AMBERG TECHNOLOGIES

# Amberg Tunnel

## Technical Specifications

| Legend | |
|---|---|
| ● | Existing feature |
| ● | New or enhanced feature |
| ○ | Optional |
| [1] | Requires measurements from the Amberg Navigator Documentation task |
| [2] | Requires Profile Basic or Plus |

## Amberg Tunnel Technical Specifications

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Project** | | | | | | | |
| Local project creation + editing | ● | ● | ● | ● | ● | ● | ● |
| Remote project creation + editing | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Remote project synchronisation | ● | ● | ● | ● | ● | ● | ● |
| **Interface** | | | | | | | |
| Project tree navigation | ● | ● | ● | ● | ● | ● | ● |
| 3D overview, zoom, pan, rotate | ● | ● | ● | ● | ● | ● | ● |
| Ortho background map import | ● | ● | ● | ● | ● | ● | ● |
| Analysis quick browser | ● | ● | ● | ● | ● | ● | ● |
| **General / Miscellaneous** | | | | | | | |
| Package project for technical support | ● | ● | ● | ● | ● | ● | ● |
| Automatic check for updates | ● | ● | ● | ● | ● | ● | ● |
| **General options** | | | | | | | |
| Configure project units/formats | ● | ● | ● | ● | ● | ● | ● |
| Change user interface + reporting language | ● | ● | ● | ● | ● | ● | ● |
| Turn on/off 2D map labels | ● | ● | ● | ● | ● | ● | ● |
| **Site** | | | | | | | |
| Site creation | ● | ● | ● | ● | ● | ● | ● |
| Site archiving | ● | ● | ● | ● | ● | ● | ● |
| **IFC import (3D model files)** | | | | | | | |
| Import model (IFC) | ● | ● | ● | ● | ● | ● | ● |
| Model visualization in 3D | ● | ● | ● | ● | ● | ● | ● |
| IFC file hierarchy view | ● | ● | ● | ● | ● | ● | ● |
| Surface geometry selection tools | ● | ● | ● | ● | ● | ● | ● |
| Export surface to the construction stage design | ● | ● | ● | ● | ● | ● | ● |
| **Tube design** | | | | | | | |
| Tube design creation | ● | ● | ● | ● | ● | ● | ● |
| Tube archiving | ● | ● | ● | ● | ● | ● | ● |
| Copy tube design | ● | ● | ● | ● | ● | ● | ● |
| Export tube design: LandXML | ● | ● | ● | ● | ● | ● | ● |
| Export tube design: Amberg Applications | ● | ● | ● | ● | ● | ● | ● |
| Export tube design: Leica RoadRunner | ● | ● | ● | ● | ● | ● | ● |
| Export tube design: PPS | ● | ● | ● | ● | ● | ● | ● |
| **Shaft design** | | | | | | | |
| Shaft design creation | ● | ● | ● | ● | ● | ● | ● |
| Shaft archiving | ● | ● | ● | ● | ● | ● | ● |
| Export shaft design: Amberg Applications | ● | ● | ● | ● | ● | ● | ● |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Alignment** | | | | | | | |
| Alignment creation + editing | • | • | • | • | • | • | • |
| Derive alignment from chainage axis | • | • | • | • | • | • | • |
| Alignment quality check indicators | • | • | • | • | • | • | • |
| Alignment text + graphical reports | • | • | • | • | • | • | • |
| Import alignment (Horizontal): LandXML | • | • | • | • | • | • | • |
| Import alignment (Horizontal): DXF | • | • | • | • | • | • | • |
| Import alignment (Horizontal): Cremer | • | • | • | • | • | • | • |
| Import alignment (Horizontal): ASCII | • | • | • | • | • | • | • |
| Import alignment (Horizontal): LandXML | • | • | • | • | • | • | • |
| Import alignment (Vertical): LandXML | • | • | • | • | • | • | • |
| Import alignment (Vertical): Cremer | • | • | • | • | • | • | • |
| Import alignment (Vertical): ASCII | • | • | • | • | • | • | • |
| Import alignment (Vertical): desCN | • | • | • | • | • | • | • |
| Export alignment (Horizontal + vertical): LandXML | • | • | • | • | • | • | • |
| Export alignment (Horizontal + vertical): Cremer | • | • | • | • | • | • | • |
| **Axis calculator** | | | | | | | |
| Axis calculator: Interval point calculation | • | • | • | • | • | • | • |
| Axis calculator: Absolute coordinates to tunnel-axis coordinates | • | • | • | • | • | • | • |
| Axis calculator 2D + 3D views | • | • | • | • | • | • | • |
| Export axis calculator results: DXF | • | • | • | • | • | • | • |
| Export axis calculator results: ASCII | • | • | • | • | • | • | • |
| Export tabular report | • | • | • | • | • | • | • |
| **Construction stage** | | | | | | | |
| Construction stage creation | • | • | • | • | • | • | • |
| Construction stage import from 3D model (IFC) | • | • | • | • | • | • | • |
| Construction stage archiving | • | • | • | • | • | • | • |
| **Theoretical profiles** | | | | | | | |
| Theoretical profile manager | • | • | • | • | • | • | • |
