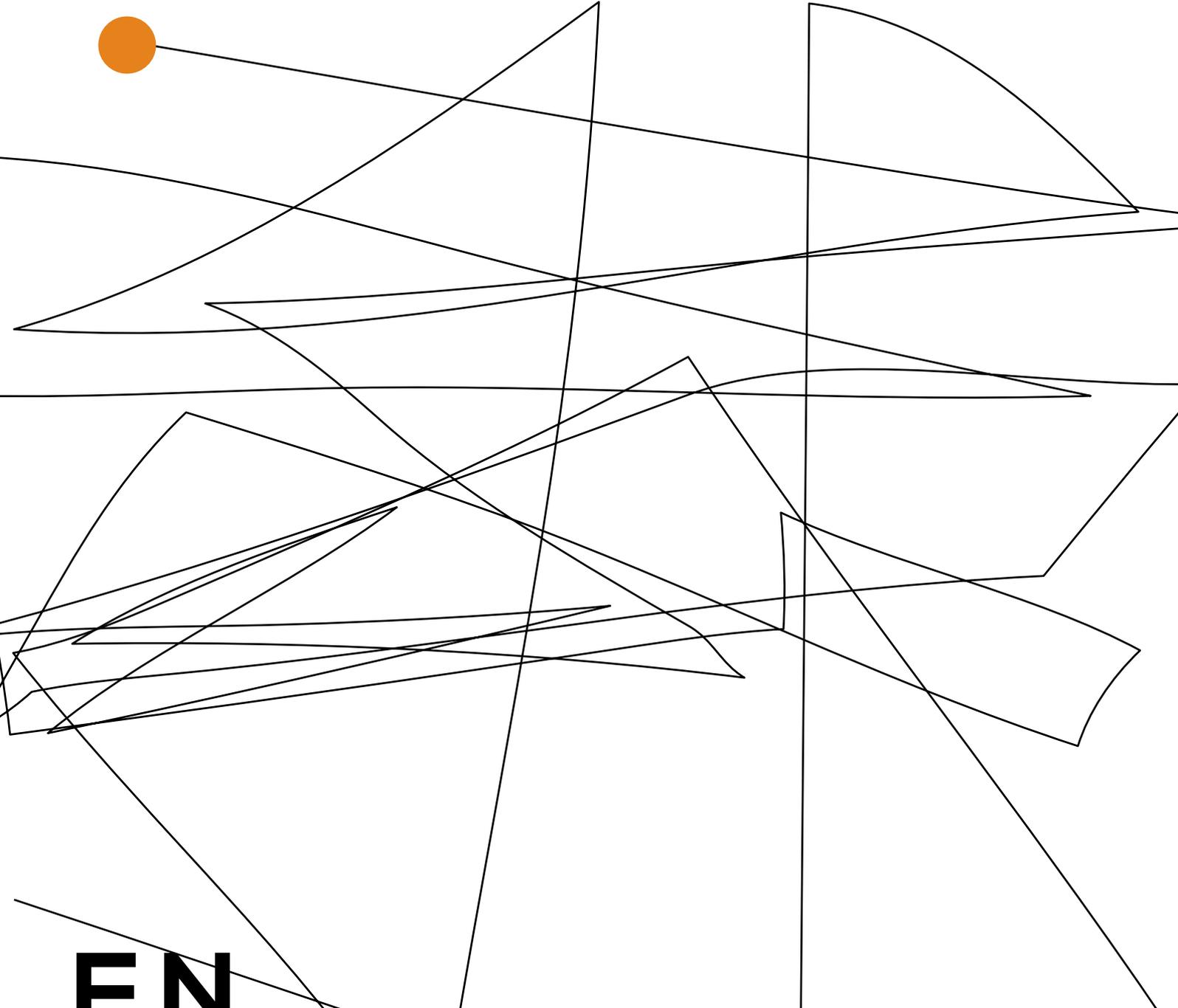


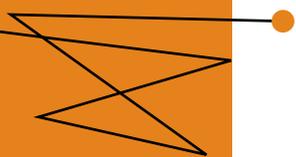
Next level digital logistics.



solutions of doks.



