation, From Wired to Wireless Solutions

Daniel Moest
Edon Sequeira

21.11.2023

Your automation, our passion.

Actility

PEPPERL+FUCHS

Grid monitoring

Stadtwerke Gießen AG

Challenge:

- Leaves and branches get stuck in the grid in front of a culvert. The grid is blocked.
- The water level rises. Flooding occurs.
- Previous solution: an employee has to go to site once a week and check the situation. Also after every heavy rain event.

Grid monitoring

Stadtwerke Gießen AG

Solution:

- Installation of the WILSEN.sonic.level from Pepperl+Fuchs.
- The ultrasonic sensor detects when branches and foliage get stuck in the grid.
- Sending Data via LoRaWAN to ThingPark platform of Actility.
- Thanks to a dashboard, customer can check the status remotely.
- System saves time and money. More sustainable.

Pepperl+Fuchs at a Glance

One Company | Unlimited Solutions

7,100
EMPLOYEES
around the world to assist with all your needs

6
MANUFACTURING LOCATIONS

Unlimited
POSSIBLE SOLUTIONS
offered by our experts around the world

80
LOCAL OFFICES
on six continents

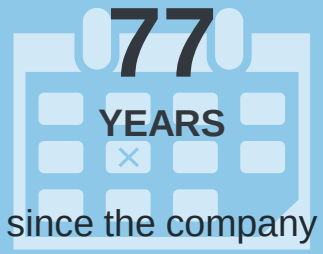
50,000
PRODUCTS
available to solve all your application needs

3
HEADQUARTERS
in Europe, the USA, and Asia

1,010
MILLION €
Revenue

2
FOUNDER FAMILIES
privately own 100 % of the company

1
COMPANY
that solves every challenge

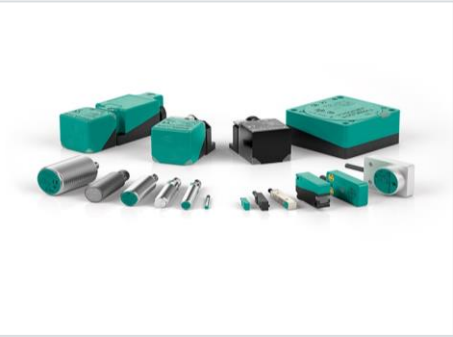


77
YEARS
since the company was founded in Mannheim, Germany

600+
ENGINEERS
developing tomorrow's solutions today

Technology Range

Factory Automation Division

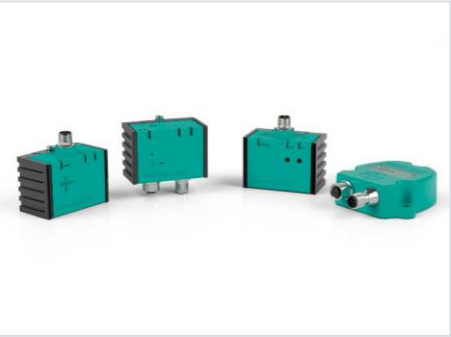


Proximity Sensors

Photoelectric Sensors

Vision Sensors

Ultrasonic Sensors



Inclination Sensors

Rotary Encoders

Positioning Systems

RFID Systems

Industrial Communication

Connectivity

2014: How it all started!

GSM™

Evolution: Sensor technology for stand-alone applications

From special ultrasonic sensor with PTFE protective film…

…via the housed prototype with further functional modules…

…to the final product available today.

At a glance: portfolio WILSEN.sonic

WILSEN.sonic.level
→ Fill level measurement (e.g. containers)

Distance | % Level | Geo position | Temperature | Battery level

WILSEN.sonic.distance
→ Water level measurement (e.g. lake)

Distance | Amplitude | Geo position | Temperature | Battery level

150 … 2500 mm

250 … 4000 mm

500 … 7000 mm

Battery lifetime 10 years under Central European environmental conditions,
3 measurements and 3 wireless transmission per day with sufficient network coverage.

