

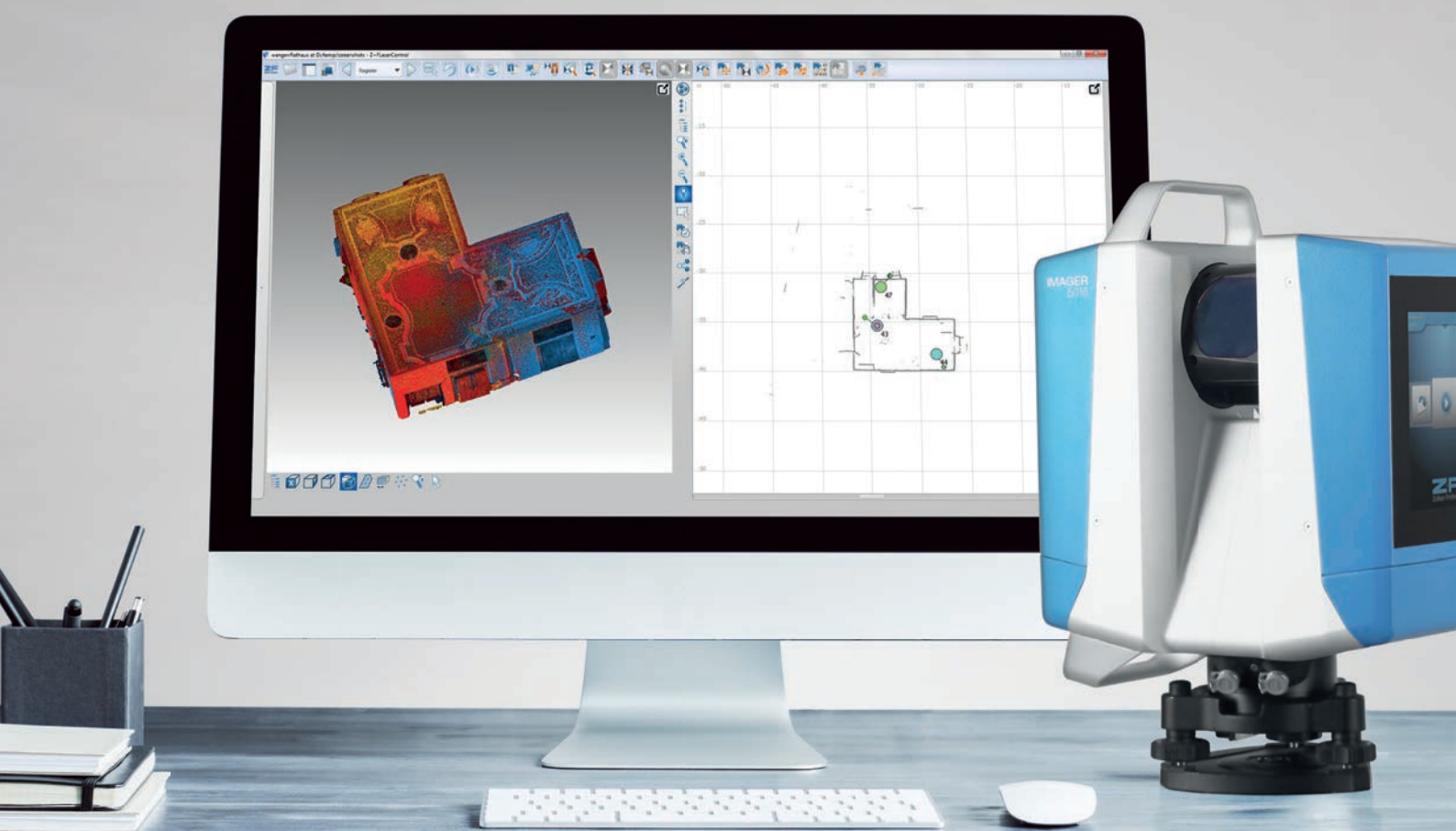


How we build reality

English

Z+F LaserControl®

Office & Scout



Overview of the Software Packages

		Scout	Scout Premium	Office*	Office** Premium	Forensic Add-on
Essential Features	2D and 3D Viewer	o	o	o	o	
	Scanner Control	o	o	o	o	
	Auto-Synchronisation	o	o			
	System-Check	o	o	o	o	
Filter	Filter Standard	o	o	o	o	
	Filter Advanced			o	o	
	Mirror Filter				o	
	Batch Processing	o	o	o	o	
	Masking Tools	o	o	o	o	
Registration	Target Registration	o	o	o	o	
	Cloud-to-Cloud Registration		o		o	
	Traverse Registration				o	
	Real-Time Registration Targets	o	o			
	Real-Time Registration Targetless		o			
	Bundle Adjustment		o		o	
	Support for Scantra Add-ons	o	o	o	o	
Targets	Black and White / Sphere: manual definition	o	o	o	o	
	Black and White: automatic detection	o	o	o	o	
	Z+F Auto Targets	o	o	o	o	
	Using Survey Control	o	o	o	o	
Efficiency Tools	Measurement Features	o	o	o	o	
	Labels	o	o	o	o	
	Links		o		o	
	Planes	o	o	o	o	
	Orthophotos				o	
	Slices				o	
	Kinematic Plugin			o	o	
	Video				o	o
	Shot Trajectory					o
	View from Eye					o
Color	HDR Color Processing	o	o	o	o	
	Thermal Processing (IR)	o	o	o	o	
	Images Alignment			o	o	
	Automatic Panorama Alignment	o	o	o	o	
Export	Export Tool	o	o	o	o	
	3D-PDF	o	o	o	o	
	Project2Go	o	o	o	o	

