

Operating & Processing Software

RiSCAN PRO

for *RIEGL* 3D Laser Scanners

Key Features:

- **2D and 3D visualization**
- **geodetic tools**
- **automatic filtering**
- **automatic registration**
- **multi station adjustment**
- **colorization of pointclouds**
- **import/export in different formats**
- **RiPANO export**
- **create animations**
- **create plots**
- **simple meshing**
- **volume calculation**

RiSCAN PRO is *RIEGL*'s software solution for Terrestrial Laser Scanning (TLS) projects. With advanced features for point cloud optimization, such as automatic registration, multi station adjustment, flexible filtering tools, data merging, and high-performance 3D visualization capabilities, RiSCAN PRO provides a fully integrated solution for producing accurate and refined TLS point cloud data.

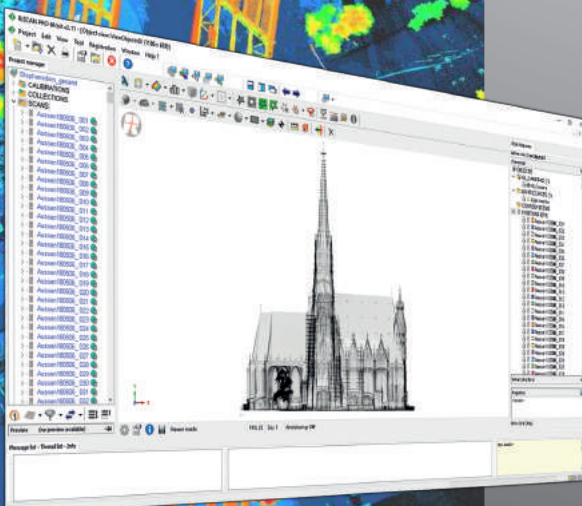
With tools designed to optimize the acquisition workflow in the field, RiSCAN PRO provides the ability to perform real-time

Data is streamed in real-time from the scanner to the software, where all processing features required to produce a perfect point cloud are provided.

RiSCAN PRO integrates sensor fusion and the transformation capabilities necessary to turn the data from multiple sensors into a seamless, colored point cloud with a number of valuable attributes. These data can then be exported in a number of widely supported point cloud formats for further analysis and information extraction in software solutions tailored to each application.

Typical applications include

- **Architecture & Facade Measurements**
- **As-built Surveying**
- **Agriculture & Forestry**
- **Topography Applications**
- **Archeology & Cultural Heritage**
- **City Modeling**



RiSCAN PRO General Information

Automatic Registration

Automatic merging of point clouds from different scan positions. Especially tailored for VZ-i Series Scanners, it enables fast registration of hundreds of scan positions with no user interaction necessary.

Multi Station Adjustment

MSA= Optimization of all scan positions, so that

- scan data from neighboring scan positions match
- GNSS measurements match scan positions
- measurements from tilt sensors match scan position's orientation
- scan data match externally surveyed control points statistically correct optimization with correct measurement accuracies

Flexible Filtering

Due to the fact that scan data is based on the *RIEGL* data base RDB 2, filtering can be done by many point attributes like reflectance, deviation, number of echo or by isolated points, range etc..

Coordinate Systems

Coordinate reference systems can be downloaded from the online EPSG database. User coordinate systems can be defined by supplying parameters or by importing point lists.

Enhanced Graphics

The state of the art 3D point cloud visualization based on the *RIEGL* RDB 2 point cloud file format allows to visualize each and every scanned data point in 3D whereas point colors are derived in real time from any of the additionally acquired point attributes such as amplitude, reflectance, deviation, or true color.

64-Bit Architecture

RiSCAN PRO is a truly 64-Bit software that allows to utilize all available system RAM with the benefit of large scale parallel data processing and data visualization of billions of points simultaneously in one single 3D view.



ACQUIRE

VZ-Line scanner control

fully customizable parameters

- field of view
- scan resolution
- pulse rate
- image overlap

configuration of external cameras

scan and image data acquisition in real-time

real-time data transfer

real-time 2D preview

real-time data conversion

automatic target selection

target acquisition

reflector model estimation

- circular disk
- cylinder
- corner cube prism

VIEW

large dataset support

LoD (Level of Detail) support 2D, 3D, and panorama views

X-ray view

view by attribute:

- amplitude
- reflectance
- deviation
- range
- true color
- echo

additional view types

- height
- distance to surface

animations

- 3D animations
- time lapse (4D)
- slice-trough animation

high resolution ortho plots

e.g. geotiff export

The design of RiSCAN PRO's project structure enables smooth data transfer to numerous third party post-processing packages. The XML-based project file structure is published and well-documented thus enabling open access to all project information in an easy way. *RIEGL*'s RDB2 pointcloud library allows to access all scan data in a convenient way.

