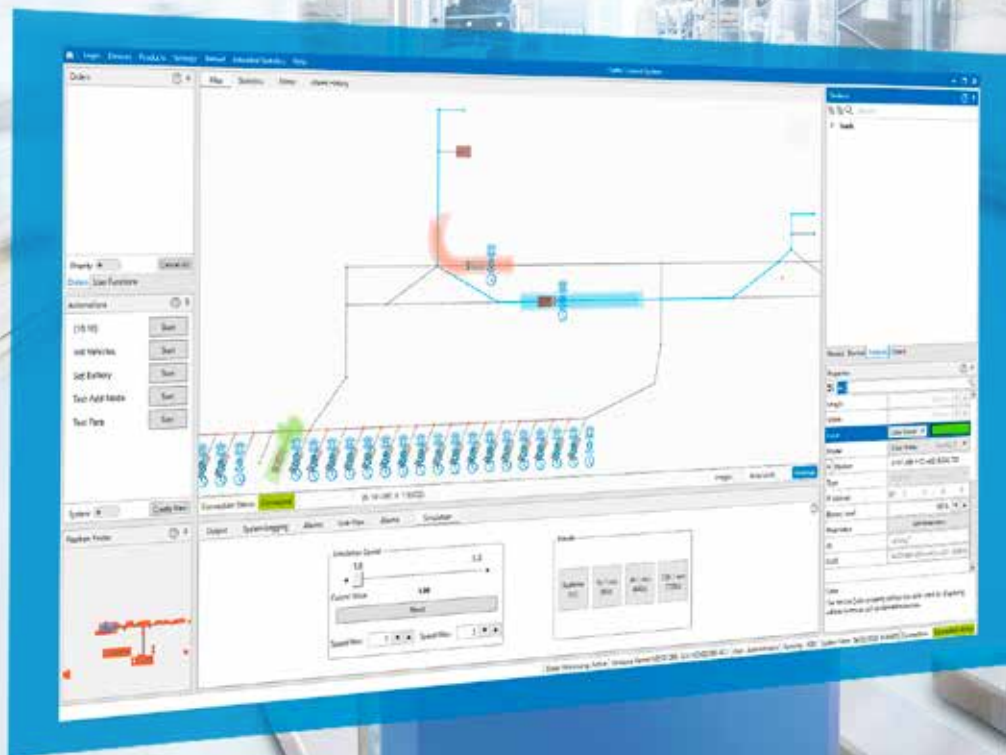


TRAFFIC CONTROL SYSTEM FOR AGV & AMR



TRAFFIC CONTROL SYSTEM

REAL-TIME SOFTWARE FOR AGV

The Traffic Control System (TCS) from SIGMATEK is an open, vehicle-manufacturer independent fleet management system for automated guided vehicles (AGV) and autonomous mobile robots (AMR). For this, TCS connects different AGV and AMR variants, coordinates transport tasks, organizes route planning at runtime and optimizes transport tasks with the integrated fleet simulation. SLAM maps can be integrated easily.



EFFICIENT FLEET MANAGEMENT

TCS provides efficient route planning, considering all possible routing parameters, such as one-way streets, permanent or temporary obstacles, or user-defined restrictions.

An intelligent order reordering distributes vehicles (AGV/AMR) strategically across the factory floor, reducing congestion and freeing up valuable space. This ensures that tasks are completed on time, resources are used optimally, and bottlenecks are avoided.

DYNAMIC RESPONSE

With predictive task management, unnecessary travel can be reduced: TCS calculates if the optimal vehicle is nearing task completion and whether the battery charge level is sufficient. If this is the case, it is assigned a follow-up order nearby. This minimizes travel from the production or warehouse to the charging stations.

If a vehicle is blocked, the TCS can allow the AGVs or AMRs to bypass the object or take a new route to deliver on time.

▲ SIGMATEK TCS can be easily integrated into automation solutions, but can also be used completely independently of them.

& AMR

Areas over which AGVs and AMRs are allowed to deviate must be explicitly defined. Subsequent routes are planned to completely bypass the object to ensure a smooth material flow.

PRIORITIZATION OF TASKS

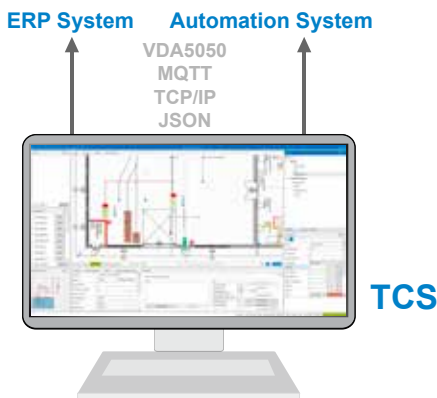
To prioritize important tasks, it is possible to dynamically reassign AGVs and AMRs, i.e. an active task with a lower priority is postponed or paused to bring forward time-critical tasks.

EASY INTEGRATION

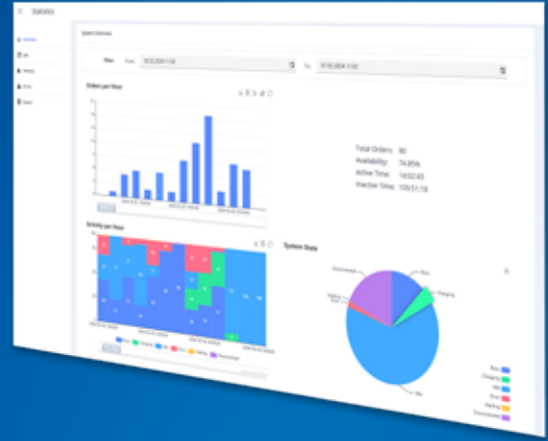
SIGMATEK TCS can be quickly and flexibly integrated into existing intralogistics systems, ERP and warehouse management systems, as well as automation solutions, but can also be used completely independently of them. For this purpose and for communication between vehicles and the control system, standardized interfaces and protocols are used: VDA 5050, MQTT, JSON, UDP, TCP/IP. So a mixed operation of AGVs and AMRs from different manufacturers is possible.