EN



Next level digital logistics.

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We have sensors for becoming logistics more efficient.



Founded 2017 in Dortmund near the Fraunhofer Institute for Material Flow and Logistics IML, doks. Innovation GmbH has begun to accelerate the digitization of warehousing and inventory processes. Our solutions are based i.a. on years of research and development, for example as part of the research project inventAIRy® within the program AUTONOMICS FOR INDUSTRY 4.0 of the Federal Ministry for Economic Affairs and Energy BMWi.

Since January 2018 at the headquarters in Kassel, we have been developing solutions for logistics and industrial companies, which contribute to the automation and digitalization of warehouse and inventory control processes and represent a digital twin. We combine highly intelligent sensors with suitable carrier technologies. With the help of machine-learning algorithms, we process your data to relevant information and thus offer you advantages in the planning and design of your processes.

What we do

Bring data to knowledge and knowledge to your competitive advantage: Get your warehouse inventory data in real time directly to your dashboard and avoid idle times and wrong bookings. Automatically let drones find lost cargo that you are missing or identify free space. Enhance your warehouse operations with continuous information and automated master data collection to maximize your valuable capacity. Let the system complete the inventory independently and automatically and document and archive all important data. You always have the current situation in your warehouse in view - on the device of your choice, updatable at the touch of a button.

The best thing is that you do not need more staff, but less. Manual activities such as counting processes are kept to a minimum: depending on the solution, they save up to 80% time and 90% costs.

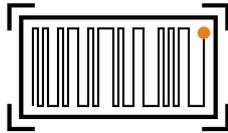
How we do it

doks. innovation offers four unique solutions: admONE® as a sensor-supported software platform, inventAIRy® or summAIRy® as revolutionary automatic data acquisition via autonomous drones around pallet rack warehouses or around outdoor storage areas such as block storage areas as well as in-bound and outbound areas. And last but not least delivAIRy® as an autonomous delivery option for intralogistics on production facilities. All systems can be optimally cross-linked with each other and easily integrated into all common ERP systems such as SAP, Microsoft or Oracle or most WMS. Whether it's automating daily stocktaking, delivering urgent supplies to a plant site, or calculating bulk storage at outdoor storage areas, whether you need a fully integrated stand-alone solution or upgrading existing processes: doks. innovation takes your logistics to the next level. And prepare your company for the demands of a digitized future.

doks. solutions

doks. innovation has started to digitize logistics processes and automate inventory management.



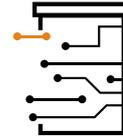


inventAIRY

a solution of doks.

Capture data in flight.

Automated stocktaking with drones.

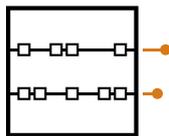


adamONE

a solution of doks.

Your entry to the digital age.

Smart sensors combined with machine learning for your individual needs.

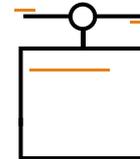


summaIRY

a solution of doks.

Automatically keep track.

Perfect for logistics professionals who need to think in terms of data.