* Also available with Z+F LaserControl® Scout license on laser scanner, if connected
 ** Also available with Z+F LaserControl® Scout Premium license on laser scanner, if connected



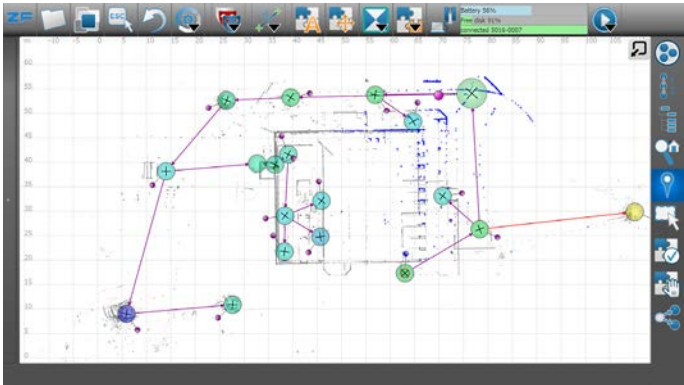
Z+F LaserControl® Office and Scout are the optimal solution to work efficiently and fully with the laser scanners of Zoller + Fröhlich. A range of filters, measurement and registration tools enable a high differentiate processing of scan data and are the key to filter, register and color 3D point clouds. Thanks to the large selection of export formats provided by Z + F LaserControl®, data can be imported and further processed in all common 3D software applications.



Essential Features & Filters

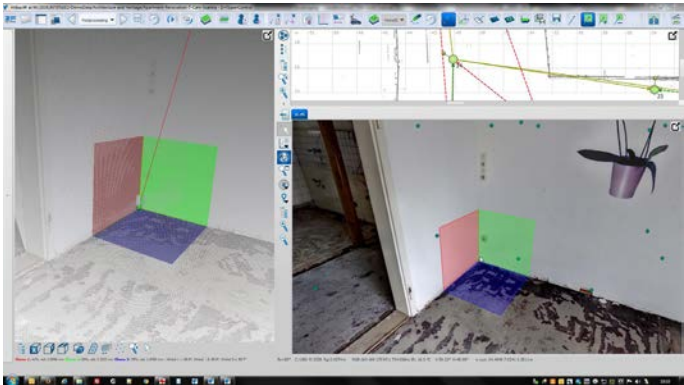
Direct scanner control and data transmission

With Z+F LaserControl®, the entire scanner hardware can be conveniently controlled. The direct communication via WLAN or LAN, offers a high degree of flexibility and security as well as a fast data transfer, even with large amounts of data.



Viewer

With top view, the 3D point cloud and the 2D panorama view, Z+F LaserControl® offers three options for viewing and editing scans and entire projects from different perspectives. As desired, the viewers can be closed, opened, enlarged and reduced.