SAFETY: SIMULATION

SIGMATEK TCS provides the ability to test processes in the computer simulation. This simulation is run much faster than the real process, so an entire day can be completely mapped in minimal time.

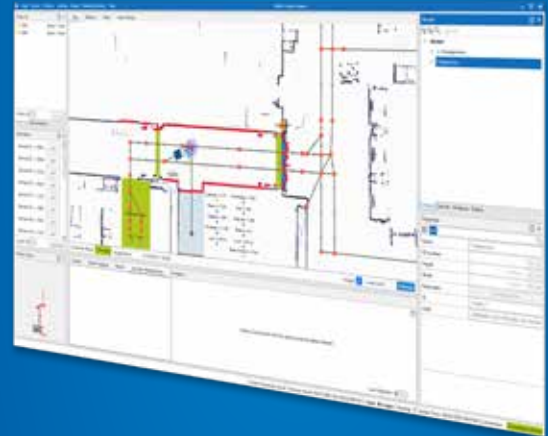


With open standard protocols such as VDA 5050, MQTT, JSON, UDP, TCP/IP, the TCS fleet management system can be connected anywhere.



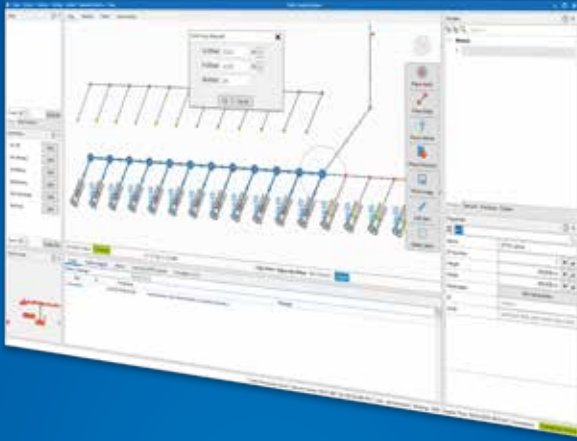
FLEET EFFICIENCY AT A GLANCE

The data collected from the fleet is transferred to a web-based statistics dashboard that processes and shows important key figures such as system availability, number of errors, error duration and incoming orders. Heat maps can be displayed as a 2D map overlay to identify areas with traffic congestion.



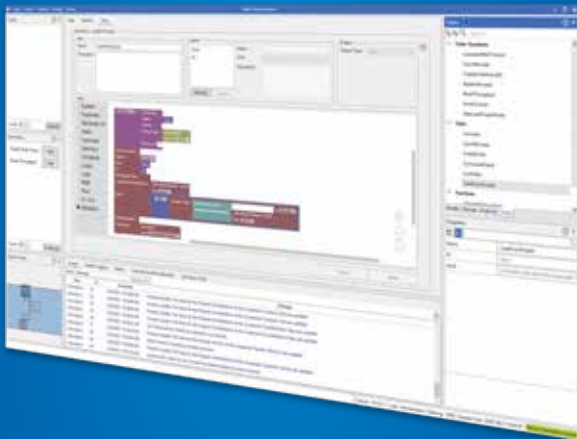
CONTINUOUS ADAPTATION TO REALITY

Hall plans don't always match reality and only represent empty spaces without installations, furniture or movable objects. SIGMATEK TCS therefore provides the option of importing real data, so that the map can be adapted to the actual conditions. These can be recorded by AGVs and AMRs during navigation using the contour-guided SLAM method (Simultaneous Localization and Mapping). For this purpose, SIGMATEK offers the real-time locating software SlamLoc.



GRAPHICAL MAP EDITOR

The Graphical Map Editor is the heart of the TCS. It enables the creation of system layouts and displays the selected map in real time – including live information of all vehicles on it. Key information is clearly visualized, and all essential map editing tools are readily accessible for easy editing.



PROGRAMMING WITH LOW-CODE

In the graphical interpreter, simple as well as very complex applications can be implemented with the help of low-code. The logic can be conveniently assembled from puzzle-like elements (function blocks). A large number of ready-to-use function blocks are available. Of course, blocks can also be created for your own functionalities. Open interfaces (e.g. MQTT, HTTP) are available for integrating external devices such as traffic lights, barriers, roller shutters or elevators.

HOT FACTS

GRAPHICAL MAP EDITOR

Simple route creation and efficient route planning

SLAM INTEGRATION

Direct integration of SLAM maps

ORDER SIMULATOR

Optimize travel orders with integrated fleet simulation – in real time and time-lapse

FLEXIBLE DATA INTERFACE

System integration with standard protocols VDA 5050, MQTT, JSON, UDP, TCP/IP, etc. – remote access from anywhere

FURTHER AGV/AMR PRODUCTS

FLEXIBLE CONTROL

Fast, lean and vibration-resistant: the S-DIAS control system is ideal for automating AGVs and AMRs – safety is seamlessly integrated.



SLAM NAVIGATION IN REALTIME

SlamLoc real-time localization software is revolutionizing the way AGVs & AMRs handle changes in their environment during contour-based navigation.