| Theoretical profile creation + editing | • | • | • | • | • | • | • |
| Vertical + perpendicular profile types | • | • | • | • | • | • | • |
| Import theoretical profiles: LandXML | • | • | • | • | • | • | • |
| Import theoretical profiles: DXF | • | • | • | • | • | • | • |
| Import theoretical profiles: TUN | • | • | • | • | • | • | • |
| Export theoretical profiles: DXF | • | • | • | • | • | • | • |
| Export tabular + graphical report | • | • | • | • | • | • | • |
| **Theoretical sections** | | | | | | | |
| Theoretical section creation + editing | • | • | • | • | • | • | • |
| Theoretical section 2D + 3D views | • | • | • | • | • | • | • |
| Linear + mass-centre interpolation methods | • | • | • | • | • | • | • |
| Import theoretical sections: LandXML | • | • | • | • | • | • | • |
| Import theoretical sections: ASCII | • | • | • | • | • | • | • |
| Export theoretical section: ASCII, OBJ, PLY | • | • | • | • | • | • | • |
| Export tabular + graphical reports | • | • | • | • | • | • | • |
| **Transverse slope** | | | | | | | |
| Transverse slope creation + editing | • | • | • | • | • | • | • |
| Transverse slope 2D + 3D views | • | • | • | • | • | • | • |
| Import transverse slope: LandXML | • | • | • | • | • | • | • |
| Import transverse slope: ASCII | • | • | • | • | • | • | • |
| Export ransverse slope: ASCII | • | • | • | • | • | • | • |
| Export tabular + graphical report | • | • | • | • | • | • | • |
| **Block definition** | | | | | | | |
| Block definition creation + editing | • | • | • | • | • | • | • |
| Block definition 2D + 3D views | • | • | • | • | • | • | • |
| Import block definition: ASCII | • | • | • | • | • | • | • |
| Export block definition: ASCII | • | • | • | • | • | • | • |
| Export tabular + graphical report | • | • | • | • | • | • | • |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Control points** | | | | | | | |
| Control point manager | ● | ● | ● | ● | ● | ● | ● |
| Control point creation + editing | ● | ● | ● | ● | ● | ● | ● |
| Control point 2D + 3D views | ● | ● | ● | ● | ● | ● | ● |
| Name- + proximity-based import matching methods | ● | ● | ● | ● | ● | ● | ● |
| Control point measurement table | ● | ● | ● | ● | ● | ● | ● |
| Control point archiving | ● | ● | ● | ● | ● | ● | ● |
| Mark measurement as erroneous | ● | ● | ● | ● | ● | ● | ● |
| Mark measurement as zero | ● | ● | ● | ● | ● | ● | ● |
| Set import deviation warning limit | ● | ● | ● | ● | ● | ● | ● |
| Import control points: DBX | ● | ● | ● | ● | ● | ● | ● |
| Import control points: GSI | ● | ● | ● | ● | ● | ● | ● |
| Import control points: ASCII | ● | ● | ● | ● | ● | ● | ● |
| Export control points (latest measurement): DBX | ● | ● | ● | ● | ● | ● | ● |
| Export control points (latest measurement): ASCII | ● | ● | ● | ● | ● | ● | ● |
| Export control points (all measurements): DBX | ● | ● | ● | ● | ● | ● | ● |
| Export control points (all measurements): ASCII | ● | ● | ● | ● | ● | ● | ● |
| **Construction progress** | | | | | | | |
| Construction progress editor / graph | ● | ● | ● | ● | ● | ● | ● |
| Add, move, delete entries | ● | ● | ● | ● | ● | ● | ● |
| Import timestamp and stationing: ASCII | ● | ● | ● | ● | ● | ● | ● |
| Auto-populate progress graph with Navigator tablet measurement data | ●[1] | ●[1] | ●[1] | ●[1] | ●[1] | ●[1] | ●[1] |
| **Photos editor** | | | | | | | |
| Photo storage manager | ● | ● | ● | ● | ● | ● | ● |
| Import photos: JPEG, PNG, GIF | ● | ● | ● | ● | ● | ● | ● |
| Add + edit attribute information | ● | ● | ● | ● | ● | ● | ● |
| Auto-populate photos editor with Navigator tablet measurement data | ●[1] | ●[1] | ●[1] | ●[1] | ●[1] | ●[1] | ●[1] |
| Export photos | ● | ● | ● | ● | ● | ● | ● |
| **Addresses** | | | | | | | |
| Add recepient addresses, including company logos (for reports) | ○ | ● | ● | ● | ● | ● | ● |
| Add sender addresses, including company logos (for reports) | ○ | ● | ● | ● | ● | ● | ● |
| **Reports PDF** | | | | | | | |
| Select report template | | ● | ● | ● | ● | ● | ● |
| Vizialization according analysis settings | | ● | ● | ● | ● | ● | ● |
| Display recipient address | ● | ● | ● | ● | ● | ● | ● |
| Display sender address | ● | ● | ● | ● | ● | ● | ● |
| Show stationing of another axis | | ● | ● | ● | ● | ● | ● |
| Show report creator | | ● | ● | ● | ● | ● | ● |
| Write remarks | | ● | ● | ● | ● | ● | ● |