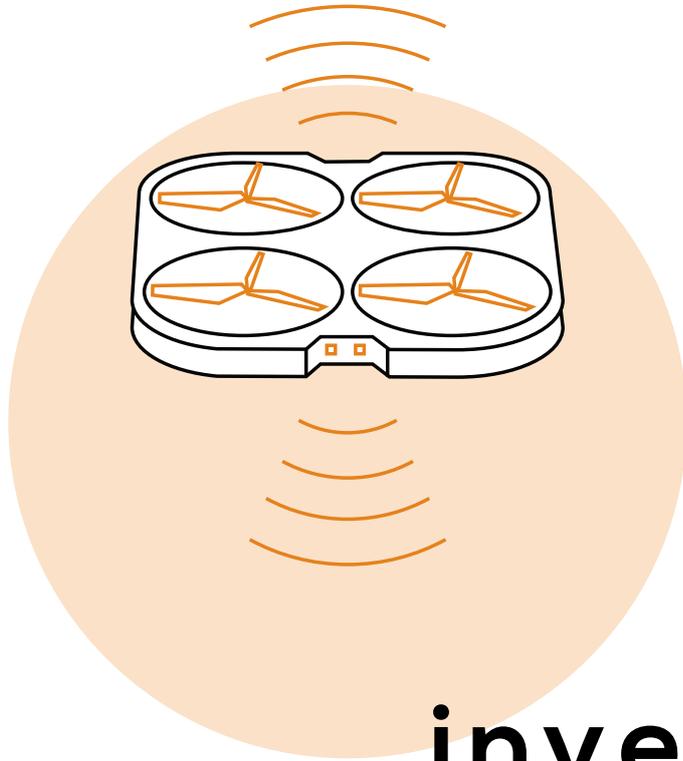


delivAIRY

a solution of doks.

Automatically through the air from A to B.

The fast lane in factory traffic: the airspace.



inventAIRy®

inventAIRy® is the complete ecosystem for automated stocktaking and inventory management with drones around pallet rack areas, equipped with smart multi-sensors. Based on adamONE® and attached to other autonomous vehicles, inventAIRy® works with AGV or forklifts, too.

We combine object characteristics with location information.

Get all information you need. inventAIRy® provides direct interfaces to ERP systems such as SAP, Sage, Oracle and many others as well as all WMS.

Localize your goods and monitor your warehouse processes in real-time.

Get value-adding information on temperature, packaging quality, pallet quality, possible damages on your goods and many more. With inventAIRy® you will not only get data and digital information but also visual impressions of your warehouse. We use these images for pattern recognition as well as for inspection tasks, you will get them as preservation of evidence.

Boost efficiency.

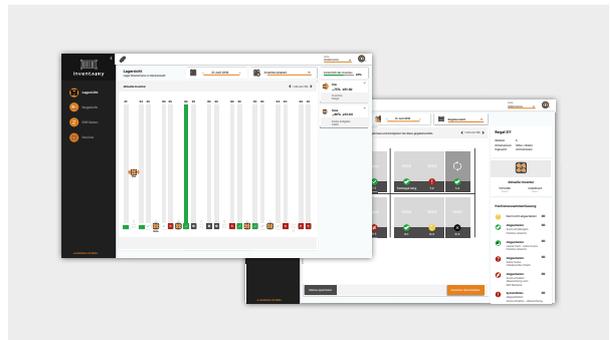
inventAIRy® will help to save time and money. Reduce idle times, reduce staff for manual stock-taking processes and replace manual search with automated drone technology. Instead of working with two to three employees and one forklift for each team, inventAIRy® will fly automated in your pallet rack warehouse to collect data for inventory management and stocktaking with drones.

inventAIRy® is your decision for the smart way of inventory management. Save up to 80% of process time for stocktaking, reduce up to 90% of expenses compared to manual processes and get numerous data to optimize your planning procedures. inventAIRy® offers transparency for your pallet rack warehouse.

We help to visualize your business processes.

