

AMBERG RAIL

The comprehensive solution for railway surveying



AMBERG RAIL

FOR EVERY CHALLENGE IN RAILWAY SURVEYING



Amberg Rail – accurate, efficient, versatile

Railway operators require proper track geometry and knowledge concerning the position of objects around the track in order to safely and economically operate their networks. Railway construction, maintenance and clearance control represent substantial expense items. Their optimisation relies on powerful means of data acquisition and flexible procedures. Amberg Rail offers innovative railway surveying solutions, which accelerate the surveying process and deliver the high-quality data required for the different fields of application.

Highly efficient railway surveying

The Amberg Rail solution is a mobile surveying solution, that is 'portable' in the strictest sense of the word. This allows the measurements to be made in real-time during the construction process, in the run-up to the actual maintenance work or at a regular interval, e.g. for clearance analysis. From slab track construction and ballast track maintenance to clearance-corridor assessment for a wide range of applications, all tasks can be performed reliably with minimal effort. Up to 5 km of track per hour can be surveyed thanks to the use of dynamic surveying methods.

Why Amberg Rail?

- Complete integration into the construction and maintenance process – from planning to data acquisition, data processing and derivable output
- Combines robust, high-precision sensors with versatile, modular software tailored to rail surveying
- System configuration according to project specifications and customer's needs
- Optimal interaction between application-based software and corresponding hardware configurations
- EN 13848-4 conformity and various country-specific homologations
- Cost efficiency thanks to modular design
- Best cost-benefit ratio on the market

Designed for rail surveying

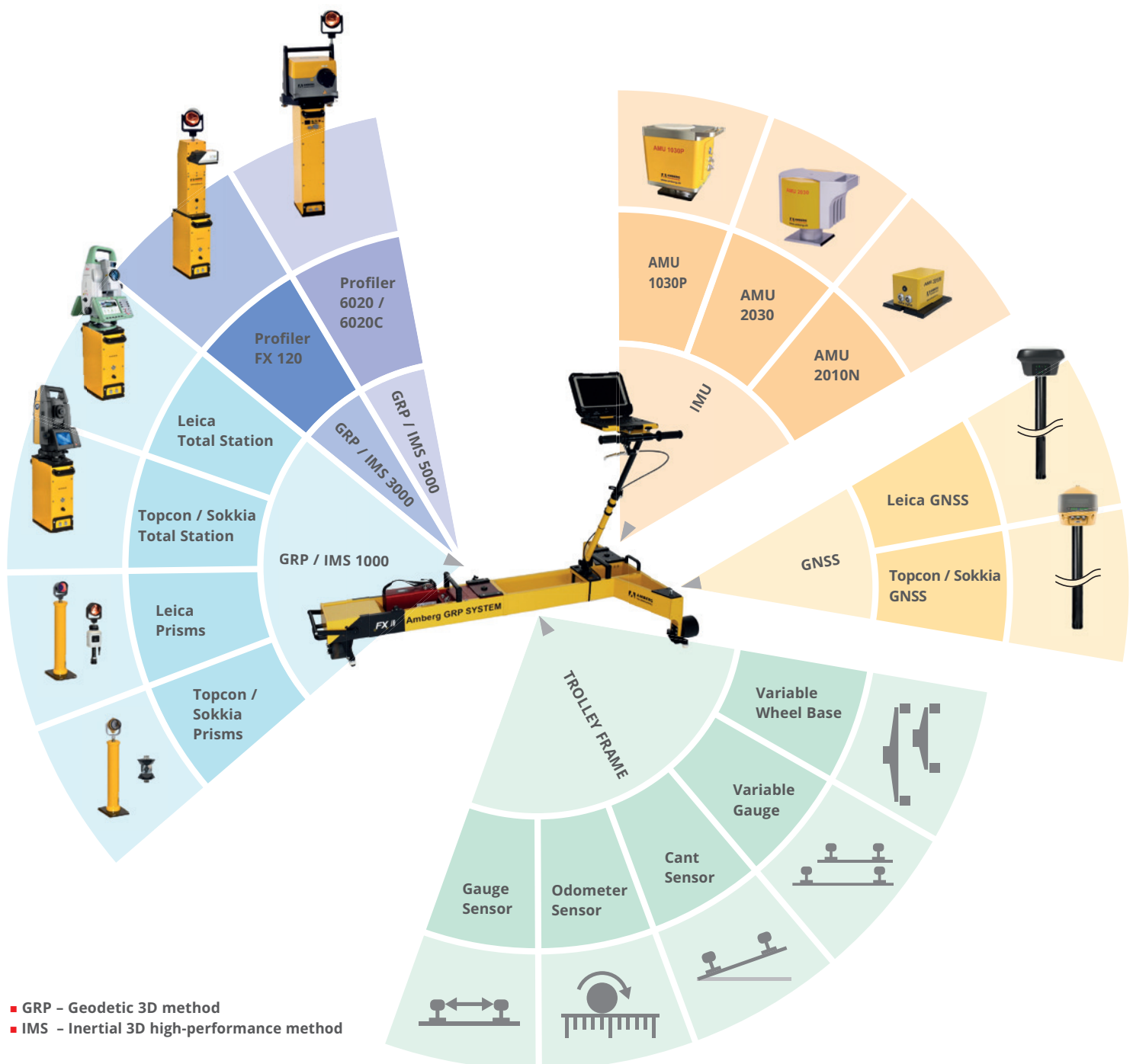
- Comprehensive management of project layout and survey data
- Point-cloud-based clearance analysis
- Real-time track deviation monitoring with export formats for tamping machines and other downstream applications
- Detailed analysis and extensive correction-data preparation
- Flexible, customisable data reporting