| Display measured point remarks | | ● | ● | | | ● | ● |
| Display measured profile remarks | | ● | ● | | | | |
| Display comment of most recent measurements | | | | | | ● | ● |
| Show measurement info | | | | ● | ● | | |
| **Navigator tablet data transfer** | | | | | | | |
| Export project to Amberg Navigator tablet | ● | ● | ● | ● | ● | ● | ● |
| Import project from Amberg Navigator tablet | ● | ● | ● | ● | ● | ● | ● |
| Synchronise project with Amberg Navigator Cloud | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| **Navigator tablet machine management** | | | | | | | |
| Create + edit calibration points for machine positioning (drill rig) | ● | ● | ● | ● | ● | ● | ● |
| Import calibration from file: ASCII | ● | ● | ● | ● | ● | ● | ● |
| Export calibration to file: ASCII | ● | ● | ● | ● | ● | ● | ● |
| **Navigator tablet total station positioning tasks** | | | | | | | |
| Configure Tripod (resection) task | ● | ● | ● | ● | ● | ● | ● |
| Configure Tripod Automatic (resection automatic) task | ● | ● | ● | ● | ● | ● | ● |
| Configure Temporary Control Points | ● | ● | ● | ● | ● | ● | ● |
| Configure Console task | ● | ● | ● | ● | ● | ● | ● |
| Configure Heading Check Point (HCHP) | ● | ● | ● | ● | ● | ● | ● |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Navigator tablet measurement tasks** | | | | | | | |
| Create + edit profiling tasks (all) | • | | | | | | |
| Profiling task definition import: ASCII | • | | | | | | |
| Profiling task definition 2D + 3D views | • | | | | | | |
| Profiling task definition text + graphical report | • | | | | | | |
| Create + edit stake-out tasks (all) | • | | | | | | |
| Stake-out task definition import: ASCII | • | | | | | | |
| Stake-out task definition 2D + 3D views | • | | | | | | |
| Stake-out task definition text + graphical report | • | | | | | | |
| Create + edit scanning tasks (all) | • | | | | | | |
| Create + edit geotechnics task | • | | | | | | |
| Create + edit other tasks (all) | • | | | | | | |
| Task archiving | • | | | | | | |
| | | | | | | | |
| **Stored points editor (points from Navigator)** | | | | | | | |
| Automatic import of points stored on Navigator | • | • | • | • | • | • | • |
| Measured point meta data | • | • | • | • | • | • | • |
| Measured point linked with Navigator task | • | • | • | • | • | • | • |
| Export points:ASCII | • | • | • | • | • | • | • |
| | | | | | | | |
| **Measured profiles editor** | | | | | | | |
| Measured profile manager + editor | | • | • | | | | |
| Measured profile 2D viewer | | • | • | | | | |
| Measured profile data table | | • | • | | | | |
| Import profile measurements: ASCII | | • | • | | | | |
| Detect profiles in file during import: ASCII | | • | • | | | | |
| Import profile measurements: Amberg Apps (ProScan) | | • | • | | | | |
| Import profile measurements: Leica Roadrunner | | • | • | | | | |
| Extract profiles from point cloud: ASCII | | • | • | | | | |
| Extract profiles from point cloud: Leica Multistation (XCF, SDB) | | • | • | | | | |
| Extract profiles from point cloud: Z+F | | • | • | | | | |
| Extract profiles from point cloud: Faro | | • | • | | | | |
| Extract profiles from point cloud: LAS/LAZ | | • | • | | | | |
| Check profile thickness | | • | • | | | | |
| Copy + paste measured profiles | | • | • | | | | |
| Inflate / deflate measured profiles | | • | • | | | | |
| Reposition measured profiles | | • | • | | | | |
| Merge measured profiles | | • | • | | | | |
| | | | | | | | |
| **Measured vs design profile analysis** | | | | | | | |
| Create + edit measured vs design profile analysis | | • | • | | | | |
| Copy analysis | | • | • | | | | |
| Measured profiles 2D + 3D views | | • | • | | | | |
| Measured points data table | | • | • | | | | |
| Add / move / delete profile points | | • | • | | | | |
| Render 3D view to image | | • | • | | | | |
| Add additional construction stages for display | | • | • | | | | |
| Configure deviation unit and format | | • | • | | | | |
| Change analysis view direction | | • | • | | | | |
| Change analysis stationing mode | | • | • | | | | |
| Filter profiles by stationing range | | • | • | | | | |
| Filter profiles by measurement date | | • | • | | | | |
| Change graphical report template | | • | • | | | | |
| Geometric data filters | | • | • | | | | |
| Configure 2D view background visualisation | | • | • | | | | |