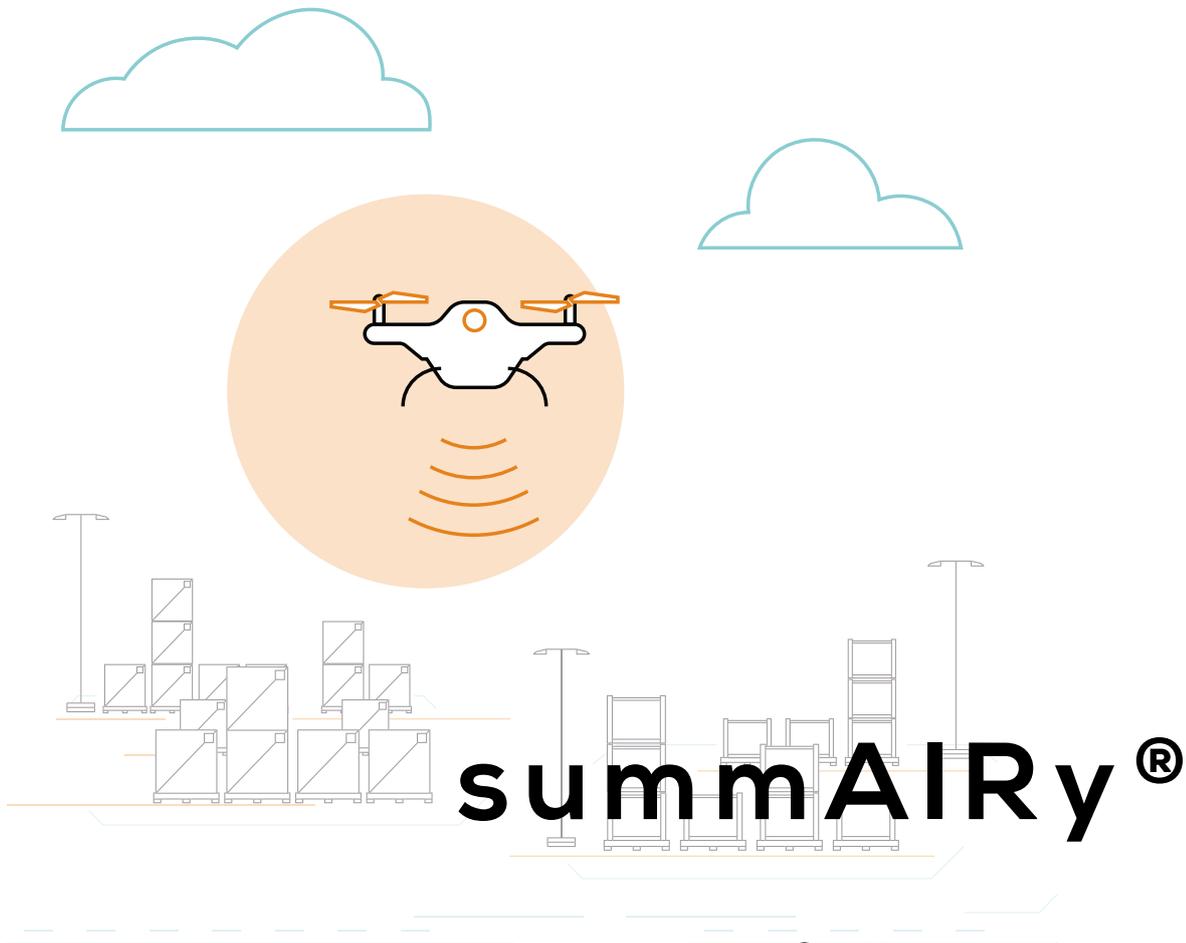
With inventAIRy® software, warehouse managers get all information on just one screen.

Monitor inbound and outbound information, get information on the capacities, control your inventAIRy® drones and scroll through your latest stocktaking results. This software is both, preservation of evidence and prospective planning tool.



The inventAIRy® software





summAIRy® is doks. innovation's answer to revolutionize manual stocktaking and volume calculation processes around production facilities and logistics areas outdoors. No matter what you are going to count, measure or calculate - the summAIRy® machine learning algorithms will give you information based on aerial and ground based data. The combination of automated object detection, volume calculation and detection of quantities is unique for logistics and helps to save time and boost quality of your logistics processes. Direct interfaces to your ERP or WMS are the key to information within minutes instead of hours and days.

summAIRy®. sky

Automated stocktaking with drones outdoor

Automated counting of full and empties in block storage areas, bulk goods or other goods stored outdoors with sensors mounted on drones. The solution is based on standard industrial drones as well as image sensors, RFID sensors or others and uses machine-learning algorithms for data analysis in post-processing.