For detailed information see RiSCAN PRO's online help manual.

Main Features

PROCESS

data adjustment

- automatic registration
- MSA bundle adjustment
- image adjustment
- camera mounting
- camera model
- point cloud colorization

project georeferencing

- GeoSysManager 2
- EPSG online DB
- custom CRS
- engineering CRS

filtering

- by attributes (reflectance, deviation,...)
- isolated points
- octree
- terrain
- above/below plane

homogenisation of scan data

- octree based point cloud
- x-ray prepared point cloud

ANALYZE

meshing

- smooth
- decimate
- texture

volume calculation

- mesh to point cloud
- mesh to mesh
- mesh to surface
- mesh to plane
- point cloud to plane
- cut & fill

surface comparison

- voxel comparison
- mesh to mesh
- mesh to surface

polyline creation

breakline tool

contour lines

sections

sphere fitting

plane fitting

EXCHANGE

export formats:

- .3pf
- .asc Crystalux
- .csv ASCII
- .dm Datamine
- .dtn SURPAC
- .dxf Autocad
- .e57 (w/ Reg & Imgs)
- .las 1.1-1.4 LAS
- .laz 1.2 LAZ
- .obj
- .pdf, .tif, .jpg 2D Plot
- .pod PointTools
- .pol Polyworks
- .pts, .ptx
- .raqx RiALITY
- .stl Stereolithography
- .wrl

import formats:

- .3pf
- .csv ASCII
- .dp DotProduct
- .dxf Autocad
- .las 1.1-1.4 LAS
- .laz 1.2 LAZ
- .mpc Mantis
- .obj
- .ply
- .pol Polyworks
- .pts, .ptx
- .rdbx, .rdb RIEGL Database
- .rxp VZ-Scanners
- .sdw RIEGL ALS
- .stl Stereolithography
- .tif, .jpg, .bmp, images
- .vtp Polydata

Export as a RIEGL RiPANO Project

RiPANO is a software for fast and easy visualization of terrestrial laser scan projects. It allows CAD users to easily extract ortho views and plots for further use in CAD software. The software runs plugin-free in a browser or stand-alone on a Windows computer or a MacOS computer.

Note:

To export RiPANO projects with RiSCAN PRO a separate RiPANO export license for RiSCAN PRO is required.



NEW – One Touch Processing Wizard

Task 1: Convert scans
 Task 2: Filter scans
 Task 3: Register scan positions
 Task 4: Fine adjust project
 Task 5: Calibrate camera mounting
 Task 6: Colorize scans from photos
 Task 7: Generate octree base point clouds
 Task 8: Create 3D views
 Task 9: Create ortho plots
 Task 10: Export as RIFANO
 Task 11: Export as LAS
 Task 12: Create video renderings

The One Touch Processing Wizard allows you to automate key processing steps. The result is a registered, adjusted, colored and homogenized point cloud.

It is especially helpful for beginners but also for standard users of the VZ-i series laser scanners - if they follow the recommended standard workflow but also for power users who have to process large projects over and over again.

System Requirements

Operating system:

Windows 10 Pro 64-bit
 Windows 8.1 Professional 64-bit
 Windows 7 Professional 64-bit

RAM requirements:

Minimum*: 16 GB
 Recommended: 64 GB

Disk space requirements:

Minimum*: 500 GB Solid State Drive
 Recommended: 2 TB Solid State Drive

Graphics requirements:

Minimum*: Dedicated NVIDIA GeForce or Quadro graphics card with 4 GB GPU memory
 Recommended: Dedicated NVIDIA GeForce or Quadro graphics card with 8 GB GPU memory
 Stereo 3D rendering: Dedicated NVIDIA Quadro graphics card with 4 GB GPU memory

Display resolution:

Minimum*: 1920 x 1080 pixels
 Note: 3840 x 2160 pixels Ultra-High Definition (UHD) Displays supported
 *Minimum requirements apply for projects up to ~100 Scan Positions