Multi window view

System Check

The system check can be used to check quickly and easily the condition of a Z+F laser scanner and whether a recalibration is necessary.



Filter

The numerous filter functions optimize the quality of the point clouds. Z+F LaserControl® generates a separate mask for each filter, which merely marks the filtered points and does not delete them. This always allows to return to the original. Depending on the project requirement, the settings for each scan can be redefined or applied.



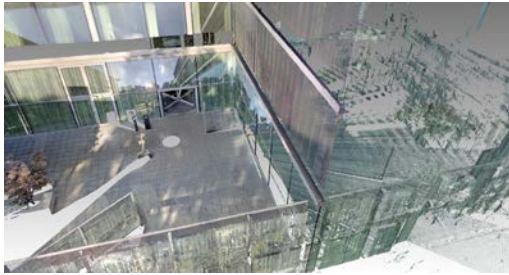
Without defined filter



With defined filter

Mirror Filter

In some cases, point clouds include mixed pixels due to highly reflective surfaces such as glass or mirrors. With the mirror filter, these points can be projected onto the mirror plane and masked.



Without mirror filter



With mirror filter



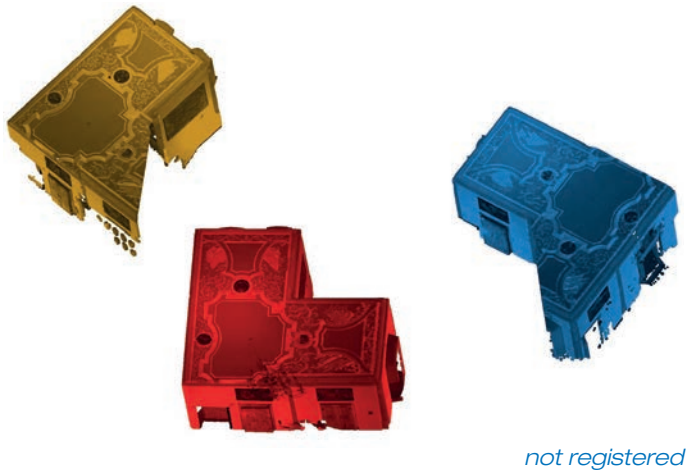
Z+F LaserControl® Office and Scout support the data formats of the handheld scanners DotProduct and Mantis. Thus, Zoller + Fröhlich optimizes and flexibilizes its registration workflow for applications that require both terrestrial laser scanners and handheld scanners. Thanks to Z+F LaserControl® Scout, the registration of different data types can already be done in the field.

Highly accurate Registration

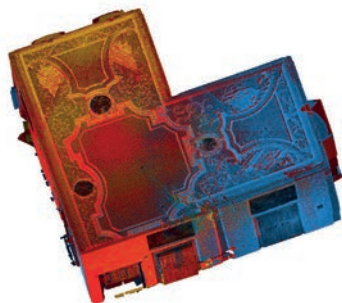
Just as important as measurements with very high accuracies is the precise registration of point clouds and thus the avoidance of gaps in projects. In Z+F LaserControl® users have several registration options. In addition to classic target registration, point clouds can also be stitched together Cloud-to-Cloud and Plan-to-Plan algorithms. These registration options are included in Z+F LaserControl® Office and Z+F LaserControl® Scout.

Cloud-to-Cloud registration

This module registers point clouds by automatically detecting matching overlap areas between the point clouds. In this process, Z+F LaserControl® achieves very high accuracies, which make it possible to work without targets in most applications. In addition, from version 9, it is possible to do a bundle adjustment calculation without external systems.



not registered



registered with Cloud-to-Cloud

Plane-to-Plane registration / Technet Scantra

The automatic Plane-to-Plane registration increases the applications where you can work without targets. The algorithm automatically detects identical levels - and, if necessary, points - in overlapping areas. The achievable accuracy is in the hundredth of a millimeter range. Automatic level detection is performed separately for each scan. Then an algorithm compares the levels from different scans. Finally, the found registration parameters are improved once again in a global adjustment.