| Configure 2D view measurements visualisation | | • | • | | | | |
| Show least square point and best-fit circle | | • | • | | | | |
| Show chainage information | | • | • | | | | |
| Configure printing options | | • | • | | | | |
| Export 2D as-built profiles: DXF | | • | • | | | | |
| Export 3D as-built profiles: DXF | | • | • | | | | |
| Export profiles in matrix format: DXF | | • | • | | | | |
| Export profile information: ASCII | | • | • | | | | |
| Export profile measurements: ASCII | | • | • | | | | |
| Export Under- /overprofile report | | • | • | | | | |
| Export least square point report | | • | • | | | | |
| Export measured volume report | | • | • | | | | |
| Export 2D profile graphical report (single file) | | • | • | | | | |
| Export per profile PDF report | | • | • | | | | |
| Export horizontal + vertical cuts: DXF | | | • | | | | |
| Export as-built mesh: OBJ | | | • | | | | |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Measured vs measured profile analysis** | | | | | | | |
| Create + edit measured vs measured profile analysis | | | • | | | | |
| Copy analysis | | | • | | | | |
| Measured profiles 2D + 3D views | | | • | | | | |
| Measured points data table (Original profile) | | | • | | | | |
| Measured points data table (Comparison profile) | | | • | | | | |
| Add / move / delete profile points | | | • | | | | |
| Render 3D view to image | | | • | | | | |
| Add additional construction stages for display | | | • | | | | |
| Configure layer thickness unit and format | | | • | | | | |
| Change analysis view direction | | | • | | | | |
| Change analysis stationing mode | | | • | | | | |
| Filter profiles by stationing range | | | • | | | | |
| Filter profiles by measurement date | | | • | | | | |
| Geometric data filters | | | • | | | | |
| Configure 2D view background visualisation | | | • | | | | |
| Configure 2D view measurements visualisation | | | • | | | | |
| Show chainage information | | | • | | | | |
| Configure printing options | | | • | | | | |
| Export 2D original vs comparison profiles: DXF | | | • | | | | |
| Export 3D original vs comparison profiles DXF | | | • | | | | |
| Export original vs comparison profiles in matrix format: DXF | | | • | | | | |
| Export comparison profile information: ASCII | | | • | | | | |
| Export comparison profile measurements: ASCII | | | • | | | | |
| Export original vs comparison measured volume report | | | • | | | | |
| Export 2D profile graphical report | | | • | | | | |
| Export horizontal + vertical cuts: DXF | | | • | | | | |
| Export comparison mesh: OBJ | | | • | | | | |
| | | | | | | | |
| **Circularity profile analysis** | | | | | | | |
| Create + edit measured vs design profile analysis | | | • | | | | |
| Copy analysis | | | • | | | | |
| Measured profiles 2D view | | | • | | | | |
| Measured points data table | | | • | | | | |
| Add / move / delete profile points | | | • | | | | |
| Add additional construction stages for display | | | • | | | | |
| Configure deviation unit and format | | | • | | | | |
| Change analysis view direction | | | • | | | | |
| Change analysis stationing mode | | | • | | | | |
| Filter profiles by stationing range | | | • | | | | |
| Filter profiles by measurement date | | | • | | | | |
| Geometric data filters | | | • | | | | |
| Use calculated radius for best-fit circle | | | • | | | | |
| Use fixed radius (user defined) for best-fit circle | | | • | | | | |
| Configure 2D view background visualisation | | | • | | | | |
| Configure 2D view measurements visualisation | | | • | | | | |
| Show least square point | | | • | | | | |
| Show chainage information | | | • | | | | |
| Configure printing options | | | • | | | | |
| Export profile information: ASCII | | | • | | | | |
| Export circularity graphical report (single file) | | | • | | | | |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Geological overprofile analysis** | | | | | | | |
| Create + edit geological overprofile analysis | | | • | | | | |
| Copy analysis | | | • | | | | |
| Measured profiles 2D + 3D views | | | • | | | | |
| Measured points data table | | | • | | | | |
| Add / move / delete profile points | | | • | | | | |
| Render 3D view to image | | | • | | | | |
| Add additional construction stages for display | | | • | | | | |
| Configure deviation unit and format | | | • | | | | |
| Change analysis view direction | | | • | | | | |