summAIRy®. ceiling

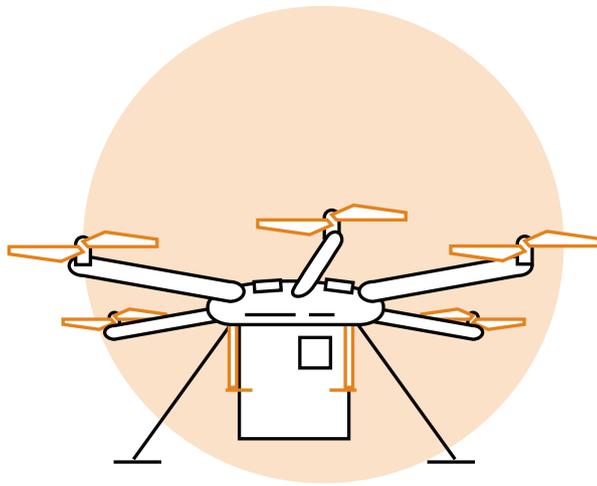
Master data and stocktaking with sensors indoors

Automated counting of full and empties in indoor block storage areas, bulk goods or other goods. The solution uses the information of an array of energy autonomous sensors mounted below the ceiling above the area of interest. Captured image data is analysed by software tools based on machine-learning algorithms. Use this solution to get master data and qualified information on your objects as well.

summAIRy®. gate

Master data during in- and outbound

Automates the documentation of load units and goods entering and leaving a warehouse as well as the process of loading the units on a trailer. In addition, master data is generated and recorded in a continuous process. The unit is mounted on every loading bridge or in a central spot in the inbound and outbound area to measure dimensions and to calculate volumes, make high-resolution images for documentation purposes or 3D-models. summAIRy®. gate offers automated scanning of load unit labels and based on all data load units can be decomposed to analyse single items. Thus, loading as well as unloading processes are recorded automatically and pallet labels are read in by a movable barcode scanner. At the same time, the volume of the handling unit is determined by means of an array of cameras, and high-resolution images enable a further separation of individual items. By analysing all units entering and leaving the warehouse, summAIRy®. gate improves the master data base continuously. Based on machine learning, summAIRy® software offers data analytics features such as pattern and damage recognition, preservation of evidence as well as detection of structural anomalies.



delivAIRy® is our answer to your requirement for a seamless and safe transport of urgent parts and deliveries: our drones deliver over a distance of up to four kilometers and a weight of up to 5 kilograms. Get your street infrastructure free of delivery cars and overcome the limits of existing infrastructure with the help of delivAIRy®'s automated delivery process. Our solution includes everything you need for a robust workflow: powerful drones, integrated flight planning, automated pickup and delivery, automated approach of relevant sources and sinks, and linking to your ERP or WMS.

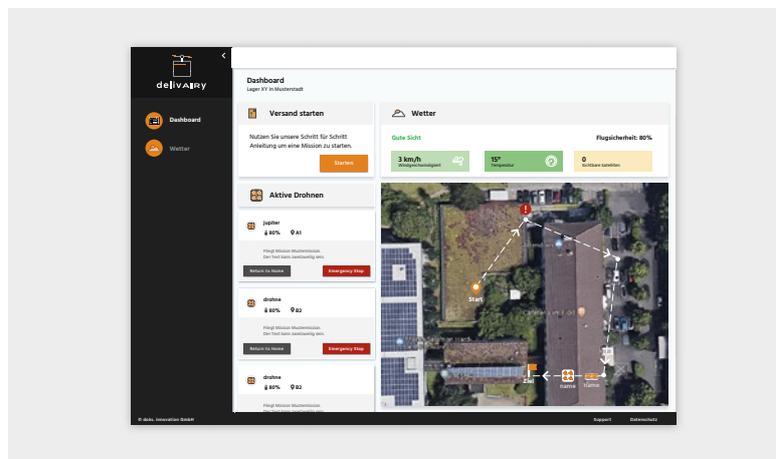
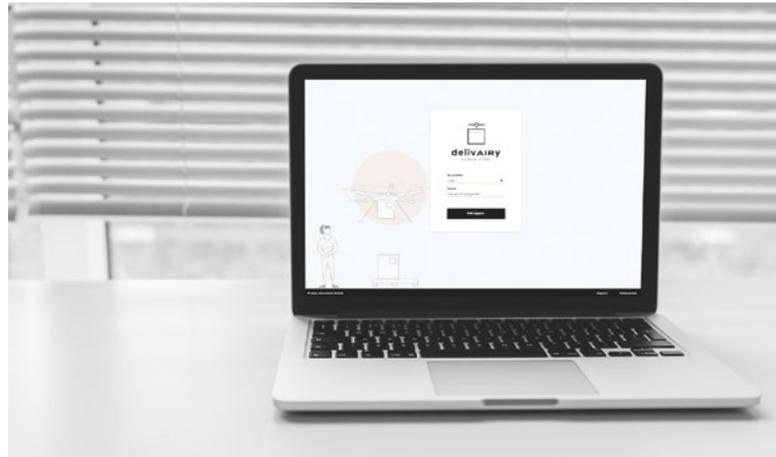
delivAIRy® is the industry standard standard to deliver parts rapidly with drones.

