AMBERG OMNI

FROM TRACK GEOMETRY TO ASSET CONDITION — ALL IN ONE RUN

The Amberg Omni system combines high-precision multi-sensor measurement with an efficient and user-friendly inspection workflow for track maintenance. Automated data processing and integrated analysis support reliable condition assessment, defect identification and standardized reporting.

Integrated Measurement Capability

- Track geometry parameters
- Turnout structures and key components
- Rail profile, wear and surface condition
- Fastening systems and rail clips

Multi-Sensor Measurement System

- Line-structured laser scanning integrated with high-resolution imaging to support high-density point-cloud reconstruction for condition assessment
- IMU + DMI positioning with optional GNSS integration

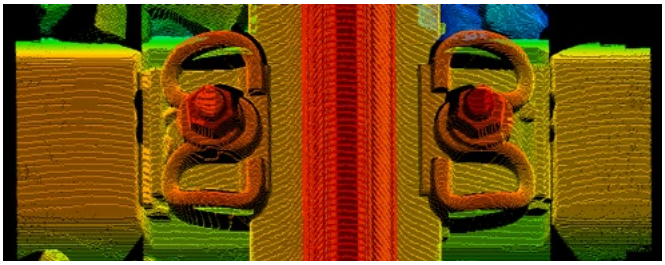
Efficient Measurement Workflow

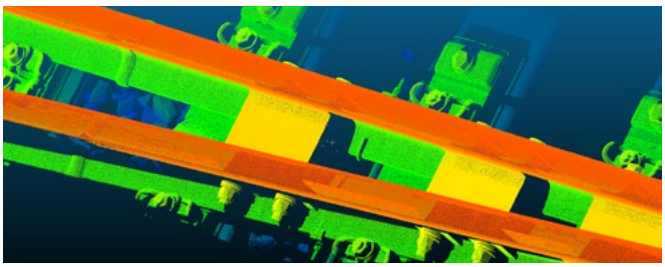
- Replace manual measurements & fragmented workflows
- Modular design for easy transportation and deployment
- Intuitive operation supported by automated processing & reporting, increasing productivity
- Customised reporting and export for maintenance documentation

Reliability

- High-precision measurement with consistent repeatability
- Stable operation in complex and harsh environments

Amberg Omni





Amberg Technologies AG
Trockenloostrasse 21
8105 Regensdorf

Phone +41 44 870 92 22
info@amberg.ch
ambergtechnologies.com

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SYSTEM PERFORMANCE AND TECHNICAL DATA

System configuration	
Gauge	1435 mm
Gauge measuring range (re 1435 mm gauge)	-25 mm to +35 mm
Cant (re 1435 mm gauge)	± 300 mm
Wheel type	PET-insulated wheels
System dimensions [L/W/H]	2000 × 1300 × 850 mm
System weight	36 kg (Main beam module) 34 kg (Running module)
Transport case	Available as an option

System performance	
Typical measuring speed	3.6 km/h
Max. measuring speed	5 km/h
Max. operating time per battery	5 h

System accuracy - 95th Percentile	
Track geometry	
Gauge	± 0.225 mm
Cant	± 0.225 mm
Twist	± 0.375 mm
Horizontal alignment 10 m	± 0.5 mm
Vertical alignment 10 m	± 0.5 mm
Turnout structure	
Reduction value	± 0.2 mm
Wing rail elevation	± 0.2 mm
Flangeway width	± 0.2 mm
Rail profile	
Vertical	± 0.1 mm
Lateral	± 0.1 mm
Rail Wear	± 0.1 mm
Rail surface condition	
Running band width	± 0.5 mm
Running band position	± 0.5 mm
Sleeper	
Sleeper interval	± 1 mm

Defect detection rate: 90%	
Rail surface condition	Rail spalling (0.5 mm × 3 mm)
Fastening system condition	Clip missing
	Clip fracture
	Clip tilted (≥ 30°)
	Anchor bolt missing
	Anchor bolt loose (height difference ≥ 5 mm)
Turnout structure	Rail-to-rail gap
	Slide chair gap
	Gauge apron gap
Sleeper condition	Crack (≥ 0.2 mm)
	Spalling (10 mm × 10 mm)

Environmental specifications	
Working temperature range	-20 °C to +50 °C
Protection class	IP55
Humidity (non-condensing)	< 95%

Data export formats	
Database	SQLITE
Point cloud	LAS / TXT
Image	TIFF / PNG / JPEG
Report	PDF / XLSX / DXF

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