| Change analysis stationing mode | | | • | | | | |
| Filter profiles by stationing range | | | • | | | | |
| Filter profiles by measurement date | | | • | | | | |
| Change graphical report template | | | • | | | | |
| Geometric data filters | | | • | | | | |
| Configure 2D view background visualisation | | | • | | | | |
| Configure 2D view measurements visualisation | | | • | | | | |
| Show chainage information | | | • | | | | |
| Configure printing options | | | • | | | | |
| Export 2D as-built profiles: DXF | | | • | | | | |
| Export 3D as-built profiles DXF | | | • | | | | |
| Export profiles in matrix format: DXF | | | • | | | | |
| Export profile information: ASCII | | | • | | | | |
| Export profile measurements: ASCII | | | • | | | | |
| Export geological overprofile report | | | • | | | | |
| Export 2D profile graphical report (single file) | | | • | | | | |
| Export per profile PDF report | | | • | | | | |
| Export horizontal + vertical cuts: DXF | | | • | | | | |
| Export as-built mesh: OBJ | | | • | | | | |
| | | | | | | | |
| **Point cloud editor** | | | | | | | |
| Point cloud manager + editor | | | | • | • | | |
| 2D plan view | | | | • | • | | |
| Table view | | | | • | • | | |
| 3D viewer | | | | • | • | | |
| 3D orthometric view | | | | • | • | | |
| 3D perspective view | | | | • | • | | |
| 3D preset views | | | | • | • | | |
| Import point cloud: ASCII (PTS, XYZ...) | | | | • | • | | |
| Import point cloud: Leica Multistation | | | | • | • | | |
| Import point cloud: Z+F | | | | • | • | | |
| Import point cloud: FARO | | | | • | • | | |
| Import point cloud: FARO Scene | | | | • | • | | |
| Import point cloud: PCD | | | | • | • | | |
| Import point cloud: LAS/LAZ | | | | • | • | | |
| Import point cloud: E57 | | | | • | • | | |
| Import point cloud: Leica RTC360 | | | | • | • | | |
| Import point cloud: Leica BLK360 | | | | • | • | | |
| Copy + paste point clouds | | | | • | • | | |
| Merge point clouds | | | | • | • | | |
| Archive point clouds | | | | • | • | | |
| Reposition point cloud from APM (Navigator) | | | | • | • | | |
| Reposition point cloud from APM (third party) | | | | • | • | | |
| Increase / decrease display density | | | | • | • | | |
| Point cloud color: RGB or High contrast | | | | • | • | | |
| Filter point cloud: Downsample | | | | • | • | | |
| Filter point cloud: Distance based | | | | • | • | | |
| Filter point cloud: Stationing / chainage based | | | | • | • | | |
| Filter point cloud: Theoretical design offset based | | | | • | • | | |
| Filter point cloud: Polygon selection based | | | | • | • | | |
| Hide / unhide selected points | | | | • | • | | |
| Undo / redo filter step | | | | • | • | | |
| Copy point cloud selection to other construction stage | | | | • | • | | |
| Recalculate point cloud gravity centre | | | | • | • | | |
| Reposition point cloud using spheres | | | | | • | | |
| Reposition point cloud using black + white targets | | | | | • | | |
| Reposition point cloud using cloud 2 cloud | | | | ○ | • | | |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Measured vs design point cloud analysis** | | | | | | | |
| Create + edit measured vs design point cloud analysis | | | | • | • | | |
| Copy analysis | | | | • | • | | |
| 2D deroled view with custom colour-coded deviation values | | | | • | • | | |
| 3D view with custom colour-coded deviation values | | | | • | • | | |
| Render 3D view to image | | | | • | • | | |
| Profile slice view with deviations | | | | • | • | | |
| Add additional construction stages for display | | | | • | • | | |
| Configure deviation unit and format | | | | • | • | | |
| Change analysis view direction | | | | • | • | | |
| Change analysis stationing mode | | | | • | • | | |
| Change analysis resolution (point cloud density) | | | | • | • | | |
| Filter point cloud: Theoretical design offset based | | | | • | • | | |
| Geometric data filters | | | | • | • | | |
| Configure 2D view background visualisation | | | | • | • | | |
| Configure 2D view measurements visualisation | | | | • | • | | |
| Configure colour map for deviations | | | | • | • | | |
| Configure printing options | | | | • | • | | |
| Export area coverage report: ASCII | | | | • | • | | |
| Export area classification report: ASCII | | | | • | • | | |
| Export measured volume report | | | | • | • | | |