The patented technology for gripping the objects enables a transport of almost all structures and is scalable.

Automated from planning to delivery

The delivAIRy® software offers a full feature set:

- Create different instances and users, including complex user administration
- Create and manage fixed pickup and delivery locations
- Assign rights
- Integration of information systems for secure notification during transport operations
- Routing and flight planning
- Automated flight clearance
- Automated grabbing of the transport objects
- Automated drop-off of transport objects
- Combination of navigation via GPS, LTE / 5G and based on visual sensor information - the drone will land with an accuracy of just a few inches
- Control system allows the use of multiple transport drones in parallel
- Integration of weather information



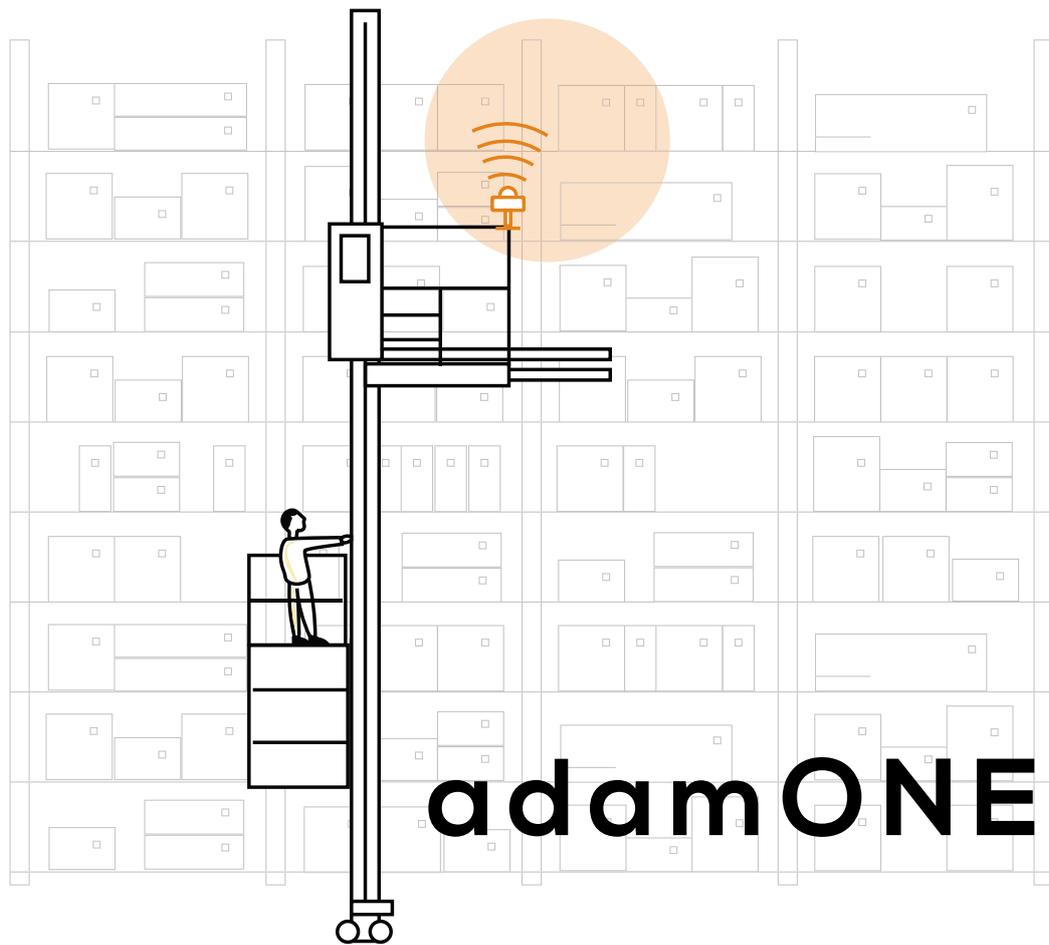
The delivAIRy® software

Urgent parts transport to production

To deliver urgently needed parts, no matter whether serial or non-serial parts, on your factory premises is fast and most efficient through the air. Overcome the existing infrastructure and shorten the process times. This helps to prevent costly belt or production stoppages. Our transport drones are designed to adapt your needs and thus also transport masses over 5 kg.

Integration in ERP

The delivAIRy® software is connected to your ERP. Every material handling step is documented and booking processes seamlessly integrated.



adamONE®

adamONE® was designed to capture data in industrial environment. As part of the industrial IoT world and Industry 4.0, adamONE® helps to get data out of processes where no other sensors exist or data capturing is highly manual. The flexible smart multi-sensory hardware of adamONE® comes with vision sensors, an unique scanner technology for 1d and 2d codes that detects and scans codes fully autonomous, temperature and humidity sensors, an IMU and stereo vision.

FAQ

We are happy to answer your individual questions in a personal exchange.