Smart Waste, City of Freiburg

badenovaNETZE GmbH

- Level monitoring of glass containers and underfloor containers in the city of Freiburg (Germany)
- 100 containers were equipped with WILSEN sensors
- Emptying of containers according to actual demand → the customer can save one garbage truck (~700€ a day)

Smart Waste, City of Freiburg

badenovaNETZE GmbH

Short movie about the project (in German): https://www.youtube.com/watch?v=FFd92CeWtyk

Smart Waste, Industrial environment

Mercedes-Benz AG

- Level monitoring of containers within the production areas
- Containers were equipped with WILSEN sensors → filling level and position of the containers in the factory
- Emptying of the containers according to actual demand → Increase of efficiency and transparency. Saving of costs.

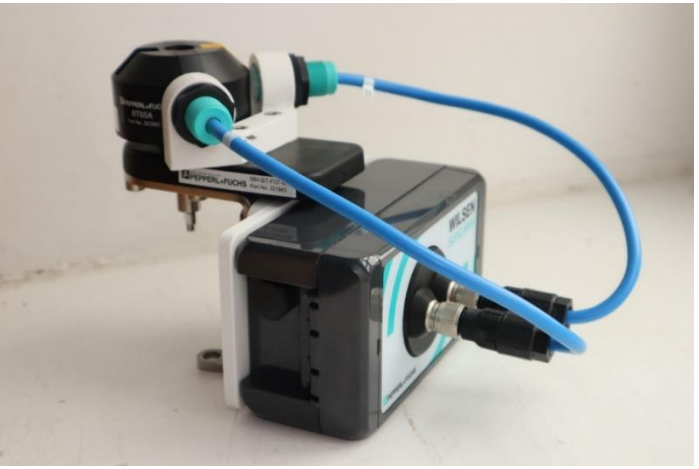
WILSEN series

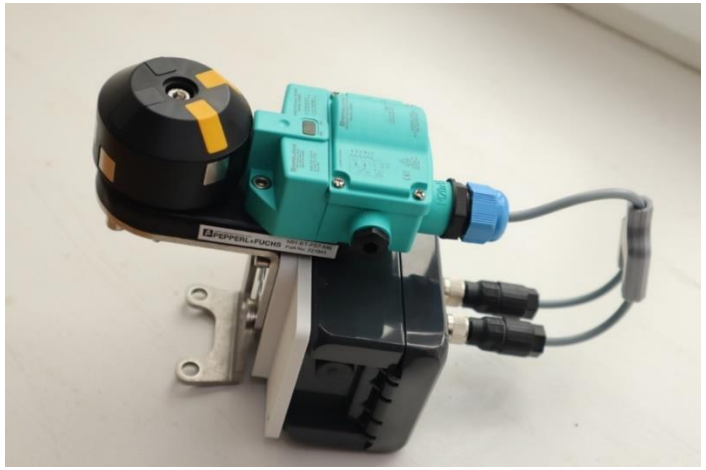
Planning for 2023

WILSEN.valve

→ Monitoring the valve position (open / closed / undefined) by connecting inductive low-power sensors

