AMBERG TECHNOLOGIES

Amberg Clearance IMS 5000

Complete railway infrastructure data in no time – simple and high performant

The new way of railway infrastructure scanning

- Well-tried GRP 5000 system enhanced with IMU technology
- Combined survey of relative and absolute track geometry
- Comprehensive scan data for clearance analysis and design purposes
- Highly accurate 3D point cloud of complete infrastructure
- Unrivalled survey performance up to 4,000 m/h
- No total station or GNSS signal required for absolute data

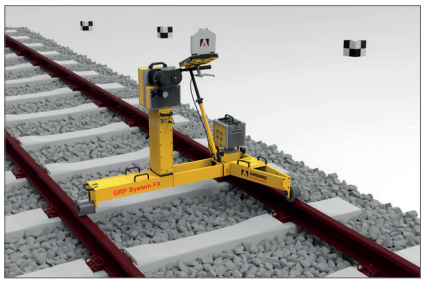
Amberg IMS 5000

Modular system design

- Measuring trolley consisting of precision sensors for gauge, superelevation and distance as well as ruggedized notebook
- Laserscanner Amberg Profiler 6012 for acquisition of complete infrastructure
- AMU 1030 (Amberg Measuring Unit) for unrivalled kinematic measurement precision
- Modular system upgrading possibilities

Absolute as-built track and infrastructure survey with given 3D control points

- High performance for short and long track sections – up to 4,000 m/h
- Absolute 3D control points as transformation references
- Switching on / off control points for processing depending on quality
- Unlimited use during day and night – no line of sight requirements



Absolute as-built track and infrastructure survey

Relative track geometry and infrastructure survey

- Pure relative survey of track geometry and objects around track
- Stationing plates as references
- Measurement and calculation of track parameters like horizontal / vertical versines, curvature / radius, gauge, superelevation and twist
- Usage of these parameters e.g. for dynamic clearance analysis

Relative track geometry and infrastructure survey

Amberg Clearance IMS 5000

System performance and technical data

System configuration		
Gauge (mm)	1000, 1067, 1435, 1520/24, 1600, 1668/76	
Gauge measuring range (mm)	-25 to +65	
Superelevation (cross-level) at 1435 mm (mm)	+/- 260	
Profiling unit	Amberg Profiler 6012	Z+F Profiler 9012
Track alignment measurement	AMU 1030	
System weight (kg) (ready to measure, incl. batteries, notebook, all measuring devices)	61	
Sensor performance		
Amberg Profiler 6012 ▪ Rotations / second ▪ Scan points / second	 up to 200 up to 1,000,000	
Track geometry ▪ 3D track position, superelevation (Hz) ▪ Gauge (Hz)	 100 10	
System accuracy		
	Relative	**Absolute**
Track position and height [1] (mm)	not available	+/- 3
Track geometry (versine), 2 sigma ▪ 30 m chord (mm) ▪ 300 m chord (mm)	 +/- 0.7 +/- 3	 +/- 0.7 +/- 3
Superelevation (cross-level) (mm)	+/- 0.5	+/- 0.5
Gauge (mm)	+/- 0.3	+/- 0.3
Profile accuracy (mm) ▪ relative to track axis ▪ at a distance of 5 m	+/- 3	+/- 3
Object point accuracy [1] (mm) ▪ at a distance of 5 m	+/- 3	+/- 5

[1] Depending on e.g. control point density, control point quality and project conditions.

Environmental specifications	
Lighting conditions	Darkness to daylight
Working temperature range	-10°C to +45°C
Humidity (non-condensing)	< 80 %
Data export options	
Track data	ASCII DXF LandXML further formats on request
Profiles (cross-sections)	ASCII DXF ClearRoute TopoRail Lira further formats on request
Point cloud	ASCII PTS further formats on request
System approvals	
CE Conformity	EN 61326-1:2013 EN 61000-6-2:2005 EN 61000-6-4:2007/A1:2011 EN 60825-1:2014 EN 13848-4 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)

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.

Amberg Technologies AG
Trockenloostrasse 21
CH-8105 Regensdorf
Switzerland

Tel. +41 44 870 92 22
info@amberg.ch

www.amberg.ch/at

AMBERG TECHNOLOGIES