| Export Under- /overprofile report | | | | • | • | | |
| Export 2D deroled report with custom colour-coded deviation values: PDF | | | | • | • | | |
| Export point cloud coloured by deviation to the theoretical profile | | | | • | • | | |
| Export downsampled point cloud | | | | • | • | | |
| Extract profiles to measured profiles editor | | | | •[2] | •[2] | | |
| | | | | | | | |
| **Blast round scan analysis** | | | | | | | |
| Create + edit blast round scan analysis | | | | | • | | |
| Copy analysis | | | | | • | | |
| 2D deroled view with custom colour-coded deviation values | | | | | • | | |
| 3D view with custom colour-coded deviation values | | | | | • | | |
| Render 3D view to image | | | | | • | | |
| Profile slice view with deviations | | | | | • | | |
| Add additional construction stages for display | | | | | • | | |
| Configure deviation unit and format | | | | | • | | |
| Change analysis view direction | | | | | • | | |
| Change analysis stationing mode | | | | | • | | |
| Change analysis resolution (point cloud density) | | | | | • | | |
| Filter point cloud: Theoretical design offset based | | | | | • | | |
| Mask inner or outer points | | | | | • | | |
| Geometric data filters | | | | | • | | |
| Interpolate areas without measurements (holes in point cloud) | | | | | • | | |
| Configure 2D view background visualisation | | | | | • | | |
| Configure 2D view measurements visualisation | | | | | • | | |
| Configure colour map for deviations | | | | | • | | |
| Configure printing options | | | | | • | | |
| Export area coverage report: ASCII | | | | | • | | |
| Export area classification report: ASCII | | | | | • | | |
| Export measured volume report | | | | | • | | |
| Export Under- /overprofile report | | | | | • | | |
| Export 2D deroled report with custom colour-coded deviation values: PDF | | | | | • | | |
| Export point cloud coloured by deviation to the theoretical profile | | | | | • | | |
| Export downsampled point cloud | | | | | • | | |
| Extract profiles to measured profiles editor | | | | | •[2] | | |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Layer thickness scan analysis (Deformation analysis)** | | | | | | | |
| Create + layer thickness scan analysis | | | | | • | | |
| Copy analysis | | | | | • | | |
| 2D deroled view with custom colour-coded deviation values | | | | | • | | |
| 3D view with custom colour-coded deviation values | | | | | • | | |
| Render 3D view to image | | | | | • | | |
| Profile slice view with deviations | | | | | • | | |
| Add additional construction stages for display | | | | | • | | |
| Configure deviation unit and format | | | | | • | | |
| Change analysis view direction | | | | | • | | |
| Change analysis stationing mode | | | | | • | | |
| Change analysis resolution (point cloud density) | | | | | • | | |
| Filter point cloud: Theoretical design offset based | | | | | • | | |
| Geometric data filters | | | | | • | | |
| Configure 2D view background visualisation | | | | | • | | |
| Configure 2D view measurements visualisation | | | | | • | | |
| Configure colour map for deviations | | | | | • | | |
| Configure printing options | | | | | • | | |
| Export measured volume report: PDF | | | | | • | | |
| Export measured volume report: ASCII | | | | | • | | |
| Export 2D deroled report with custom colour-coded deviation values: PDF | | | | | • | | |
| Export point cloud coloured by layer thickness | | | | | • | | |
| Export downsampled point cloud | | | | | • | | |
| Extract profiles to measured profiles editor | | | | | •[2] | | |
| | | | | | | | |
| **Undulation scan analysis** | | | | | | | |
| Create + undulation scan analysis | | | | | • | | |
| Copy analysis | | | | | • | | |
| 2D deroled view with custom colour-coded deviation values | | | | | • | | |
| 3D view with custom colour-coded deviation values | | | | | • | | |
| Render 3D view to image | | | | | • | | |
| Configure undulation parameters (bar lenght, percentage) | | | | | • | | |
| Change analysis view direction | | | | | • | | |
| Change analysis stationing mode | | | | | • | | |
| Change analysis resolution (point cloud density) | | | | | • | | |
| Filter point cloud: Theoretical design offset based | | | | | • | | |
| Geometric data filters | | | | | • | | |
| Configure 2D view background visualisation | | | | | • | | |
| Configure 2D view measurements visualisation | | | | | • | | |