→ Different designs available





WILSEN series

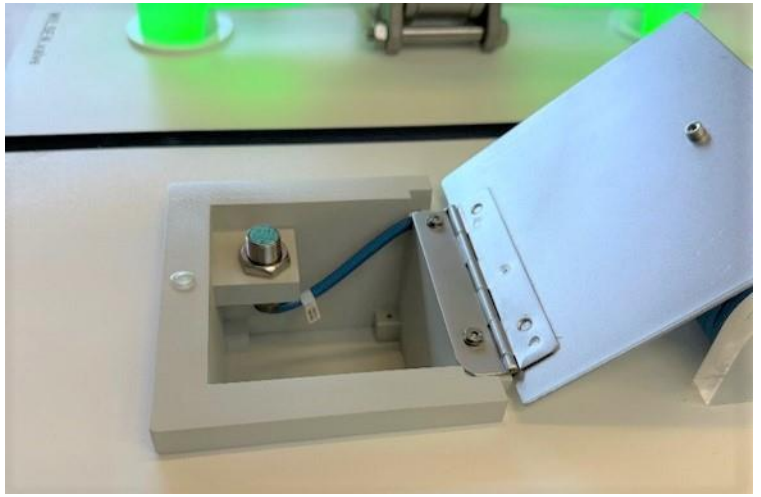
Planning for 2023

WILSEN.node

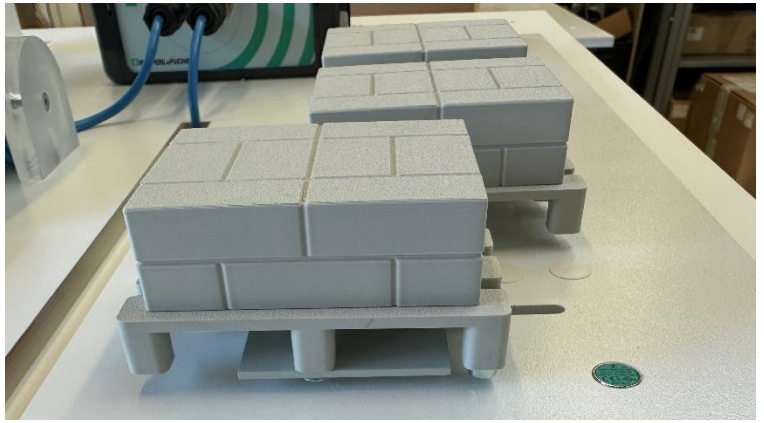
→ Connection of inductive/capacitive low-power sensors (cable length up to 10m) for various tasks

→ Wide range of sensors available

Application examples



Inductive sensor: Checking the manhole cover open/closed



Capacitive sensor: Check pallet space free/occupied

Smart Level Monitoring

Ready-to-use solution by Actility / Pepperl+Fuchs / Akenza

More details:
https://market.thingpark.com/actility-pepperl-fuchs-waste-water-fill-level-management.html

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Your automation, our passion.

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Building Industrial grade ready to use solutions with LoRaWAN

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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**.

Industry : High-Level Challenges

Retrofit

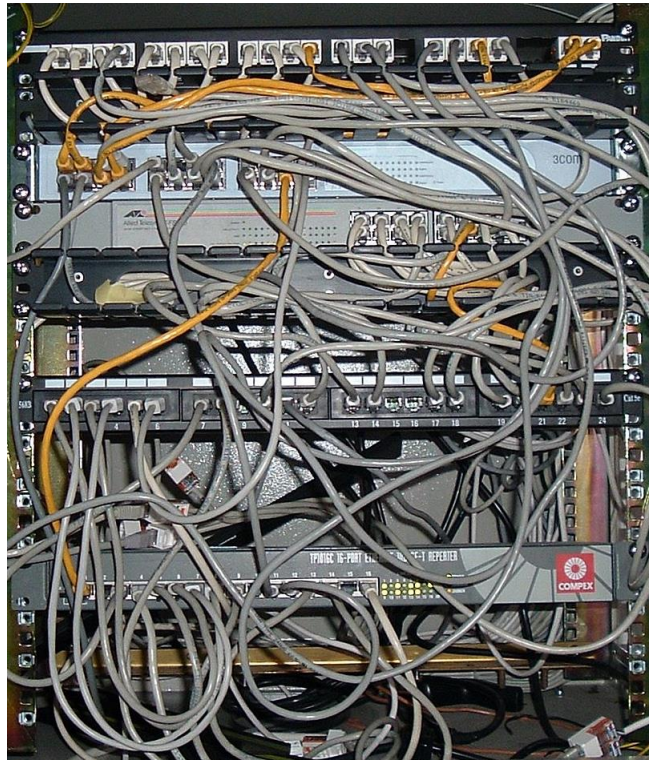
Wiring costs and delays are a major hurdle for most digital transformation projects

Power

Most sensors, meters and I/Os to monitor are not powered

Legacy

The vast majority of legacy digital interfaces were designed for wired serial communication (RS485, ModBus®…)



Wireless Connectivity Choices – Does it Solves My Problem?

