

# Amberg Tunnelscan Datasheet



## The powerful office software for any type of scanning

Laser Scanning in tunnelling is a standard for every construction site. After every advance in a tunnel, a detailed as-built analysis of the bare rock is required. While the acquisition is done quickly, processing this huge amount of data can be quite challenging.

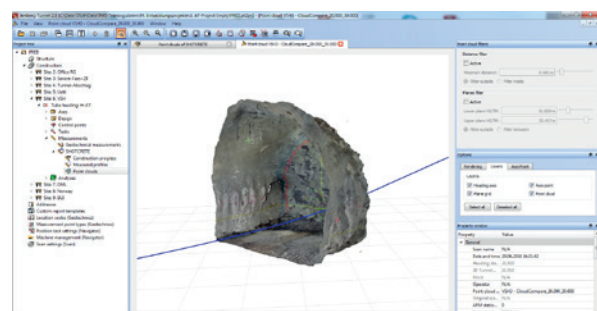
Amberg Tunnelscan turns scan data with ease into meaningful results. This kind of information is required for every construction site.

The office software allows to process data which are collected with Amberg Navigator, Amberg ScanControl or with any other system in the tunnel. Besides the powerful reposition function you can also use intelligent filtering algorithm which are optimised for the tunnel point clouds.

Amberg Tunnelscan comes in two modules:

- Amberg Tunnelscan Basic: APM positioning, intelligent filtering of point clouds and line scan analysis
- Amberg Tunnelscan Plus: Basic features, blast round scan, layer thickness and undulation analysis. Furthermore, reposition of checkerboards and sphere targets are included.

## Adding value to your scan data



# Amberg Tunnelscan

## System Overview

Basic functions and features		
Software solution for Windows 7/8.1/10		
Comprehensive 3D overview viewer for an easy project navigation (incl. heading progress for each construction stage)		
The software is intuitive, reliable, user-friendly and attractively designed		
Manage construction projects and tunnel maintenance projects in a single system		
Comfortable and interactive project data input with direct graphical visualisation		
Intermediate point calculation, axis-related point projection (2D / 3D) for independent project data control		
Flexible ASCII import of coordinates for computing the axis		
Define several project axes using elements for horizontal and vertical alignment		
Comprehensive support for the import of project data (e.g. Cremer, LandXML, DXF or ASCII)		
Project-specific adaptation of units (e.g. meters, international and US feet) and the display of decimal places		
Unlimited number of construction stages consisting of theoretical profiles, section definitions, transverse slope and block definition		
Define theoretical profiles vertically or inclined relative to longitudinal profile		
DXF, Leica LandXML and TUN (SBG) interface for theoretical profiles (e.g. DXF importing profiles from TMS Office 1.0)		
Comprehensive profile editor for simplifying routine tasks (blow-up function, mirroring, drag and drop, split, etc.)		
Support for transition zones between various profile geometries (linear or centroid-based interpolation)		
Graphical visualisation of project geometry data in the 3D viewer		
Integrated address management for personalised reports (e.g. contractor or client)		
Amberg Tunnel supports all underground projects, even with heavily inclined tunnels (e.g. hydropower projects)		
Amberg Tunnel also supports vertical shafts		
Management of the control points for each drive, including a time history		
Functions for point cloud measurements	Basic	Plus
Automatic data synchronisation with Amberg Navigator Tablet for trouble-free data transfer for scan data (requires Scanning task on Amberg Navigator)	✓	✓
Import of point clouds with ASCII (PTS or XYZ) files and proprietary scan data formats like PCD and LAS/LAZ	✓	✓
Import of data from Z&F (*.zfs), Faro Scans (*.fls) and Leica MultiStation Scans (*.xcf or *.sdb)	✓	✓
Management of measured point clouds for each construction stage	✓	✓
Repositioning of the Resection based on updated control points	✓	✓
Repositioning of APM Scans with automatic target recognition of the TPR100 Scan sphere	✓	✓
Repositioning of scans with checkerboards and sphere targets		✓
3D visualisation of point cloud with reflectivity layer and true colour layer	✓	✓
Distance filter relative to the scanner position (inside or outside of range)	✓	✓
Section filter for stationing section (inside or outside of range)	✓	✓
Resampling of point clouds to get a homogeneous point cloud	✓	✓
Intelligent filter (distance, stationing and resampling) can be applied for several scans	✓	✓
Management of customer-specific report templates	✓	✓
Line scan analysis: Analysis of 3D scan in comparison to the design data	✓	✓
Blast round scan analysis: Analysis of daily 3D scan after every advance. Comparison to the design data with automatic classification (e.g. bare rock and sprayed concrete) of the point cloud		✓
Layer thickness analysis: Analysis of measured 3D scans compared to measured 3D scans of another construction stage		✓
Comprehensive filter algorithm which take the tunnel geometry into account like projection Z min. max. value	✓	✓
Fully automatic profile extraction (snapshot, regular interval or based on a specific file list) from point clouds to Amberg Profile module	✓	✓
Colourised 2D area maps for all point cloud analyses	✓	✓
Comprehensive numerical reports for over- under break volume and measured volume	✓	✓
Processing overview editor with intelligent slice management (recognize which slice must be processed after changes on design or new measurements available)	✓	✓
Export point clouds analysis to PTS (*.pts)	✓	✓
Undulation analysis: Analysis for quality checks of the shotcrete before the membrane for waterproofing will be applied in the tunnel (separate Amberg Tunnelscan Analysis requires either Amberg Tunnelscan Basic or Plus module)		