| Configure colour map for deviations | | | | | • | | |
| Configure printing options | | | | | • | | |
| Export 2D deroled images | | | | | • | | |
| Export 2D deroled report with custom colour-coded deviation values: PDF | | | | | • | | |
| | | | | | | | |
| **High resolution image scan analysis** | | | | | | | |
| Create + high resolution image scan analysis | | | | | • | | |
| Copy analysis | | | | | • | | |
| 2D deroled view | | | | | • | | |
| Configure brightness and contrast of the image | | | | | • | | |
| Change analysis view direction | | | | | • | | |
| Change analysis stationing mode | | | | | • | | |
| Change analysis resolution (point cloud density) | | | | | • | | |
| Filter point cloud: Theoretical design offset based | | | | | • | | |
| Geometric data filters | | | | | • | | |
| Configure 2D view background visualisation | | | | | • | | |
| Configure 2D view measurements visualisation | | | | | • | | |
| Configure maximum interpolation distance | | | | | • | | |
| Configure printing options | | | | | • | | |
| Export 2D deroled images | | | | | • | | |
| Export 2D deroled report: PDF | | | | | • | | |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Geotechnical location codes** | | | | | | | |
| Import location codes | | | | | | • | • |
| Export location codes | | | | | | • | • |
| Define vizualization parameters | | | | | | • | • |
| Define name and abbreviation | | | | | | • | • |
| | | | | | | | |
| **Geotechnical point types** | | | | | | | |
| Import sensors | | | | | | • | • |
| Export sensors | | | | | | • | • |
| Configure units | | | | | | • | • |
| Configure warning limits | | | | | | • | • |
| | | | | | | | |
| **Geotechnical cross sections** | | | | | | | |
| Create geotechnical cross section | | | | | | • | • |
| Deactivate cross section | | | | | | • | • |
| Cross section 2D view | | | | | | • | • |
| Copy cross section to interval | | | | | | • | • |
| Copy cross section to list of stationings | | | | | | • | • |
| Add 3D convergence point | | | | | | • | • |
| Add geotechnical sensor | | | | | | | • |
| Set sensor type, date, location, warning limit | | | | | | • | • |
| Add borehole with sensors | | | | | | | • |
| | | | | | | | |
| **Geotechnical measurements** | | | | | | | |
| Geotechnical measurements organized by cross section, location code, date and time | | | | | | • | • |
| Import measured data | | | | | | • | • |
| Import 3D points without point ID | | | | | | • | • |
| Import measurements of a specific point | | | | | | • | • |
| Undo import | | | | | | • | • |
| Export measurements: ASCII | | | | | | • | • |
| Set zero measurement | | | | | | • | • |
| Mark erroneous measurements | | | | | | • | • |
| Warnings of exceeded offset limits | | | | | | • | • |
| | | | | | | | |
| **Geotechnical convergence points analysis (cross section based)** | | | | | | | |
| Create cross section based convergence analysis | | | | | | • | • |
| Copy analysis | | | | | | • | • |
| Change analysis view direction | | | | | | • | • |
| Add additional construction stages for display | | | | | | • | • |
| Configure deviation unit and format | | | | | | • | • |
| Calculation of settlement, transversal and longitudinal offsets | | | | | | • | • |
| Cross section view | | | | | | • | • |
| Timeline for each offset | | | | | | • | • |
| Vizualization according location codes | | | | | | • | • |
| Vizualization of construction progress | | | | | | • | • |
| Warnings for exceeded offset limits | | | | | | • | • |
| Set zero measurement | | | | | | • | • |
| Mark erroneous measurements | | | | | | • | • |
| Filter measurements by: point type, location code | | | | | | • | • |
| Filter measurements by: stationing | | | | | | • | • |
| Filter measurements by: measurement date | | | | | | • | • |
| Filter measurements by: date of the newest measurement | | | | | | • | • |
| Configure background visualisation | | | | | | • | • |
| Configure measurements visualisation | | | | | | • | • |
| Configure printing options | | | | | | • | • |
| Configure warning, alarm and critical trigger value | | | | | | • | • |
| Export all results: ASCII | | | | | | • | • |
| Export latest measurements: ASCII | | | | | | • | • |
| Export tabular report with offsets: PDF | | | | | | • | • |
| Export graphical report: PDF | | | | | | • | • |