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

Low power/
Low data rate

Bluetooth 4.0 | Z-WAVE | zigbee

LoRaWAN

Wi Fi

2.5/3/4/5G 3GPP

Long range

Actility

LoRaWAN – A Leading Choice For Digital Transformation

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**

Actility

Industry Experts Tell Us

A west European distributor partner tells us "**Your digital transformation strategy has been a game-changer** for me.

"Radio technology enables us to be 10 times less expensive than a cabled solution. Projects are shortened by a factor of x3."

"Radio sensor manual installation costs +400 Euros, installation of cabled sensor + cables + related OPEX is 3x more costly."

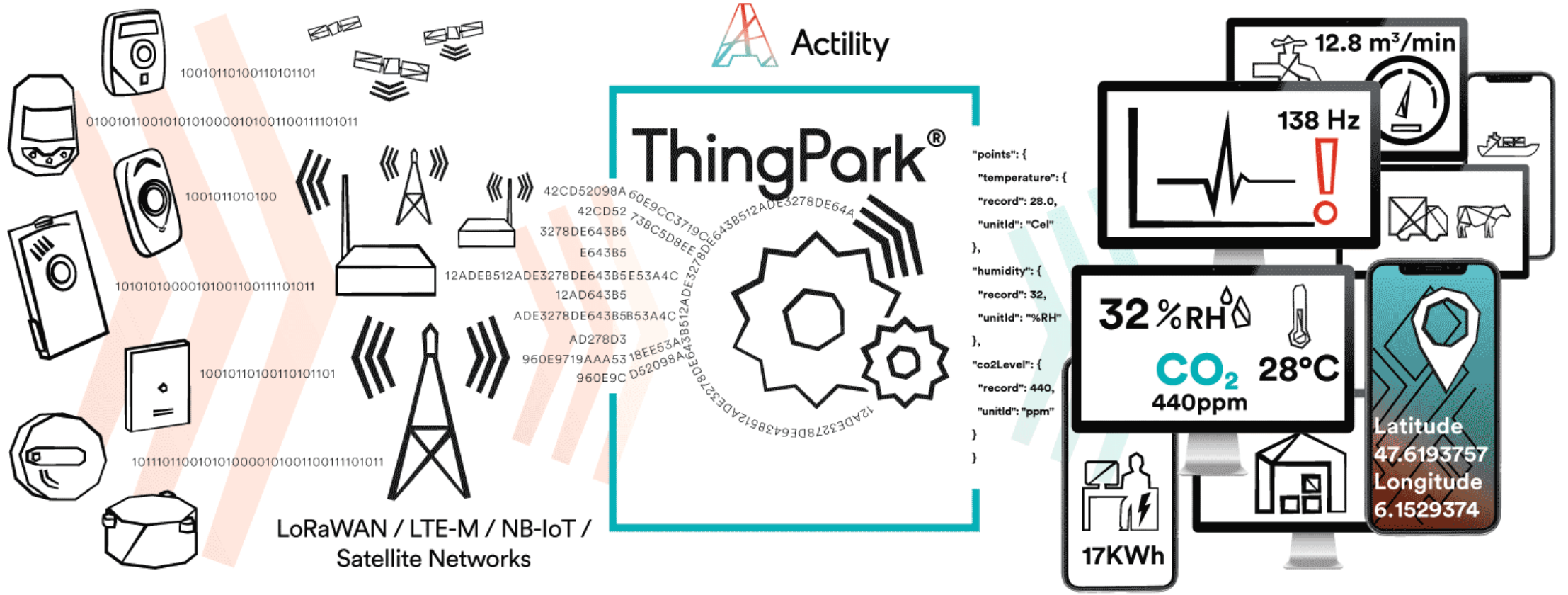
"For the industry, typical digital projects requires hard ROI. Connectivity subscription license enables a quick ROI."