GRP SYSTEM FX II

VERSATILE SOLUTION FOR RAILWAY SURVEYING

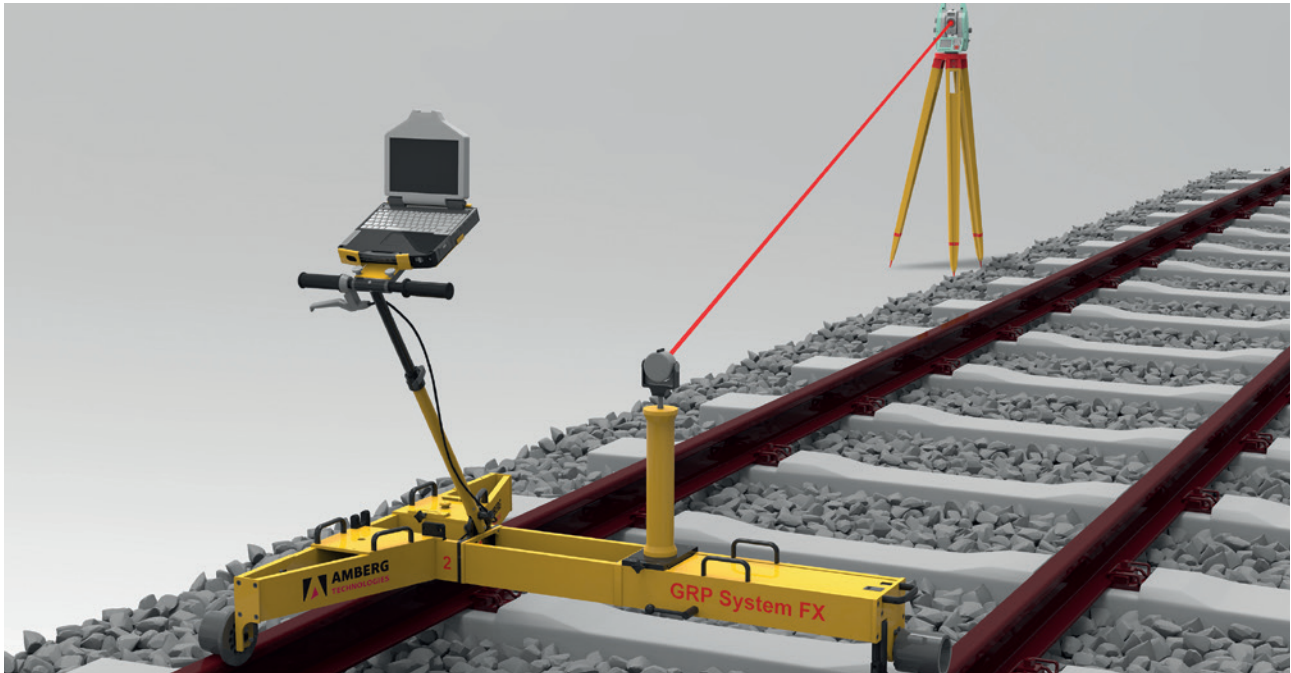
The Amberg GRP System FX II is a proven surveying solution for the precise acquisition of track geometry and track environment data. Thanks to its

