Products and solutions from the topic

Data collection

Why data collection?

Acquiring information

Better decision-making: Data collection provides information that helps you make better, informed decisions.

Analyzing trends: Data reveals patterns and trends that are useful for strategic planning or adjustments.

Increased efficiency

Automation of processes: Digitization and automatic data collection can reduce the amount of manual work.

Time savings: Automatic data collection saves time that would otherwise be spent on manual data entry.

Traceability and transparency

Process optimization: Captured data can be used to optimize and improve processes.

Audit and compliance: Data ensures traceability and can help to meet regulatory requirements.
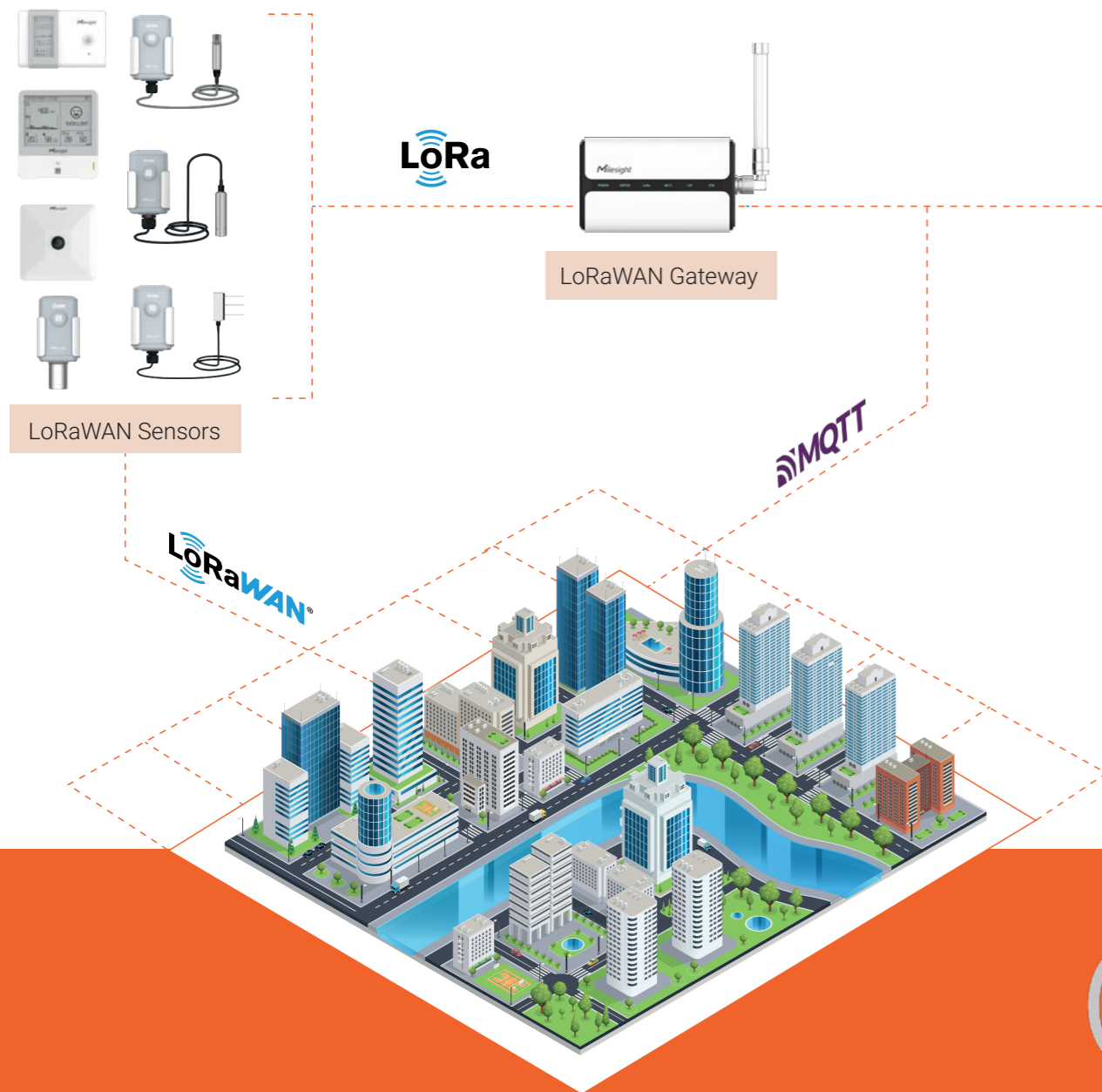
Cost reduction

More efficient use of resources: Data shows where resources are being wasted and helps to use them more efficiently.

