



flexguide.

Transport Guidance System for SAP

(fully-) dynamic  
**Tugger train control**

> directly in SAP®

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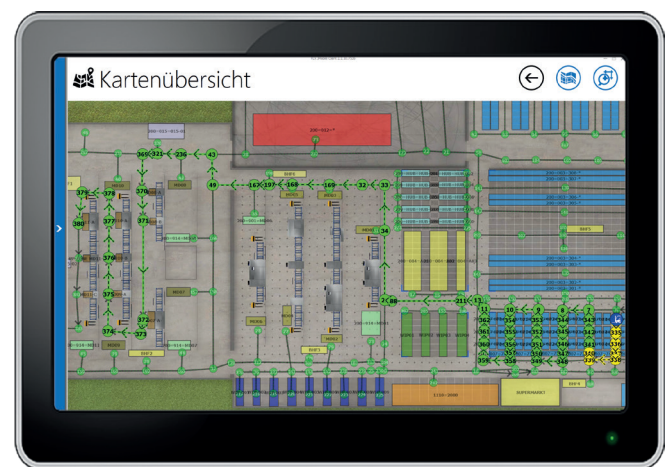
## Efficient and optimized control of the route trains directly via SAP®

The tugger train control for SAP® is a separate module of the FlexGuide transport / forklift control system for SAP®. It can be used both combined and separately. This means that only tugger trains or also all vehicles within the plant can be controlled directly via SAP®.

Here, different route train models are possible. A distinction is made between fixed and dynamic route planning. The transport orders of the tugger trains are generated on the basis of an individual individual timetable. This takes into account the due dates of the transport orders and schedules them accordingly.

## Goals of the tugger train control

One goal of tugger train control is to increase the utilization of the trailers in order to reduce driving distances and tour durations. As a result, tugger trains and personnel are also saved. In addition, the creation of an individual schedule ensures punctual production supply and disposal. Thus, tours can be planned in the short term and the personnel structure can be adjusted in the long term.



## Functionality of the tugger train control

The transport order creation is integrated in the SAP modules (e.g. supply of production) and can be combined with FlexGuide. Therefore, multi-level transports between tugger trains and forklifts are also possible. The transport orders can be created automatically, e.g. from production order data, or manually via the Flexus worker dialog.

The routes of the tugger trains are created in the RouteOptimizer on the basis of the master data maintenance in SAP®. Using this, not only route train-specific attributes such as the number of trailers, the driving speed and the set-up times can be stored, but also working time models or shift schedules of the employees involved can be taken into account when creating transport orders.

The resulting transport orders can thus be quickly and easily assigned to dynamic or fixed routes. In addition, thanks to the 2D cockpit, all stops and tours of the vehicles can be visualized and thus serve as an overview.

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## Fixed and dynamic route planning

The routes of the tigger trains can be formed in two different ways with the tigger train planning directly from SAP®.

### Fixed route planning

- > Drawing fixed routes in RouteOptimizer
- > Direct assignment of the driving job to a route
- > Creating the tours based on the fixed routes

### Dynamic route planning

- > Only definition of stops and routes
- > Dynamic planning algorithm for the creation of tours (minimization of the driving distance, continuous improvement of initial solutions)

## Trailer management integration

The trailers driven by a tigger train can be driven or coupled or uncoupled by different transport systems. In addition, each trailer type can be provided with its own capacity, defined positions and weight limits.

## Timetable generation

The scheduled orders are visualized in a clear cockpit and can be edited with regard to sequence and assignment. In this way, the tours are distributed to as few route trains as possible, taking due dates into account. As a result, the number of required route trains is minimized. Regular adjustments to the schedule are made, taking delays into account.

## Flexible route planning

The order determination of the tigger trains takes place directly in SAP®, taking into account the route-specific attributes. The tigger trains process the tours according to the previously generated schedule. This ensures a clear display of the tour, the next stop and the next transport order. A validation of the tours is possible via Scan / Companion.

## Enhancements through AI

AI models based on past data enable improvement of the time modules and lead to a more accurate prediction of the timetable.



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**tugger train control**



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