modular design, the surveying system can be optimally configured to meet individual requirements.



AMBERG SURVEY

MAP YOUR LINE!



Highly efficient system for as-built survey of existing railway lines for documentation and future planning purposes

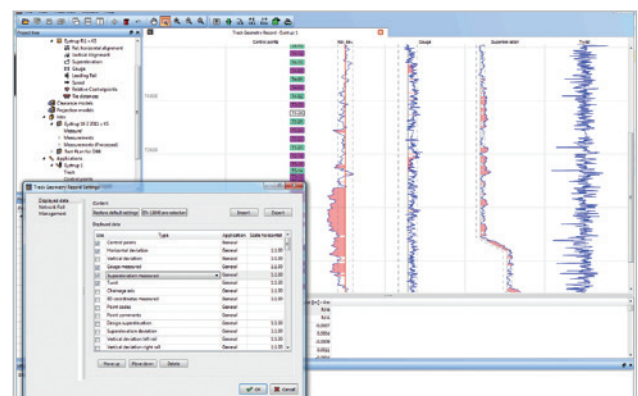
- Comprehensive, line-dedicated project data management as a basis for structured inventory surveys, data processing and data transfer
- Convenient project cockpit for preparation of efficient and easy practical fieldwork
- Powerful and integrated acquisition of as-built track coordinates and other track parameters such as gauge, superelevation, twist and versines
- Economic data evaluation thanks to automatic analysis and merging of several measurement sections
- Amberg Survey is an integral part of the application modules Slab Track, Tamping and Clearance

Measurement system

- Choose between a geodetic 3D (TPS/GPS) and long-chord measurement approach
- Select the right system configuration depending on your accuracy and measurement performance requirements
- Measure single objects beside the track for additional documentation
- Assign codes and comments to track measurement points of special interest
- System configurations: GRP 1000, IMS 1000, IMS 3000

Software

- Automatic merging of different track measurement sections by user-defined rules
- Comprehensive options for analysis of the as-built track based on numerical and graphical data representation – specialised Track Geometry Record
- Powerful reporting and exporting engine supports many different formats and interfaces



AMBERG TAMPING

THE PERFECT TRACK!



High-performance system solution for track alignment data or control-point-based tamping survey

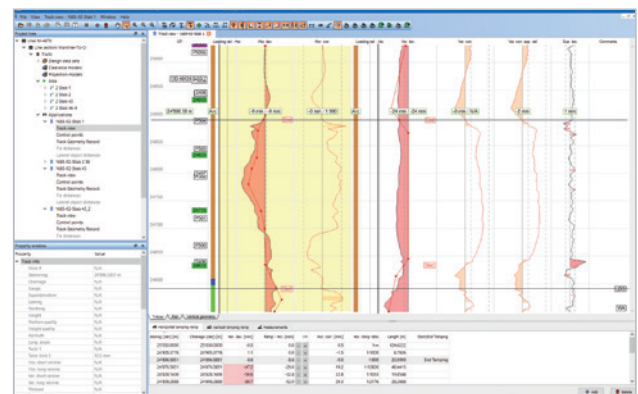
- Identify track position errors as a basis for construction and maintenance of ballast track
- Comprehensive design data definition possibilities (absolute/relative alignment) including various interfaces for import and export
- Interactive correction-data preparation for all current tamping machines (e.g. Plasser&Theurer, Matisa, Harsco)
- Comprehensive reporting of track alignment and control point data
- Integrated control point surveying as a stand-alone option