Simplification of tasks: The processed information in combination with an intelligent platform can be used to outsource tasks.
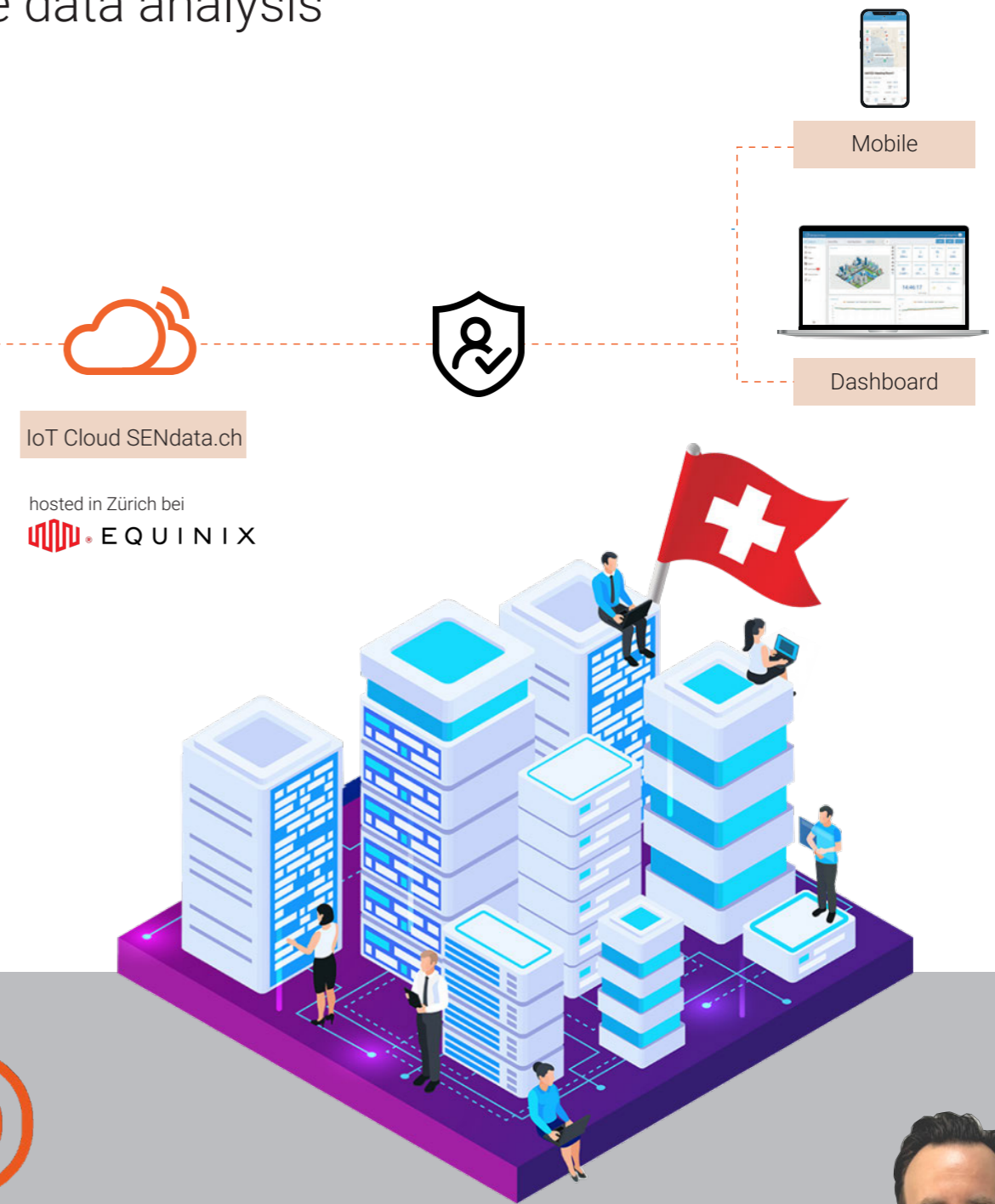
IoT COMPLETE SOLUTION
The Data collection

LoRa

LoRaWAN Gateway

LoRaWAN Sensors

MQTT

LoRaWAN

IoT COMPLETE SOLUTION
The data analysis

Mobile

Dashboard

IoT Cloud SENdata.ch

hosted in Zürich bei

EQUINIX

Our combination of battery-powered data acquisition and further processing on our own IoT platform provides you with a complete solution for your needs. Our platform enables seamless integration of sensors and gives you full control over the data collected. The user-friendly interface gives you a clear overview of all the relevant information, while powerful analysis tools help you gain valuable insights into your processes.

This allows you to fully exploit the data collected and make informed, data-based decisions!

Do I need programming skills or a technical background??

No, you don't!

Thanks to our all-round carefree package, we work with you to develop the view of the platform, add all devices and pair them with the corresponding gateway. You just have to attach the sensors to the desired location and the system gets started!
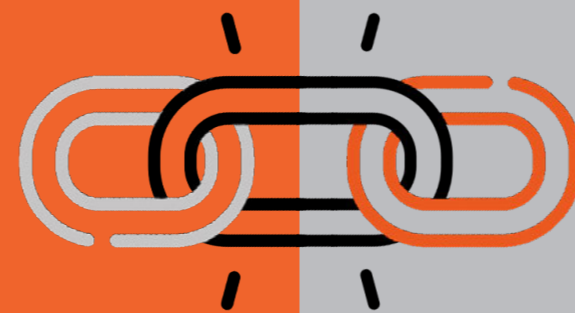
Record energy consumption