Target registration

With Z+F LaserControl®, targets can be detected and marked manually and automatically. From version 9, it is possible to do a bundle adjustment in Z + F LaserControl®, which guarantees very accurate registration results. The bundle adjustment works without third-party systems. When scanning, surveyors can use both Z+F professional targets as well as normal paper tags and spheres to create reference points between point clouds.



Visualisation of Plane-to-Plane registration



Efficient Tools

to balance, evaluate and edit

Measurement functions

Z+F LaserControl® offers a wide range of measuring tools that can be used to precisely determine angles, heights, widths and lengths. Such initial evaluations are very useful when it comes to the further processing of the point clouds or the planning of a scan project.

Auto-Snapping on edges and corners

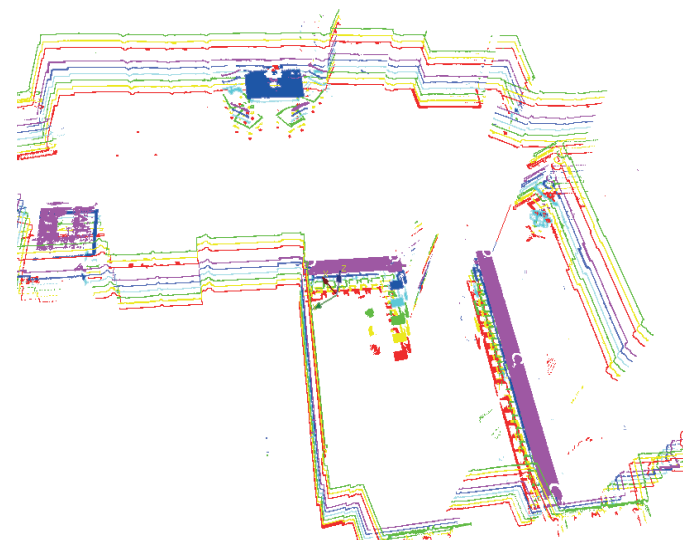
The Auto-Snap feature helps users find corners and edges faster, making it much easier to work with Z+F LaserControl®, especially when it comes to finding and determine reference points. When the cursor is near a corner, the cursor jumps to the edge of the corner and stays there until the user leaves the area with the cursor.



Auto-Snapping on an edge

Slice

With the Slice tool you can create freely definable sections of a point cloud. The free cut orientation allows optimal placement to the object geometries. The sections can be exported in the data formats dxf and txt.

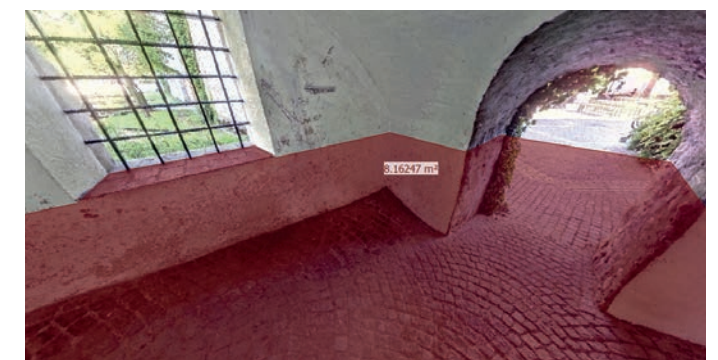


Polygon tool

The polygon tool can be used to determine area dimensions and perimeters. The results of the measurements are very accurate and help the user in many ways with the organization, planning and analysis of projects.

Plane tool

With the plane tool, measuring points can be projected onto a plane at a predefined height, which gives the user important area information.



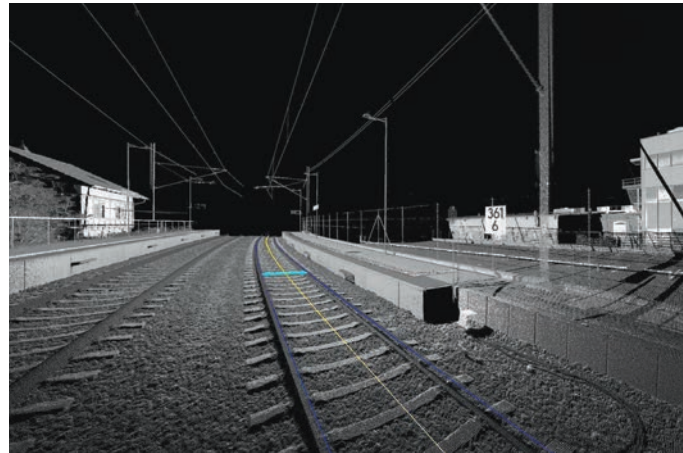
Plane tool

Efficient Tools

to balance, evaluate and edit

Kinematics

From simple calculations to clearance gauge functions, the kinematics module provides many tools to visualize, manage and analyze 2D scans of mobile mapping applications.