Measurement system

- Geodetic 3D survey mode for high precision and reliability in track surveying
- Unique long-chord measurement mode with the highest measurement performance optimised for typical railway surveying conditions
- Emphasise track locations of special interest for the tamping run using the marker function
- Check certain track measurement parameters in real-time during the data acquisition
- System configurations: GRP 1000, GRP 3000, IMS 1000, IMS 3000

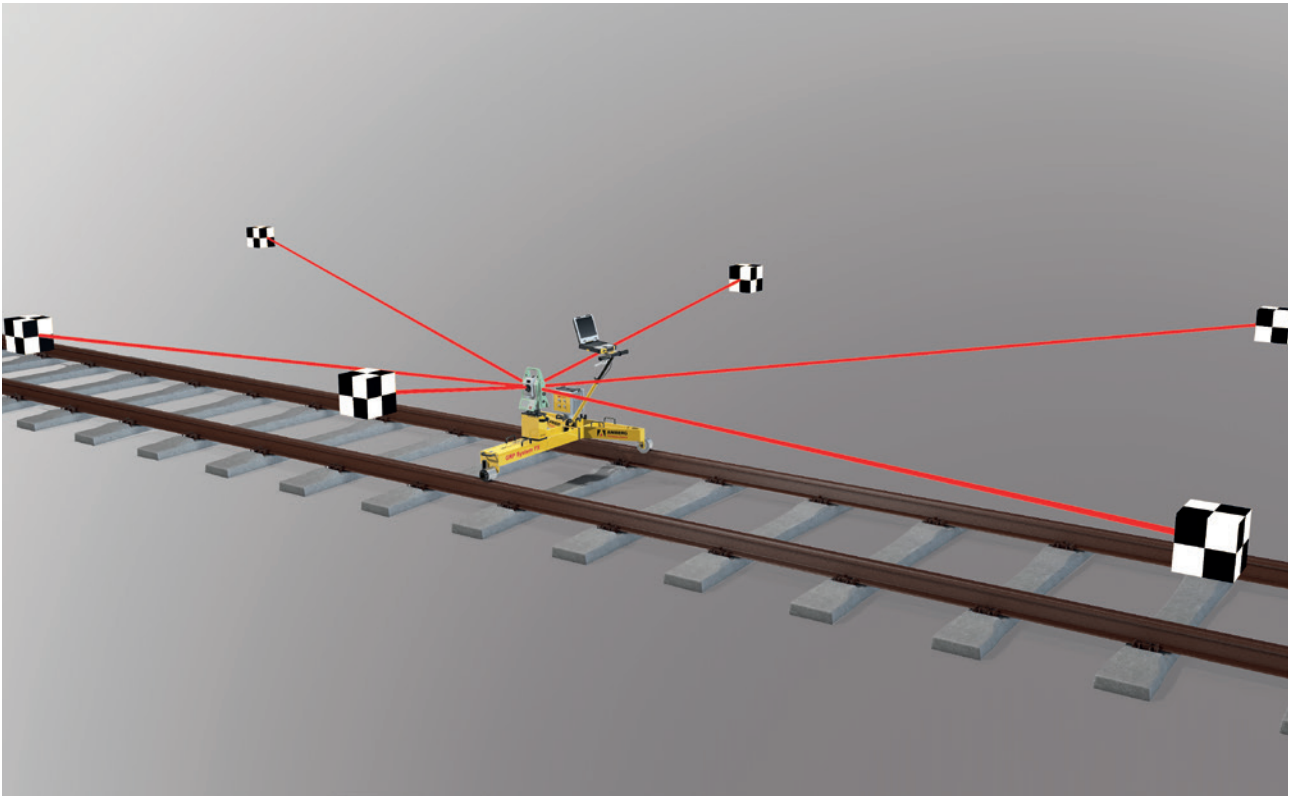
Software

- Hierarchic and efficient management of design and survey data for handling changing track conditions during the project
- User-defined merging of several measurement sections including a manageable way to handle overlapping areas
- Powerful tamping data editor for intuitive and semi-automated correction-data preparation
- Track Geometry Record as an additional tool for more detailed analysis of the track condition



AMBERG SLAB TRACK

394.3 KM/H? NO PROBLEM!



Integrated surveying solution optimised for the typical requirements during construction, monitoring and maintenance of slab track lines

- High-precision systems optimally support the different slab track construction stages
- Real-time display of correction values for direct adjustment of track position and height
- Interactive, sleeper-based correction-data preparation
- Acceptance mode for proper documentation of final track position
- Comprehensive numerical and graphical reporting as a hand-out for contractors

Measurement system

- High-precision geodetic 3D mode for construction, fine adjustment and acceptance
- High-speed long-chord mode optimised for regular maintenance of existing slab track lines
- Long-chord mode supports Single CP mode for highest performance and Multi CP mode for highest reliability
- System configurations: GRP 1000, IMS 1000, IMS 3000

Software

- Simple management of project data including ability to handle evolving design data states