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Reducing energy costs is a good way for many companies to save money. Energy consumption varies by industry and each company has its own specific energy guzzlers.
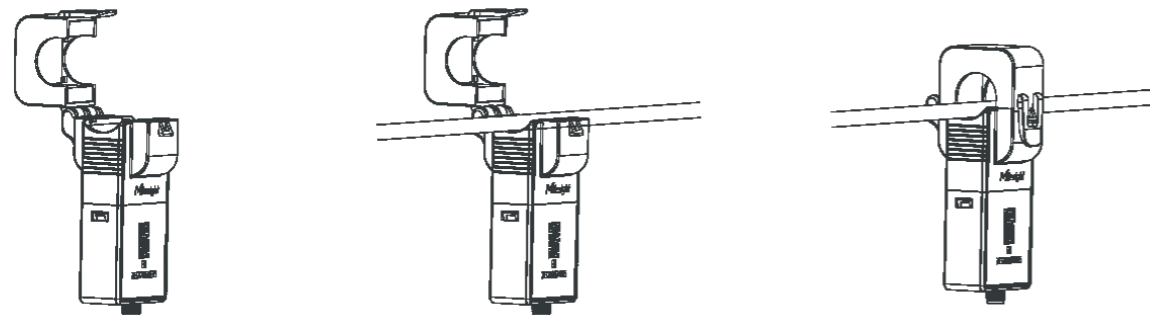
What can be captured:

Current consumption, energy consumption

⚡100A CT101
⚡250A CT103
⚡500A
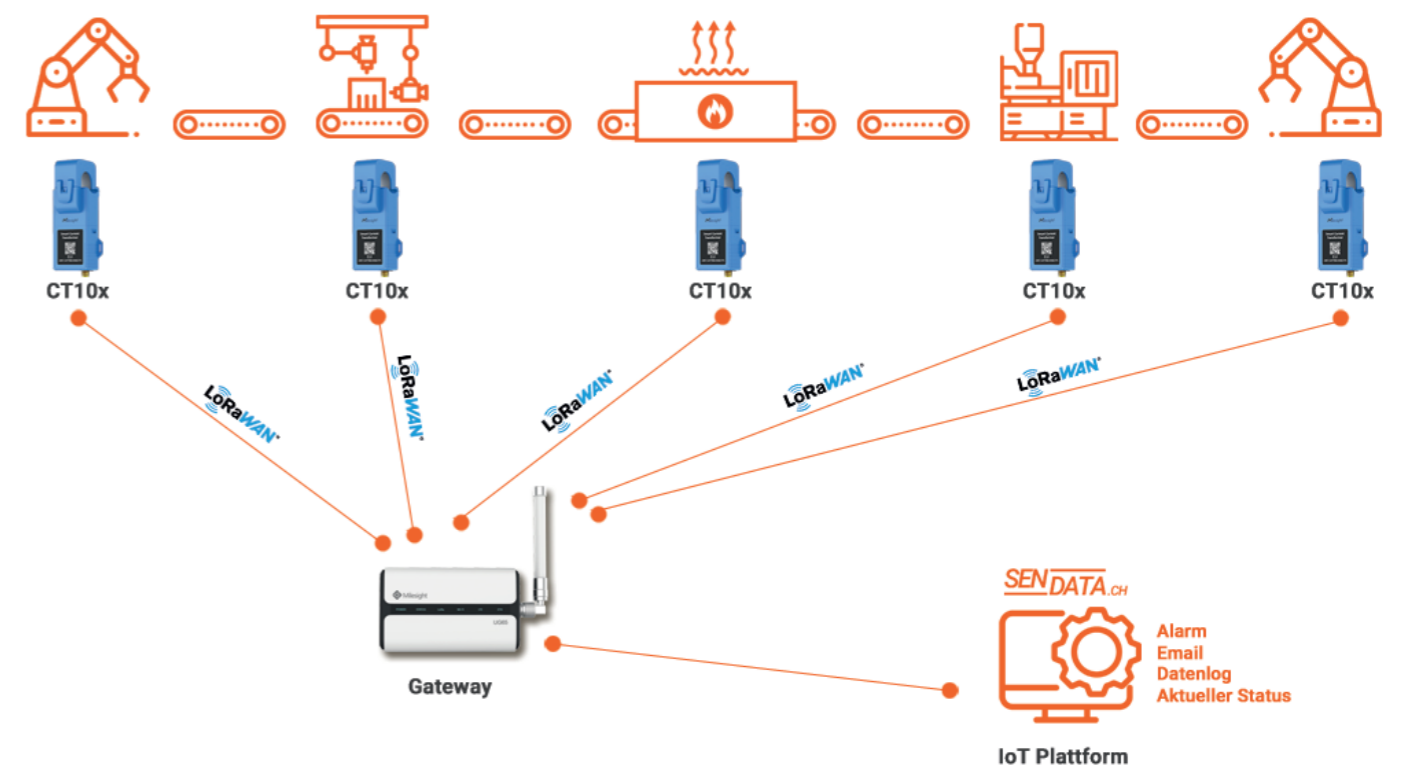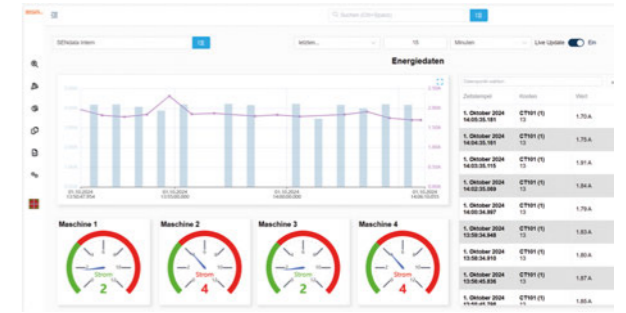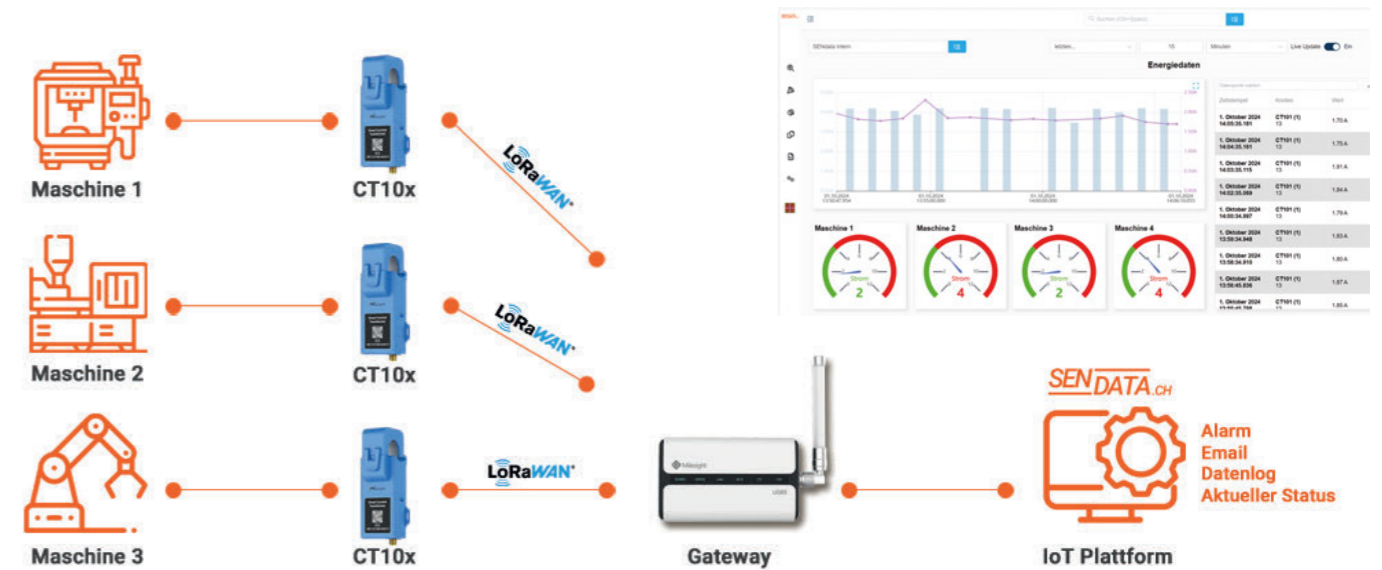⚡1000A

