SOFTWARE DATASHEET

GEDO SCAN OFFICE

PROCESSING & ANALYSIS OF 3D POINT CLOUD DATA

The powerful Trimble GEDO Scan Office software enables railway track-specific processing and analysis of 3D point clouds. It is used to pre-process Trimble GEDO Scan measurements and can visualize and analyze data as well as already processed point cloud data from terrestrial laser scanners and mobile mapping systems.

FUNCTIONALITY

Data Basis

Point cloud data from a wide variety of sources can be processed. In addition to data from a Trimble GEDO Scan system, terrestrial laser scan data and data from mobile mapping systems can be imported.

Visualization

Point cloud data is visualized three-dimensionally. Navigation takes place along the track axis. In addition to the panorama view, a profile view can be displayed simultaneously.

Measurements

Measurements are made directly in the point cloud with reference to the current or planned track position. In addition to the measurement in the horizontal and superelevated system, the measurements are referenced to a rail or to the track axis.

Track position

The track position is precisely determined based on the point cloud using special algorithms and is used for further analysis.

Overhead line

The overhead line detection function supports tasks for overhead line planning. After determining the position of the overhead line, the height and lateral distance to the track axis in the elevated system are determined and the position of the overhead line poles is detected.

Objects

Linear objects along the track are detected using a tracing tool. In addition to the absolute position, distances to the track axis are also captured.

Clearance analysis

Clearance analysis is performed using static or dynamic profiles. Dynamic profiles are defined either via a 3D wagon model, on the basis of a stored formula set or via an external profile extension definition. The current track position or a newly planned track alignment can be used to check against.

Cross sections

For documentation of bottlenecks and for planning purposes, cross sections can be generated along the track axis at collision points or at a specified interval.

Classification

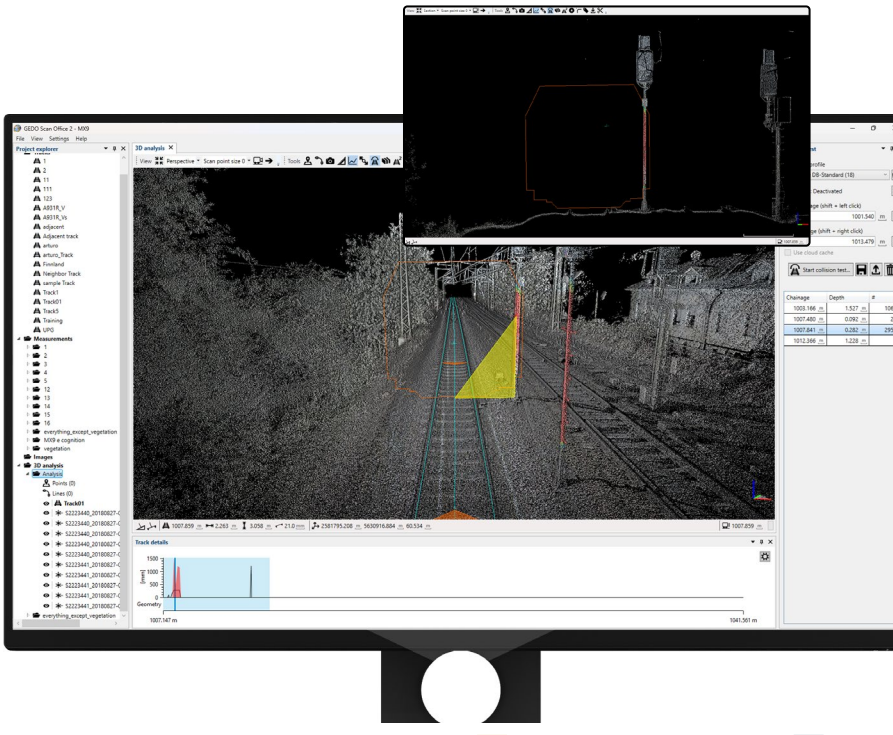
An automated, track-specific classification based on machine learning algorithms enables the detection of ballast, sleepers, rails and poles.

Orthophoto

For better documentation of bottlenecks, images from selected mobile mapping systems can be displayed and an orthophoto can be generated for the respective bottleneck.