In the following we answer some of the frequently asked questions about inventAIRy®.

How long do the drones of inventAIRy® fly?

The inventAIRy® drones fly for about 25 minutes, collecting stock data on both aisles at the same time, which means in two racks per flight.

How large are the drones of inventAIRy® ?

The inventAIRy® drones measure approx. 90 x 90 x 20 cm (length x width x height).

What material are the drones from inventAIRy® of?

The inventAIRy® drones are made of carbon fiber reinforced plastic (CFRP), expanded polypropylene foam (EPP) and various metals.

How loud are the drones of inventAIRy®?

The inventAIRy® drones cause about 72 dB in flight and are therefore in the range of a vacuum cleaner.

Which data formats does the inventAIRy® software support?

The inventAIRy® software already has some integrated interfaces to ERP and WMS. In addition, a connection via CSV or XML data export and import is possible.

Does inventAIRy® require WiFi or WLAN?

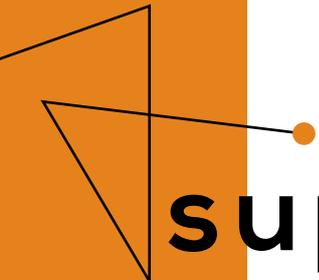
The inventAIRy® technology does not require WiFi, the communication between drones and base station is based on a standard in the range 433 or 868 MHz.

Are the drones of inventAIRy® autonomous?

The inventAIRy® drones fly autonomously indoors without GPS and use visual information for a SLAM (simultaneous localization and mapping).

Does inventAIRy® require a special environment or changes?

inventAIRy® does not require any additional technical equipment, no modifications are necessary.



support & sales

Our sales and service team supports you throughout Europe and the United States. With our network of regional partners, you enjoy local support during all stages, from piloting to implementation and beyond.

All products are available for sale and for leasing, and come with service level agreements that are tailored to your specific needs.

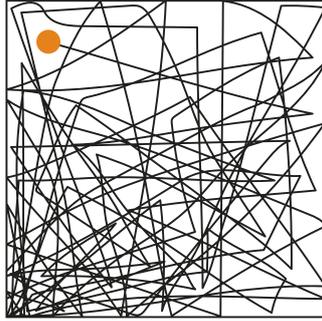




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