Self-powered:
No batteries, no limitations

The CT10x is designed to draw its power directly from the measured circuit, eliminating the limitations of batteries and ensuring seamless operation.

Supercapacitor

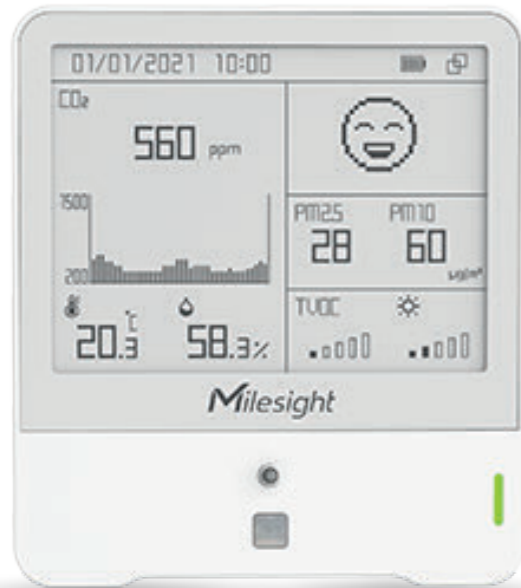## Production environments are usually somewhat more complex

There is also potential for savings with production systems and machines, but they are usually not as quick and easy to implement as with lighting and IT. The first step is to determine which systems consume how much energy. As the machines and systems are not always all in the same place and are also from different manufacturers, it is easiest to collect the measurement data wirelessly when the system is fed in. Sometimes, however, it is also necessary to record the data at different points in the overall system in order to record the energy consumption of individual sub-areas.