Mobile-Mapping application

Link tool

With the link tool it is possible to create external links to pictures, documents etc. in every position of the scan. These files are added to the project directory so that these information, together with the scans, form a unit.

Video plug-in

This plug-in makes it very easy to create short flights through point clouds. These are particularly suitable for presentations. The defined paths can be saved and reloaded, so that they are still available after closing and opening the program.

Orthophotos

With this function orthographic views, sections and scaled floor plans can be generated. The graphical results can export users in various data formats.



Side - Plane Orthophoto



Top View - Plane Orthophoto



Vertical measurements

For measuring at perpendicular angles, in order to easily determine distances between points and surfaces, Z+F Laser-Control® offers the right tool. Room depths and heights can be determined very quickly.



The blue workflow®

The blue workflow® describes a series of optimized work steps for measuring and processing measured data. The focus is on flexibility, data security and efficiency. With Z+F LaserControl® Scout and the laser scanners Z+F IMAGER® 5010X and 5016, point clouds can be registered, checked, processed and evaluated in real time in the field.

In addition, the user immediately recognizes problems in the project through immediate visualization and can intervene directly on site.

In detail, the blue workflow® allows the users to carry out the following work steps in the field:

- Registration of the point clouds
- Check the scanned targets
- Verification of data quality and quantity
- Direct integration of handheld scanner data



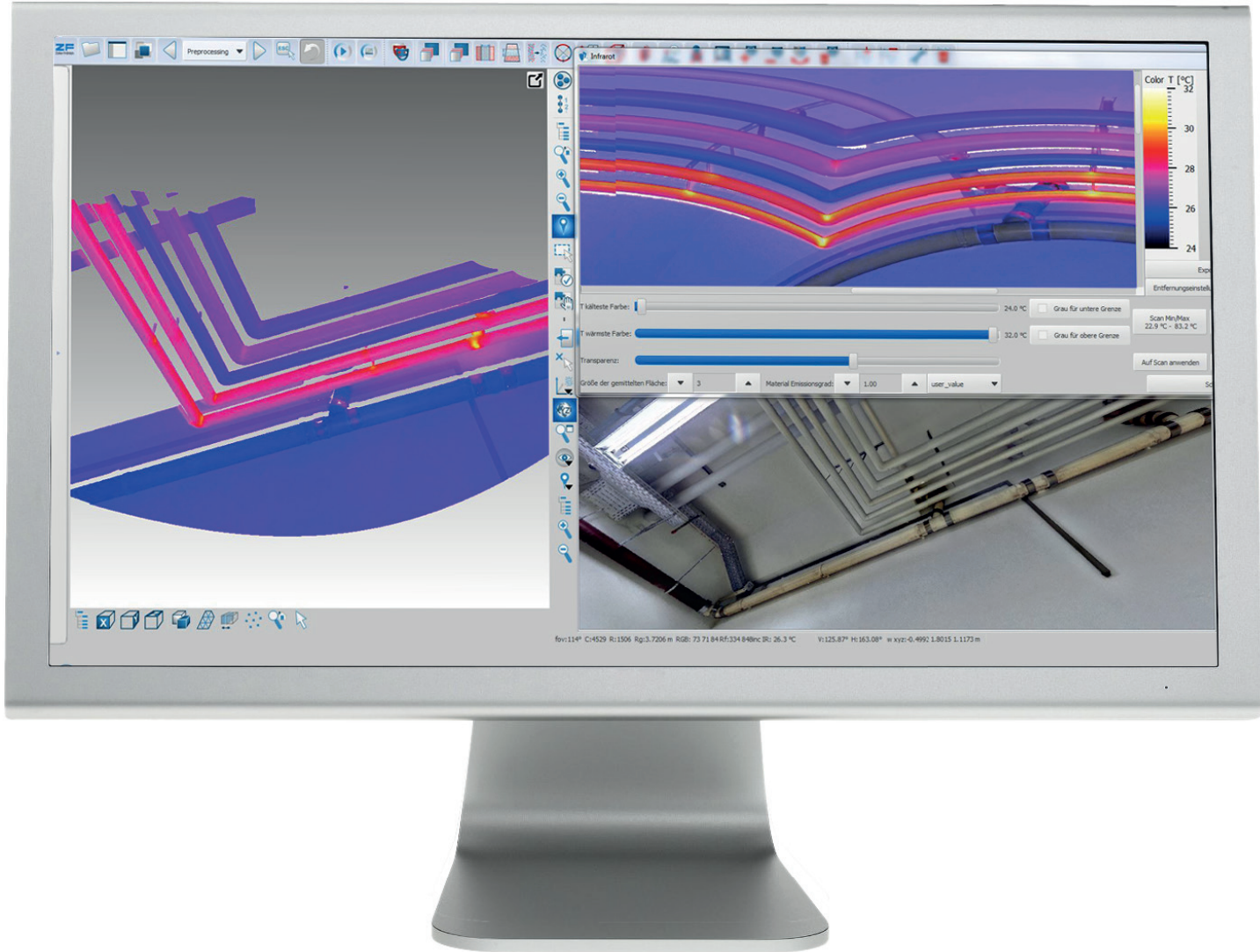
The Z+F IMAGER® 5016 combines a compact and light-weight design with the latest laser measurement technology. All components are designed to guarantee excellent results. As a result, areas of application for the highest demands are made more flexible and expanded. In addition, the phase-based terrestrial laser scanner is equipped with an integrated positioning system and a HDR camera with lighting system.