- Sophisticated editor for interactive correction-data preparation for each sleeper
- Export of a track correction list according to construction requirements
- Creation of required hand-outs for proper documentation of the final as-built slab track



AMBERG CLEARANCE

FAST, REAL-TIME CLEARANCE MEASUREMENT.



Modular system solution for manual and automatic clearance survey including sophisticated engine for static and dynamic clearance analysis

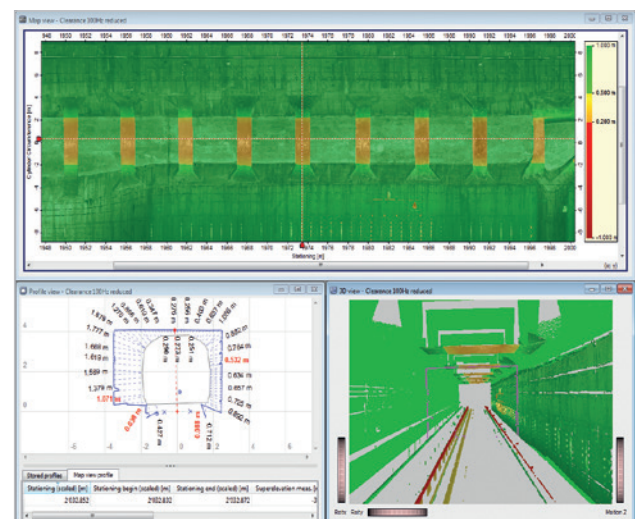
- One software package with scalable functionality (Basic and Plus)
- Powerful management of project data including static and dynamic clearance models
- Comprehensive and high-resolution data acquisition to detect every potentially critical object
- Clearance analysis results in real-time
- Powerful evaluation, analysis, reporting and exporting tools optimised for the typical requirements

Measurement system

- Scalable measurement system from quick and easy single object point measurement to high-resolution scanning
- Data acquisition in relative or absolute mode
- Display of relevant clearance information in real-time on measurement screen
- System configurations: GRP 3000, GRP 5000, IMS 5000

Software

- Management of user-definable static clearance models or integrated dynamic clearance models
- Post-processing of high-resolution clearance results for complete point clouds
- Clearance map for detailed clearance encroachments along the track
- Various report and export formats containing profile or point cloud data



Contributing to a smart use of space



Where experience and expertise open up new horizons

The Amberg Group is a unique knowledge, engineering and technology provider of logistics, constructions and infrastructures for smart cities, hubs and networks through innovative combinations of above and underground space usage.



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