This is what a typical measurement data setup from us looks like:

Maschine 1 CT10x LoRaWAN
Maschine 2 CT10x LoRaWAN
Maschine 3 CT10x LoRaWAN Gateway IoT Plattform

SEN DATA.CH
Alarm
Email
Datenlog
Aktueller Status

CT10x CT10x CT10x CT10x CT10x
LoRaWAN LoRaWAN LoRaWAN LoRaWAN LoRaWAN

Gateway

SEN DATA.CH
Alarm
Email
Datenlog
Aktueller Status

IoT Plattform

Indoor air quality

Indoor air quality is important for the well-being of the people inside. Air quality can be improved through targeted ventilation

What can be captured:

Temperature, humidity, CO_2
Light, movement, barometric air pressure,TVOC, HCHO, O_3, PM2.5, PM10, CH_4, NH_3 and H_2S

Bathroom sensor

The GS301 is a 4-in-1 odor sensor specially designed for use in bathrooms. It detects ammonia ($NH3$) and hydrogen sulphide ($H2S$) based on an electrochemical measuring method. In addition, the GS301 measures temperature and humidity to provide a comprehensive picture of the room environment.
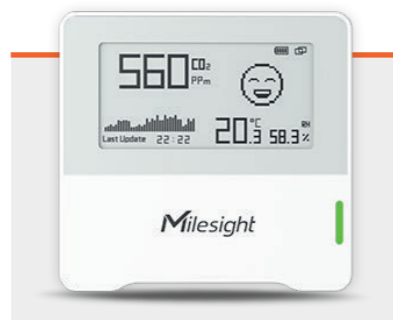
Easy air quality measurement

The AM103 is a handy sensor for monitoring indoor air quality. It measures temperature, humidity and CO2 levels and displays these values in real time on an e-ink display, enabling precise assessment of air quality and comfort. The AM103 is widely used in offices, stores, schools, hospitals and similar environments.

Robust CO2 measurement

The EM500-CO2 is designed to measure the concentration of gaseous carbon dioxide (CO2) in harsh environments. It is useful for applications where knowledge of CO2 levels is important, such as greenhouses, building ventilation, fruit and vegetable storage.

In addition, it also supports the measurement of temperature, humidity and air pressure.

Focused ventilation for maximum performance in the classroom and office

Monitoring CO2 concentration, relative humidity and temperature indoors is part of a strategy aimed at ensuring an optimal learning and working environment for students and school staff at all times. With the help of precise air quality data, well-ventilated classrooms can be achieved.

This has been proven to improve the well-being and performance of the people in the room.

Detecting temperature and humidity in museums

Museums preserve delicate works of art and artifacts made of natural materials such as canvas, wood, parchment and paper, which must be carefully protected from temperature fluctuations and changes in humidity. External and internal factors such as visitors and lighting can change the environment and cause damage. Continuous monitoring of temperature and humidity is therefore important for the preservation of the works.

Real-time monitoring of CO_2 in wineries

Early detection of dangerous gas clouds and logging of temperature, humidity and barometric pressure.

Carbon dioxide is a by-product produced during the fermentation of wine. Since the density of carbon dioxide is heavier than that of air, it can easily overflow from the fermentation tank. If it falls to the floor of the winery, it forms deadly and undetectable gas fields that pose a major risk to staff safety.

AMBIENTE
Temperature and humidity

🌡️

Temperature and humidity play a decisive role in various situations. As a quality feature or as a negative influence. This is why data acquisition in this area is particularly important.

What can be captured:

Temperature, ambient temperature, humidity, soil moisture, conductivity

Penetration sensor

The TS101 is an advanced all-in-one insertion temperature sensor with integrated transmitter that covers a wide temperature measuring range and is therefore suitable for a wide range of applications. Thanks to its IP67 protection class and IK10 impact resistance, it is ideal for demanding environments.

High temperature range

The EM500-PT100 temperature sensor was developed to measure a wide temperature range of -200 to +800°C in harsh environments. Due to its low power consumption, the EM500-PT100 can operate for up to 10 years on a 19000 mAh battery.

Capture soil information

The EM500-SMTC was developed for measuring soil moisture, temperature and electrical conductivity in harsh environments. The sensor can be buried in the ground and reliably transmits data to the platform for up to 10 years.

Continuous temperature monitoring for maximum quality

Early detection of temperature changes caused by technical defects or refrigeration units left open.

Sudden power failures or temperature rises can lead to the spoiling of stored medicines. Continuous recording of temperature data enables seamless quality assurance of the fragile units, which must always be stored at constant temperatures.

Greenhouse automation

Agricultural production in greenhouses with strictly controlled environmental conditions enables a stable supply of raw materials, regardless of the weather. Modern greenhouses have motorized plastic side walls that regulate ventilation and heat. In summer, direct sunlight supports the shading mechanism. Air circulation fans improve ventilation and reduce the risk of plant damage, pests and diseases.

These technologies ensure an optimum climate for maximum yields.

Creating an efficient and healthy working environment for bus drivers

In public transportation vehicles such as buses, defects can cause temperature fluctuations that differ greatly from the conditions in the surrounding area. This can affect the comfort and productivity of drivers. Reliable heating and cooling systems are particularly important in public transportation, where the number of vehicles is too large to allow for timely manual inspection and maintenance.

Continuous monitoring of the temperature in the bus prevents unforeseen situations.

Count and capture people

In various situations, it is helpful to know whether someone is in an area or how many people have entered an area. Data on people entering and leaving stores is very much in demand.

What can be captured:

People entering, people leaving, staff, hot zones, occupancy of workstations

Occupancy sensor for toilets

The VS330 has intelligent trigger logic for detection. PIR detection combined with ToF reconfirmation enables the sensor to accurately monitor the occupancy status of the bathroom area. The embedded self-calibration algorithm further increases accuracy to an industry-leading level of over 99.5%.

Infrared people counter

The VS360 series offers a very flexible solution for counting people entering and leaving the building thanks to its simple installation and integrated display. With an accuracy of 99% for single persons and 85% for multiple persons.