| Calculated angle analysis | | | | | | | • |
| Calculated distance analysis | | | | | | | • |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **Geotechnical sensors analysis (cross section based)** | | | | | | | |
| Create sensor cross section based analysis | | | | | | | • |
| Copy analysis | | | | | | | • |
| Change analysis view direction | | | | | | | • |
| Add additional construction stages for display | | | | | | | • |
| Configure deviation unit and format | | | | | | | • |
| Calculation of deltas | | | | | | | • |
| Cross section view | | | | | | | • |
| Timeline vizualization | | | | | | | • |
| Vizualization according location codes | | | | | | | • |
| Vizualization of construction progress | | | | | | | • |
| Warnings for exceeded offset limits | | | | | | | • |
| Set zero measurement | | | | | | | • |
| Mark erroneous measurements | | | | | | | • |
| Filter measurements by: point type, location code | | | | | | | • |
| Filter measurements by: stationing | | | | | | | • |
| Filter measurements by: measurement date | | | | | | | • |
| Filter measurements by: date of the newest measurement | | | | | | | • |
| Configure background visualisation | | | | | | | • |
| Configure measurements visualisation | | | | | | | • |
| Configure printing options | | | | | | | • |
| Configure warning, alarm and critical trigger value | | | | | | | • |
| Export all results: ASCII | | | | | | | • |
| Export latest measurements: ASCII | | | | | | | • |
| Export tabular report with offsets: PDF | | | | | | | • |
| Export graphical report: PDF | | | | | | | • |
| Angle analysis | | | | | | | • |
| Distance analysis | | | | | | | • |
| Extensometer analysis | | | | | | | • |
| Force analysis | | | | | | | • |
| Height analysis | | | | | | | • |
| Pressure analysis | | | | | | | • |
| Temperature analysis | | | | | | | • |
| | | | | | | | |
| **Geotechnical longitudinal analysis** | | | | | | | |
| Create longitudinal analysis | | | | | | | • |
| Copy analysis | | | | | | | • |
| Change analysis view direction | | | | | | | • |
| Add additional construction stages for display | | | | | | | • |
| Configure deviation unit and format | | | | | | | • |
| Calculation of deltas | | | | | | | • |
| Cross section schematic view | | | | | | | • |
| Vizualization along axis with measurement epochs | | | | | | | • |
| Vizualization of construction progress | | | | | | | • |
| Set zero measurement | | | | | | | • |
| Mark erroneous measurements | | | | | | | • |
| Filter measurements by: point type, location code | | | | | | | • |
| Filter measurements by: stationing | | | | | | | • |
| Filter measurements by: measurement date | | | | | | | • |
| Configure background visualisation | | | | | | | • |
| Configure measurements visualisation | | | | | | | • |
| Configure printing options | | | | | | | • |
| Export all results: ASCII | | | | | | | • |
| Export latest measurements: ASCII | | | | | | | • |
| Export graphical report: PDF | | | | | | | • |
| Angle analysis | | | | | | | • |
| Convergence analysis, settlement | | | | | | | • |
| Convergence analysis, longitudinal | | | | | | | • |
| Convergence analysis, transverse | | | | | | | • |
| Distance analysis | | | | | | | • |
| Force analysis | | | | | | | • |
| Height analysis | | | | | | | • |
| Pressure analysis | | | | | | | • |
| Temperature analysis | | | | | | | • |

| Feature / Workflow | Navigator | Profile Basic | Profile Plus | Tunnelscan Basic | Tunnelscan Plus | Geotechnics Basic | Geotechnics Plus |
|---|---|---|---|---|---|---|---|
| **System requirements** | | | | | | | |
| Operating system | Windows® 10/11 (64-bit version). | | | | | | |
| Processor | Dual-core 1.80 GHz or better. For Tunnelscan module, Quad-core 2.80 GHz is recommended.<br>**Important**: Amberg Tunnelscan performs better with Intel processors over AMD Ryzen processors. | | | | | | |
| RAM | 16 GB or more. For Tunnelscan module, 32 GB or more. | | | | | | |
| Hard disk | 30 GB or more. For Tunnelscan module, 100 GB or more (SSD). | | | | | | |
| Graphics | DirectX 11 compatibility with 512 MB or more memory. For Tunnelscan module, 8 GB or higher is recommended.<br>**Important**: The Tunnelscan module requires OpenGL 4.0 or later. | | | | | | |



Amberg Technologies AG
Trockenloostrasse 21
CH-8105 Regensdorf
Switzerland

Phone +41 44 870 92 22

info@amberg.ch
www.ambergtechnologies.com