"Operate solutions requires knowledge. LoRa makes it understandable and project management even becomes much easier."

"Prevention is a key pain. Industry experts look for failures and transform them to spent money. One prevention is sufficient to cover yearly costs."

With LoRaWAN we are open and can scale to future solutions. You inject the information to your supervision, you own the data, you manage 3-4 sites in a unified way."

ThingPark Enterprise Powers Industrial Grade Wireless Networks



Sensors, Devices and Gateways

LoRaWAN NB-IoT LTE-M OnGo alliance LTE

IoT Mediation Platform

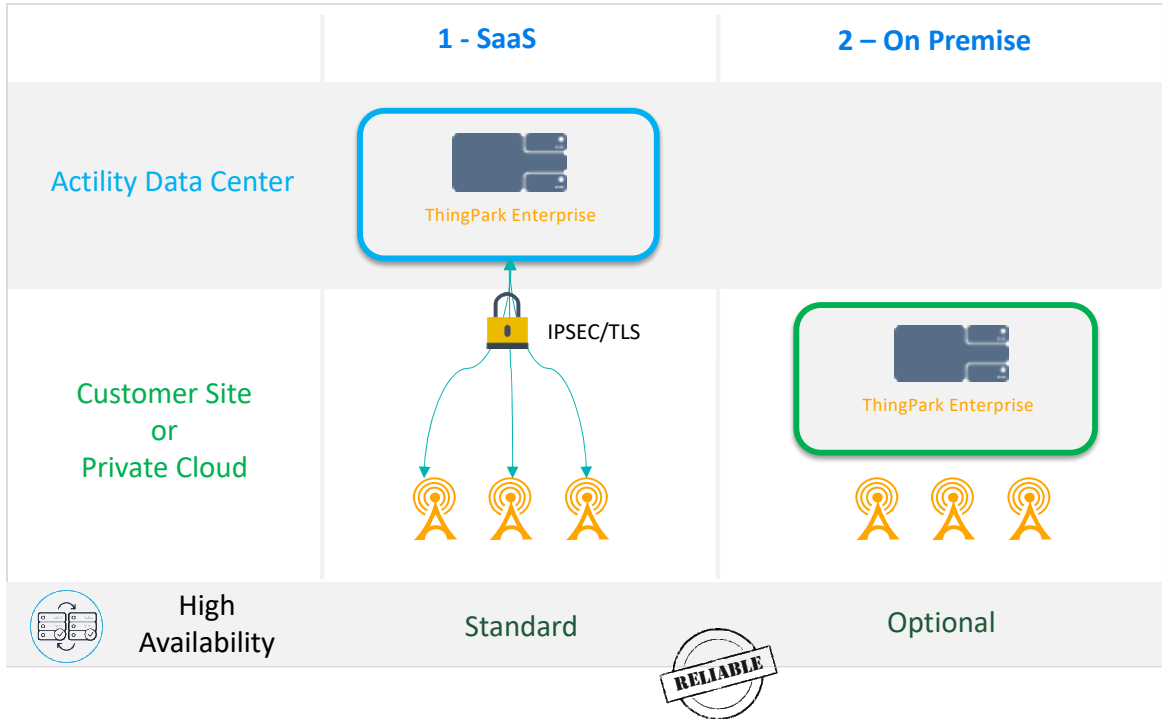
Public and dedicated private network infrastructure controller, service enabler, devices & data management

Business Applications & Cloud Connectors

Vertical apps and Azure IoT Central, AWS IoT, Cumulocity, Thingworx etc.