Occupancy of workstations

The VS121 workplace sensor was specially developed for monitoring occupancy and usage in modern working environments and achieves a detection rate of up to 98% thanks to its AI algorithm. It can reliably detect and evaluate individual workstations or entire areas.

Retail stores

Accurately tracking the number of people entering and exiting retail stores, supermarkets and shopping malls is essential to effective marketing strategies. With the help of real-time and long-term data, operators can identify peak times, high-traffic areas and other relevant patterns. These insights enable more accurate analysis of conversion rates and provide valuable information for business decisions.

Passenger transportation

At busy transportation hubs such as airports and train stations, people counting sensors can be strategically placed at security checkpoints, gates and other high-traffic areas. The data collected on peak times, full or empty trains and passenger flows provides valuable information. Accurate passenger count data supports informed decision-making in operations.
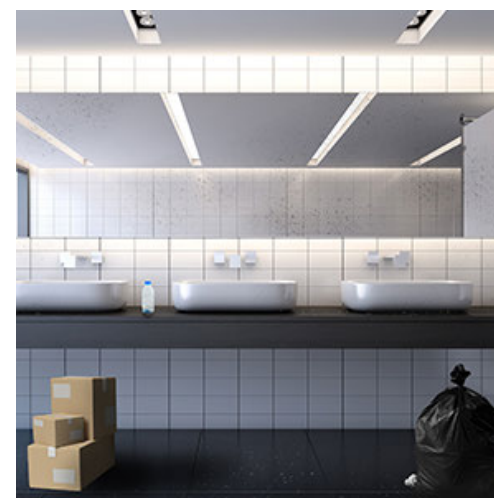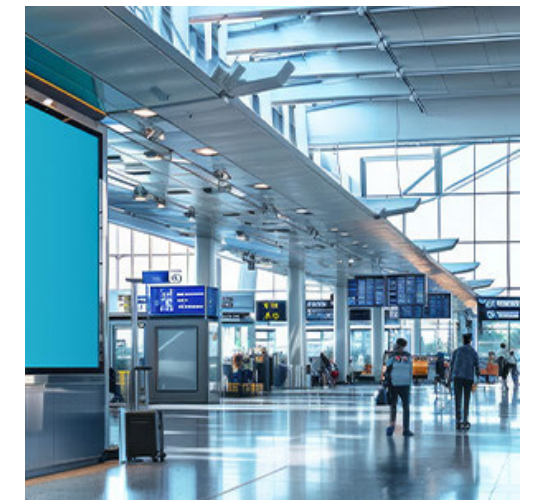
Restroom areas

Tracking visitor numbers and capacity utilization provides precise data and valuable insights for restroom operations. Managers can deploy resources more effectively and plan maintenance work better by identifying peak times and heavily used areas. This ensures efficient cleaning and timely restocking, significantly improving the customer experience.

DISTANCES

Detect distances and fill levels
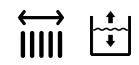
Levels and distances are among the most frequently measured values. They provide a clear indication of a condition and help in deciding on the next course of action.

What can be captured:

Distances from 10 to 8'000mm (8m)

Miniature Distance Sensor

The WS201 is a small distance sensor that uses ToF technology to monitor the fill level of containers with high accuracy. The sensor is suitable for the most common towel and toilet paper dispensers. It is simply attached to the ceiling of the dispenser container with an adhesive strip. The sensor has a battery life of up to 2 years.

Robust distance measurement

The EM500-UDL sensor offers highly accurate distance measurement up to 8,000 mm (8 m) for a wide range of applications in harsh environments, such as flood monitoring, waste water management, and level monitoring in grain or fertilizer. The measurement is based on emitted ultrasonic waves that are reflected by objects.

Determine fill level via pressure

The EM500-SWL is designed to measure tank levels or for open water applications where it is completely submerged in the liquid. It is robustly sealed to prevent corrosion and failures.

Smart waste management

As urban populations grow, efficient waste management is becoming increasingly challenging. Traditional systems with fixed collection schedules often result in unnecessary fuel consumption, higher costs and environmental pollution. With continuous data collection, waste management can respond more flexibly to unforeseen events. For example, during the holiday season, emptying of rarely used collection points could be postponed so that the freed-up vehicles can be used at locations with increased waste volumes, such as during major events.

Real-time monitoring of flood-prone areas

Floods occur when the water level in rivers, lakes or seas rises and floods adjacent areas. Causes include heavy rainfall, snowmelt, storms or dam breaks. Early warning systems detect changes With the right analysis of this data, a good overview of the current water situation in the mountains can be obtained.
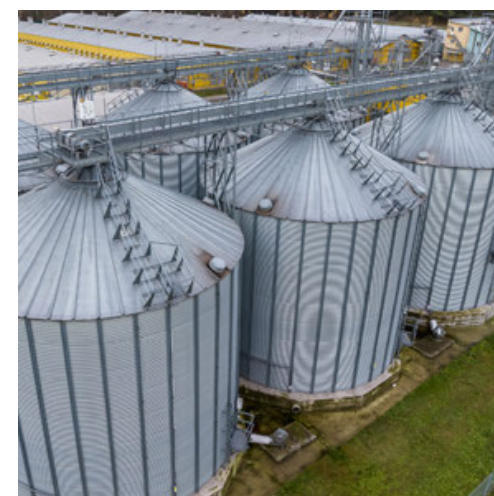
Silo levels

Monitoring silo levels is important for efficiently managing inventory, avoiding overfilling and ensuring safety. It helps to prevent production interruptions, reduce unnecessary costs and make optimal use of storage capacity. It also ensures the quality of stored materials by detecting problems early. Overall, level control contributes to safe and smooth operations.