Key Benefits

- Railway track-specific processing and analysis of 3D point clouds
- Navigation along the track with station view
- Processing of point cloud data from different origins (GEDO, terrestrial, mobile mapping)
- Use of designed and measured track alignments
- Full 3D representation of point cloud data
- Neighboring track detection for the detection of additional tracks visible in the scan
- Overhead line detection and distance measurement
- Clearance analysis with static clearance envelopes, 3D wagon models or formula sets



Trimble

Find out more:
gedo.trimble.com

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GENERAL	
APPLICATIONS	
	Planning, BIM and construction • Documentation of the actual condition • Basic data capture for planning for 3D modeling • Clearance analysis • Overhead line planning • Classification for ballast planning • As-built documentation after completion Operation and Maintenance • Clearance analysis for extra-wide transports and cross-border rail traffic • Narrow-gauge documentation for the infrastructure operator (i.e., WinLUE for LIRA and Clearroute) Asset Management • Capturing of railway specific assets
IMPORT FORMATS	
Laser scan data	GEDO, LAS, LAZ, E57, PTS
Alignment data [1]	GEDO, LandXML, ASCII Bahn, MDB, TRA/GRA, Toporail, ProRail
Track geometry	TRACK, CSV, GTD
Points	CSV
EXPORT FORMATS	
Laser scan data	LAS, LAZ, E57, PTS
Clearance documentation	DXF, WinLUE, Clearroute, Banedanmark, and others
Track geometry	TRACK, GTD, CSV, DXF
Objects (points and lines)	CSV, DXF
SYSTEM REQUIREMENTS	
Operating system	Windows® 10 and Windows 11
Hard drive	≥ 500 GB SSD
Working memory	≥ 16 GB
Graphics card	NVIDIA® with ≥ 4GB dedicated graphics memory

[1] Import partially via GEDO Office
[2] Supported mobile mapping systems on request

SOFTWARE MODULES

Pre-Processing

The Pre-Processing module enables calibration of the Trimble GEDO Scan systems and is used for pre-processing and geo-referencing of field measurements from Trimble GEDO Rec-Scan, Trimble GEDO IMS-Scan, and Trimble GEDO IMS-GNSS-Scan systems.

Point Cloud

The Point Cloud module offers extensive functionality for the railway track-specific analysis and visualization of point cloud data. Laser scan data from Trimble GEDO Scan systems, terrestrial laser scans and mobile mapping measurement runs can be processed.

Image

The Image module generates orthophotos at narrow locations from images taken with the calibrated camera of a Mobile Mapping System [2].

WinLUE

The WinLUE module allows the data preparation of bottleneck measurements, as well as the export in WinLUE format for the LIRA database of the Deutsche Bahn.

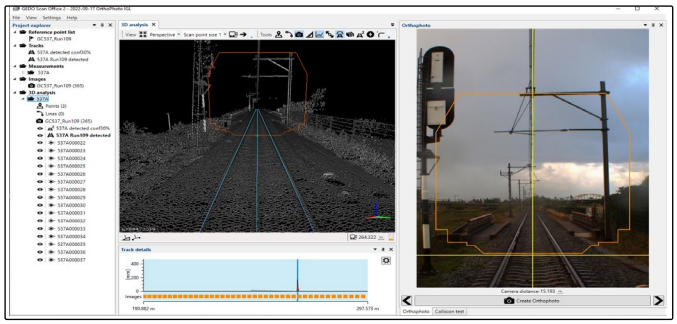
Clearroute

The Clearroute module supports documentation of bottlenecks and export in the Clearroute format.

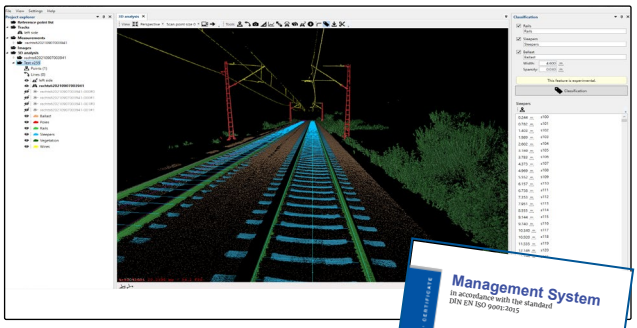
Additional and customized modules

Additional modules (i.e., Banedanmark, Montreal, CIS, SBB) enable bottleneck evaluation and data output according to the requirements of the respective infrastructure operator.

In addition, we offer the development of customer-specific modules for clearance evaluation.



GEDO Scan Office: Orthophoto



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