- ✓ Less scanning positions
- ✓ Shorter operating times in the field
- ✓ On site registration in real time
- ✓ Waiting times are used productively

Photography and Thermography

An ideal basis for object visualization is achieved by combining 3D data with digital photography and thermography. The recognition and analysis of 3D objects is much easier through the color illustration rather than just on the basis of geometric characteristics. In addition, color and heat information represent a documentary value, which is interesting for many applications.

Z+F LaserControl® Office and Scout can process high-resolution HDR and thermal panorama images taken with the i-Cam, T-Cam, M-Cam or external camera systems. The processes are largely automated. Nevertheless, the user can intervene manually at any time.



Point cloud overlaid with thermography data

System Requirements and Export/Import

Data format	Description	Import	Export
*.zfs, *.zfpj, *.zfi	Z+F Scan, Z+F Projects, Z+F Imagery	☐	☐
(*.zfc, *.sat)	Aveva Point Cloud, Aveva LFM Project	☐	
*.ptx	Leica Point Cloud	☐	☐
*.asc, *.txt, *.pts	ASCII	☐	☐
*.xyz.asc	XYZ as ASCII Point Cloud		☐
*.pdf	3D - PDF incl. Point Cloud		☐
*.ptg	Leica binary	☐	☐
*.e57	ASTM E57	☐	☐
*.iv	Open Inventor	☐	☐
*.vrm, *.wrl	VRML	☐	☐
*.jpg, *.png, *.bmp	Image	☐	☐
*.jpw	JPEG WoldFile		☐
*.gif	Image	☐	
*.tiff	Image		☐
*.k, *.idx	Total Station	☐	
*.dxf	Autodesk		☐
*.rcs, *.rcp	Autodesk Point Cloud		☐
*.las	ASPRS	☐	☐
*.osf	Open Source Binary	☐	☐
*.mpc	Mantis Vision Point Cloud	☐	
*.dp	DotProduct	☐	

System Requirements Office

- Windows 7 64bit or higher
- Quad Core Prozessor or better
- 16 GB RAM or more
- OpenGL-Graphics support

System Requirements Scout

- Windows 10 64bit or higher
- Quad Core Prozessor or better
- 16 GB RAM or more
- OpenGL-Graphics support

Project to go

With Project to go projects can be exported to a USB stick, incl. Viewer. Thus, no installation of LaserControl® on the target systems at the customer is necessary to view the data.



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