

# 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
<b>TGS FX</b>		Superelevation - stop&go mode - kinematic mode	+/- 0.5 mm +/- 1.0 mm
Gauge - for nominal gauges	- 25 mm to + 65 mm	<b>Positioning</b>	
Superelevation (Cant) - at 1435 mm	+/- 260 mm (+/- 10°)	Leica total stations - motorised, ATR - radio modem	TS15/16, TS30, TS50/60, MS50/60
<b>Sensor performance</b>		Leica GPS	GPS1200, GS10/14/15/16/18
Track geometry measurement (Position, Gauge, Superelevation)		<b>Power supply</b>	
Measurement stop&go - duration	TPS: 5 s GPS: 1 s	TGS FX – sensors	GBS 1010, rechargeable > 8 h
Measurement kinematic - data frequency	TPS: 7 Hz GPS: 10 Hz	Battery life*)	> 8 h
<b>System accuracy</b>		Panasonic control computer Battery life*)	Li-Ion battery, rechargeable > 4 h
Determination of track position and height*)		*) Depending on conditions.	
GRP with total station (TPS) - stop&go mode - kinematic mode		<b>Environmental specifications</b>	
Pos./Height:	+/- 1 mm +/- 5 mm	Working temperature range	-10° to +50° C
GRP with GPS - with reference station		Humidity - non-condensing	< 80 %
Position:	+/- 20 mm Height: +/- 40 mm	<b>System weight</b>	
*) Typical project accuracy. Depending on e.g. atmospheric conditions, control point quality, positioning sensor and project conditions.		GRP 1000 - ready to measure - incl. battery and computer	27 kg

## 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
<b>Typical surveying performance</b>	
Track survey with total station	800 – 1200 m/h
Track survey with GPS - GPS receiver and reference station necessary	3000 m/h
<b>As-built data (export)</b>	
Supporting data interfaces - further formats on request	- ASCII - DXF - LandXML
<b>System approval</b>	
CE Conformity	EN 61326-1:2013 EN 61000-6-2:2005 EN 61000-6-4:2007/A1:2011 EN 60825-1:2014 EN 13977:2011 Directives 2014/30/EU Directives 2014/35/EU Directives 2011/65/EU
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)
<b>Extract of references</b>	
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.	

# Amberg Survey GRP 1000

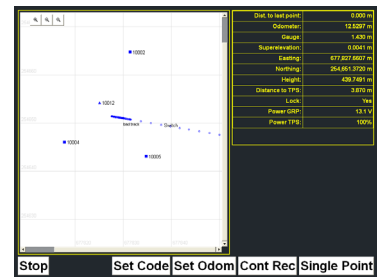
## System performance and technical data

### 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.

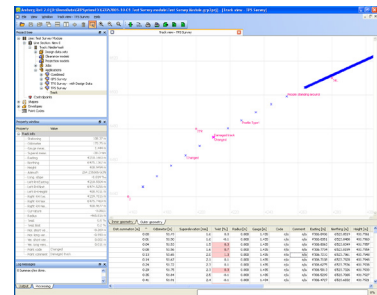
#### Project data management

- 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.



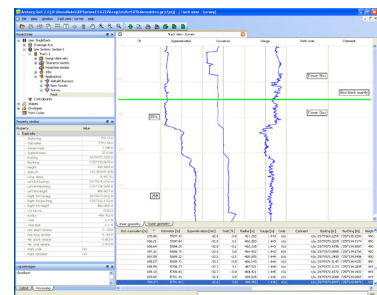
#### Surveying

- 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.



Amberg Technologies AG  
 Trockenloostrasse 21  
 CH-8105 Regensdorf  
 Switzerland  
 Phone +41 44 870 92 22  
 info@amberg.ch  
 www.ambergtechnologies.ch