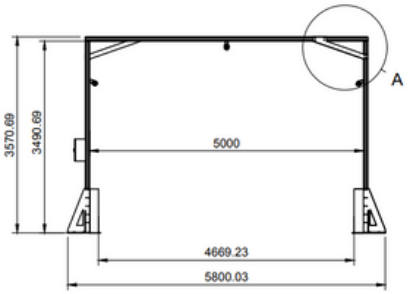
TECHNICAL DATA SHEET

aluco STRIX - Freight Measurement

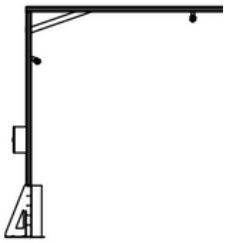
Product Information

The measurement system is a flexible design to meet the different requirements in warehouses. This flexibility results from different warehouse sizes, possible space restrictions and different package structures - from small to larger packages - and the specific attachment of the barcode labels. Customers can choose between three installation options, which can be used depending on requirements and conditions:

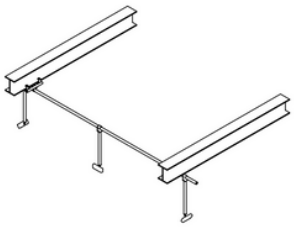
1 Classic Gate-Solution:
This solution enables the detection of packages from all directions. This offers the advantage that the system can easily be expanded to include additional image or object recognition projects. In addition, the barcode can be scanned on all sides of the package, which increases the flexibility and efficiency of the system.



2 L-Gate-Solution:
This variant is primarily used along the main traffic routes within the warehouse, ensuring smooth integration into operational workflows. The only requirement is that the barcode must be positioned on a side of the package visible to the cameras. Compact and efficient, this solution is particularly suited for space-constrained environments, offering flexibility for various package sizes and shapes.

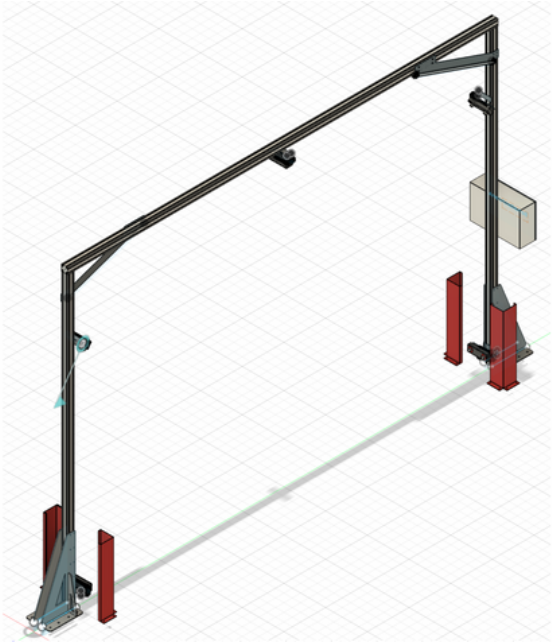


3 Ceiling Construction:
This design is primarily utilized when the barcode is positioned on the top surface of the package. A common application of this solution is the automated scanning of incoming or outgoing goods. Its construction allows for efficient scanning processes, even in space-constrained environments.



All system solutions are meticulously tailored to meet the specific requirements of each customer and are continuously refined to ensure seamless integration and maximum efficiency. Additional needs extending beyond standard measurement capabilities can also be accommodated.

For instance, advanced image recognition functionalities—such as label identification or specialized dashboard displays for tasks like warehouse goods distribution or damage reporting—can be seamlessly incorporated into the system. Depending on the customer's requirements, the gates can be equipped with a customizable number of cameras, enabling the implementation of tailored solutions that address specific operational objectives.



- **Interface Integration:** REST-API
- **Hosting Options:** Cloud-based system / On-Premise (depending on network availability)
- **Core Hardware Components:**
  - Barcode scanner
  - Industrial PC
  - Camera systems (2D and 3D systems)
- **Software:** Utilization of various **AI models**
- **Material:** 80x80 ITEM profiles
- **Vehicles**: forklift trucks, high-speed trucks, pallet trucks
- **Dimensions:** Customized according to installation location and customer requirements

Features	Description and technical details
Barcode Scanning	Identification function between the package and system record, essential for accurate data allocation within the system; both inbound and outbound goods scanning can be performed, depending on the gate location. *Scanning of 1D & 2D barcodes possible*
Measurement	Calculation of length, height, and width of packages; if required, comparison with system data and notification in case of discrepancies. *Technical requirement: 2D and 3D image data*
Image Documentation	Capture and storage of packages from different perspectives; if required, visualization of the packages in the dashboard for the "package search function." *Technical requirement: 2D images, with the number of cameras varying depending on the specific requirements*
Label Recognition	Identification of dangerous goods labels, including verification process; notification in case of missing or incorrect label placement, and visual display of the correct/required label. *Technical requirement: 2D image data*
Pallet Recognition	Identification of different load carriers (e.g., Euro pallets, half pallets); if required, notification in case of discrepancies with system data. *Technical requirement: 2D image data*
Dashboard	Dashboard at the gate for visualizing various requirements, such as package search (package images), slot allocation during distribution, measurement result display, and damage reporting.