Industrial IoT requires multiple deployment options

Various deployment models…

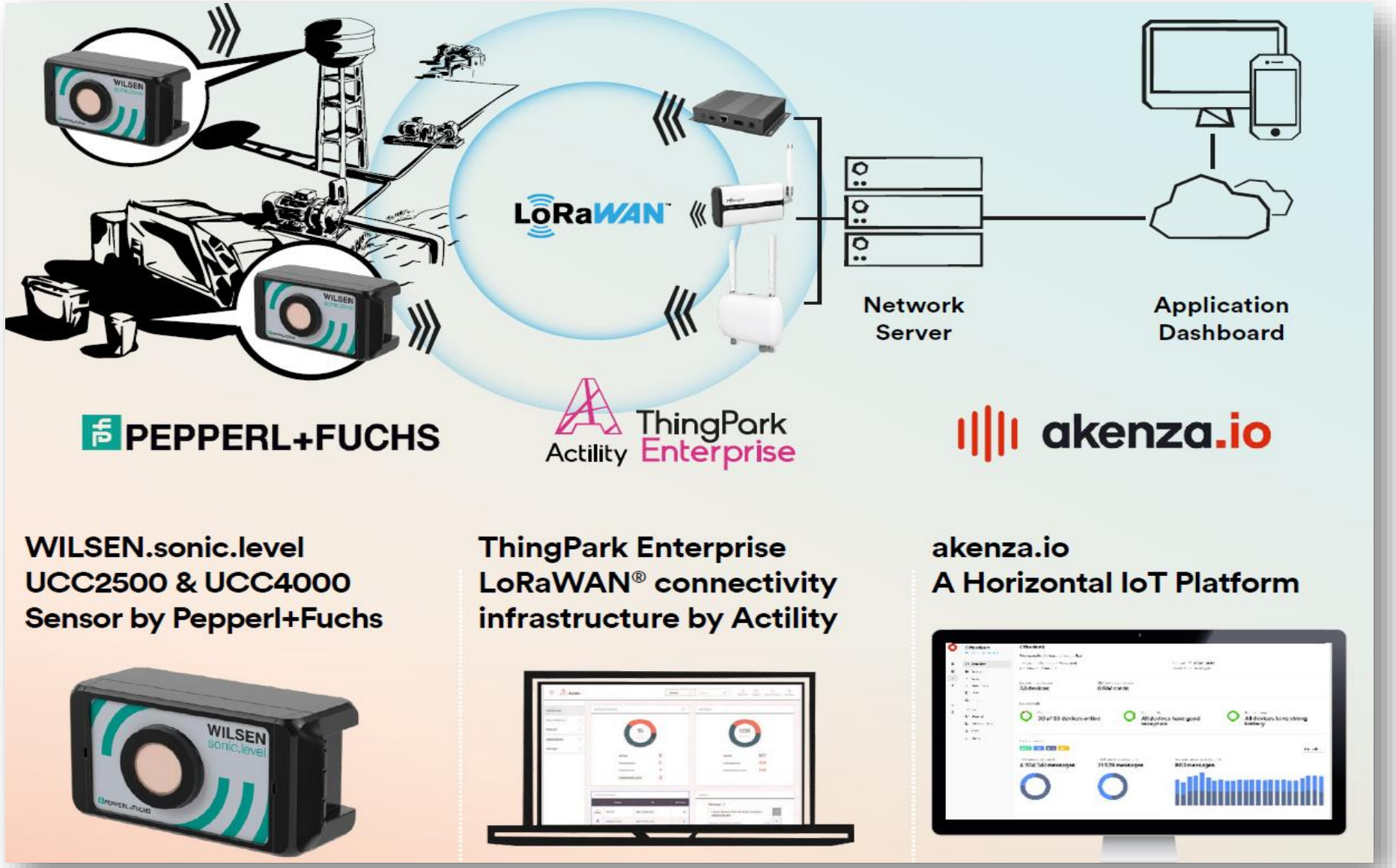


… including private cloud deployments

Industrial PC with pre-installed trial version of ThingPark Enterprise On Premise

- Based on Advantech UNO-2484G Industrial PC
- Support up to 10GW and 2000 Sensors
- Connectivity Server is pre-installed

Powering Ready To Use Industrial Solutions



Actility
Connecting with intelligence

Thank You

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Ready to use solution – Scan me

Q&A

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