MONITORING
Detecting leaks
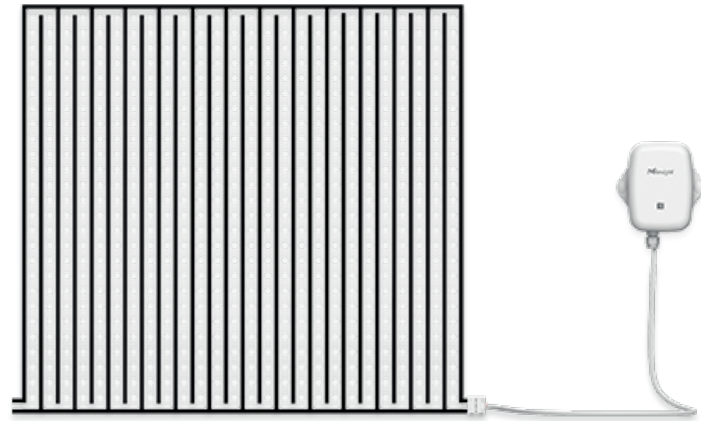
Leaks can result in a large loss of resources or damage due to the destruction of surrounding devices. It is therefore essential to detect the leak as quickly as possible in order to minimize further damage. Our series offer point or area monitoring.

What can be captured:

Conductive liquids

Punctual monitoring

The EM300-SLD is designed for the punctual monitoring of areas at risk of leakage. Thanks to its 1.5m cable, it can be flexibly mounted. In addition, the sensor can transmit the current temperature and humidity via LoRaWan.

Mini Leak Sensor

The WS303 is a mini water leak sensor that can reliably transmit the presence of conductive liquids via a LoRaWan network. It also has an **integrated acoustic alarm** that sounds when a leak is detected. It can simply be stuck or laid on the surface to be monitored. Thanks to its low power consumption, it can be operated for 5 years with a single battery.

Monitoring with sensor cable

The EM300-ZLD has a sensor cable (standard 3m, can also be ordered longer) which can be flexibly laid in the area. It is simply attached using cable ties. In addition, the sensor can transmit the current temperature and humidity via LoRaWan.


Monitor sensitive server rooms

Installing leak detection in server rooms is important to prevent water damage and downtime. Even small leaks can damage expensive equipment, cause short circuits, data loss and operational failures. Early detection enables quick intervention, increases operational reliability and helps to comply with safety standards. This optimizes the protection of the IT infrastructure and minimizes financial losses.

Technical rooms

Installing leak detection in technical rooms is crucial to ensuring the smooth operation of critical infrastructure. Even small amounts of water can cause serious damage, leading to costly repairs and business interruptions. By detecting leaks early, the system enables quick action, minimizes the risk of short circuits and outages, and protects the technical infrastructure. In addition, monitoring helps to ensure compliance with safety standards and extends the service life of technical equipment.
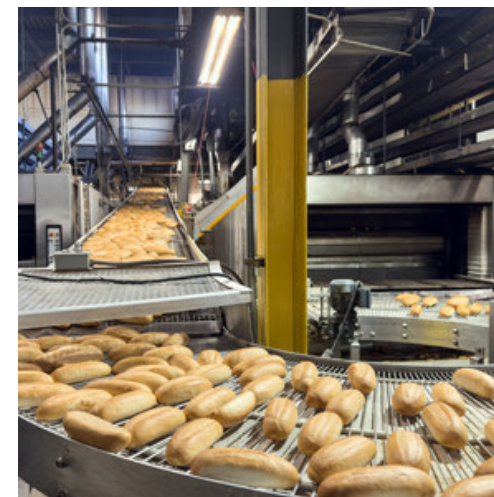
Real-time monitoring in food production

Leaky pipes or leaks in cooling systems can lead to contamination and dangerous bacterial growth, endangering the health of consumers. Early detection of leaks enables quick action, minimizing losses of raw materials and finished products and reducing the costs of recalls or lost production. In addition, monitoring helps to comply with legal regulations and hygiene standards, which is essential for certifications and consumer trust.

The Dashboard

The dashboard provides an intuitive user interface that allows administrators to monitor and control connected devices. With the help of diagrams, tables and other tools, they can get a comprehensive overview and interact with the devices.

Visualization
The data is clearly displayed using various diagrams and symbols.