The various functions of the measurement system can be flexibly combined to meet the specific requirements on-site. Additionally, custom function or AI developments can be implemented as needed to provide the desired added value. Image data capture occurs in real-time, without any process interruptions, ensuring seamless integration into existing workflows.

TECHNICAL DATA SHEET

aluco STRIX - Automated Dispatching

Product Information

In automated dispatching, various customer-specific planning parameters and guidelines are integrated into the tour planning process. The planning and optimization procedure is carried out through a series of structured steps, each designed to enhance efficiency and accuracy, while continuously aligning with the customer's operational objectives and needs:

1

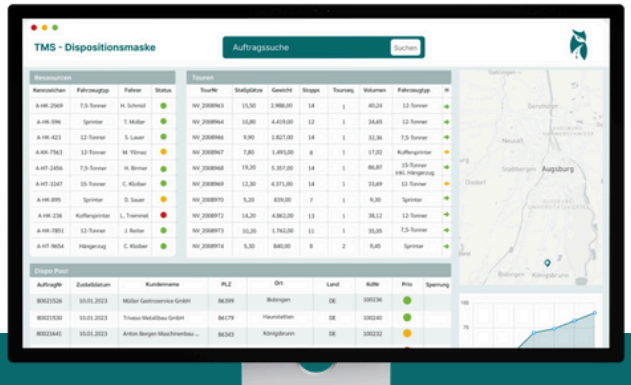
Intelligent Algorithms:
In the first step, the tour planning is optimized using intelligent algorithms. In addition to a detailed process analysis, the specific requirements and guidelines of the dispatchers are gathered. Relevant system data for planning is also collected and thoroughly analyzed. Based on the dispatcher feedback and the collected data, the algorithms are adjusted to ensure intelligent and efficient tour planning. The detailed data analysis enables a comprehensive understanding of the data, an assessment of data quality, and the development of a customized, customer-specific data cleaning strategy.

2

Data Cleansing:
In the second step, data cleansing is performed. In parallel with the daily tour planning, the data is automatically processed through our integrated data cleansing tool. This involves standardizing the data, consolidating customer information, and automatically detecting duplicates. Regular feedback from dispatchers is also collected to continuously enhance the data. Given that dispatchers possess valuable expert knowledge that may not always be reflected in the dataset, this knowledge is systematically captured through ongoing collaboration and stored in the database. The aim is to ensure the highest data quality, enabling continuous improvement in the tour planning process.

3

Machine Learning Algorithm:
In the third step, the machine learning algorithm is activated once the data quality has been positively evaluated. The objective is to establish a comprehensive historical data foundation that enables the algorithm to learn from past planning processes, continuously enhance its performance, and make precise future predictions. As the algorithm refines its capabilities over time, it becomes more efficient, resulting in further optimization of tour planning and improved outcomes.



- **Flexible Interface Integration:** REST-API // Import and export functionality for alternative file formats
- **Application**: Back-end software; front-end analysis view/dashboard for planning data available from Q1 2025
- **Hosting:** Cloud-based system – no installation, resource allocation, or maintenance required
- **Software:** Deployment of intelligent planning algorithms and AI models
- **Planning Duration**: From a few seconds to few minutes (depending on the scope of functionality)

Features	Description and technical details
Daily Tour Planning	The daily tour planning includes both short- and long-distance transport, multi-day routes, deliveries, pickups, and direct shipments, taking into account all relevant dispatch parameters such as time windows, priorities, capacities, and cost efficiency. This enables efficient planning and execution of transportation while ensuring optimal resource utilization.
Route Planning // Geocoding	Precise route planning is enabled through geocoding of address data, while telematics data and AI-driven learning methods help reduce costs and continuously enhance route optimization.
Data Cleansing Tool	An integrated data cleansing tool enhances data quality and provides the optimal foundation for AI-driven models. This process runs continuously to ensure a consistently up-to-date and reliable data source.
Learning Algorithm	The learning algorithm is activated only once the optimal data foundation is in place, ensured through continuous data cleansing and optimization. Based on this solid foundation, continuous value is generated, including precise predictions, pattern recognition, and data-driven insights, enabling targeted and sustainable optimization of route planning.
Management Dashboard	The management dashboard offers a visual representation of KPIs within the planning process, facilitates the analysis of results, and enables the configuration of resources and planning parameters. Furthermore, it supports extensive reporting capabilities to enable data-driven decision-making and the continuous optimization of planning operations.
Additional / Classic Functionalities	ETA calculation, dangerous goods management (dangerous goods points / co-loading restrictions), driver consideration (work hours, driver's license, etc.), vehicle specifications (forklift attachment, tail lift, etc.), stop sequence, and more.

As part of the entire implementation process and continuous further development, we work closely with the dispatchers, always aiming to reduce their workload rather than replace them. The logistics planning process should be designed and optimized in the best possible way through the targeted use of the software in order to increase efficiency and work quality and to achieve the best possible planning results.