

Amberg Survey GRP 1000



The configuration consists of


- Premium hardware GRP 1000
- High-performance software Amberg Survey Basic
- Optional: Amberg Track Geometry Record (TGR)
- Robust and guaranteed precision thanks to GRP Fidelity
- First-class customer support

Amberg Survey is integral part of the Amberg Technologies application modules Slab Track, Tamping and Clearance.

Technical data GRP 1000

System configuration		Cont. system accuracy	
Gauge (mm)	1000, 1067, 1435, 1520/24, 1600, 1668/76	Gauge	+/- 0.3 mm
TGS FX		Superelevation	+/- 0.5 mm +/- 1.0 mm
Gauge	- 25 mm to + 65 mm	- stop&go mode	
Superelevation (Cant)	+/- 260 mm (+/- 10°)	- kinematic mode	
Sensor performance		Positioning	
Track geometry measurement (Position, Gauge, Superelevation)		Leica total stations	TS15, TS30, TS50, MS50
Measurement stop&go - duration	TPS: 5 s GPS: 1 s	Leica GPS	GPS1200, GS10/14/15
Measurement kinematic - data frequency	TPS: 7 Hz GPS: 10 Hz	Power supply	
System accuracy		TGS FX – sensors	Leica GEB171, rechargeable > 8 h
Determination of track position and height*)		Battery life*)	
GRP with total station (TPS)	Pos./Height: +/- 1 mm +/- 5 mm	Panasonic control computer	Li-Ion battery, rechargeable > 4 h
GRP with GPS	Position: +/- 20 mm Height: +/- 40 mm	*) Depending on conditions.	
*) Typical project accuracy. Depending on e.g. atmospheric conditions, control point quality, positioning sensor and project conditions.		Environmental specifications	
		Working temperature range	-10° to +50° C
		Humidity	< 80 %
		- non-condensing	
		System weight	
		GRP 1000	27 kg
		- ready to measure	
		- incl. battery and computer	

System use and typical system performance

Survey applications	
Typical project applications	- As-built surveys for documentation and planning of railway line refurbishment and upgrading - Track as-built data acquisition for subsequent analyses and utilisation
System use	- Open track - Light rail - Industrial tracks
Typical surveying performance	
Track survey with total station	800 – 1200 m/h
Track survey with GPS	3000 m/h
- GPS receiver and reference station necessary	
As-built data (export)	
Supporting data interfaces	- ASCII - DXF - LandXML
- further formats on request	
System approval	
CE Conformity	EN 61326-1:2005 EN 61000-6-2:2005 EN 61000-6-4:2006 EN 13848-4 Directive 2004/108/EC Directive 2002/95/EC
GRP System FX approvals from	Network Rail / London Underground (UK), Deutsche Bahn (DE), SBB (CH), SNCF (FR), ÖBB (AT), RFI (IT), Adif (ES), ProRail (NL), Infrabel (BE)
 DB RiL 833.0050 Type approval as railway surveying device by DB AG. DB RiL 824.0050 Measurement and detection of long-wave track irregularities.	
Extract of references	
Amberg's railway surveying solutions have proven their high performance all over the world. Demanding projects have been successfully realised in e.g. Germany, Austria, Belgium, the Netherlands, Denmark, France, Italy, Spain, Greece, Turkey, Australia, United Kingdom, Saudi Arabia, UAE, Korea, USA, PR China.	

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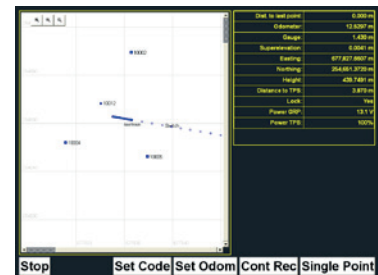
System performance and technical data

Amberg Survey

Map your line. Highly efficient system for as-built surveying of existing railway lines including powerful interfacing for selective data transfer to other applications and subsequent analyses.

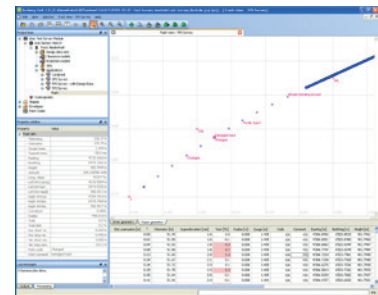
Project data management

- Line dedicated project data management as basis for structured inventory surveys, data processing and data transfer.
- Individual definition of coding schemes.
- Project cockpit for preparation of efficient and easy practicable fieldwork.



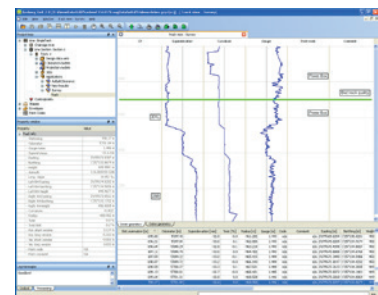
Surveying

- Powerful and integrated acquisition of current track coordinates and corresponding track parameter (gauge, superelevation).
- Direct assignment of codes and comments to single measurements as basis for efficient post-processing.
- Reliable control of ongoing measured values and progress of measurement.



Data evaluation

- Automatic analysis and merging of single measuring sections.
- Calculation of additional parameter e.g. versines, curvature, slope, twist and detailed track axis according to pre-defined reference parameter.
- Structured data export using the code information in LandXML, DXF and ASCII format, e.g. for further processing in Bentley Rail Track.
- Direct interface for further utilisation in other Amberg Rail applications.
- TGR option.



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