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Recognizing trends
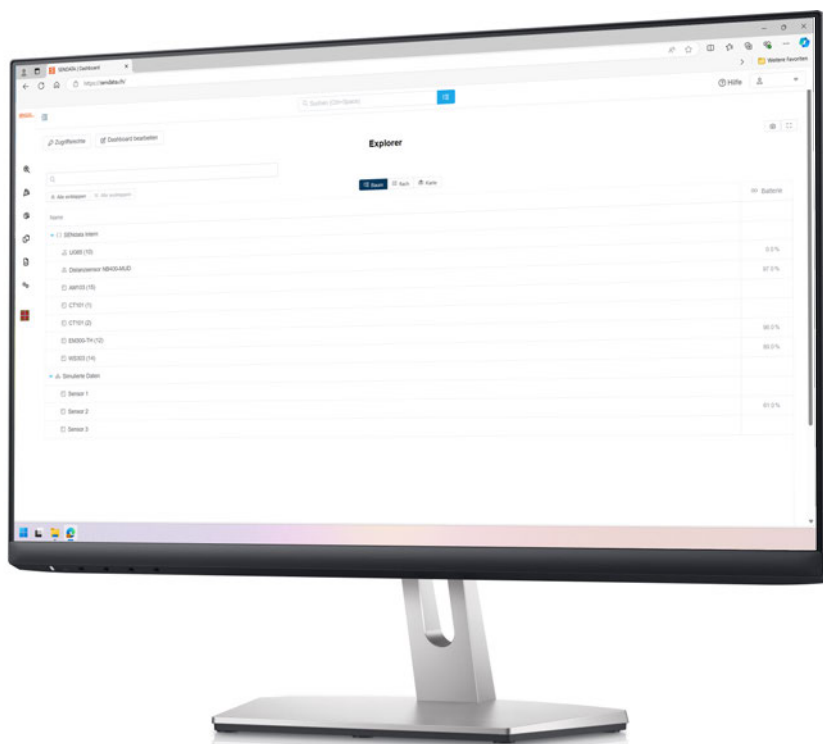Trends can be easily recognized by viewing past and current data.

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Customized view
Various dashboards customized to your needs make the platform a powerful information center.

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The Explorer

The Explorer shows the current devices and their status. It can be flexibly adapted to your needs and adds important information to the dashboard in table form.

Administration
The administration of the devices can be quickly and clearly organized via the Explorer.

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Overview
The table format provides a unique display of the individual devices and is the perfect addition to the visual dashboard.
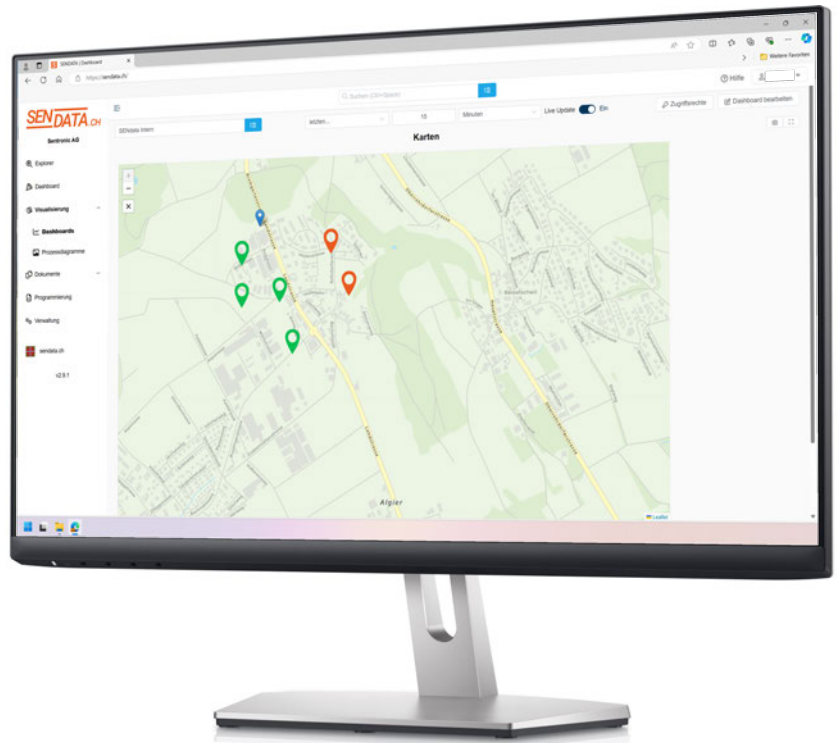
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Information
Thanks to the flexible configuration of the Explorer, you can decide for yourself which data should be displayed.

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The map overview

There are applications for which a map view is the most effective way of presenting information. The status of the individual sensors can be quickly recorded in relation to the location. This can be used for route planning, service call planning or to improve risk assessment in monitoring applications, for example.

Route planning
The data on the map can be used to easily plan routes and operations.

Regional overview
Immediately recognize regional incidents and respond quickly.

Status
See at a glance which sensors are currently online or offline.

Additional features

USER MANAGEMENT
Assign various authorizations

With the intuitive authorization system, various restrictions can easily be assigned to users you have created. You can assign authorizations ranging from admin to "watch only" user.

TRIGGER
Triggering alarms

Set simple conditions under which an alarm is triggered and an email is sent to specific people. The acknowledgment function also ensures that the alarm has been received.

REPORTS
Receive periodic reports

The flexible reporting system makes it possible to receive completed reports at specified times. These include the sensor data and time stamps of the recorded data. Daily, weekly or monthly summaries can be created from this.

HEATMAPS
Visualize downtime and outage times

The heatmap display of events can be used to visually show at which times events have occurred.

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