

# 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.

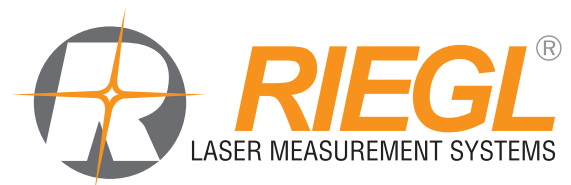
With tools designed to optimize the acquisition workflow in the field, RiSCAN PRO provides the ability to perform real-time QA/QC of data coverage and scan registration in the field. Data is streamed in real-time from the scanner to the software, where all processing features required to produce a perfect point cloud are provided.

RiSCAN PRO integrates sensor fusion and the transformation capabilities necessary to turn the data from multiple sensors into a seamless, colorized 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

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## 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 Crystalix
- .csv ASCII
- .dm Datamine
- .dtm 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
- .rqx RIALITY
- .stl Stereolithography
- .wrl

### import formats:

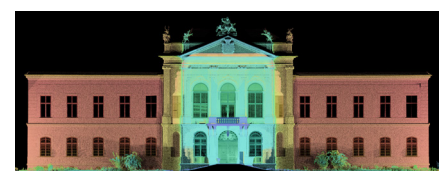
- .3pf
- .csv ASCII
- .dp DotProduct
- .dxf Autocad
- .las 1.1-1.4 LAS
- .laz 1.2 LAZ
- .mpc Mantis
- .obj
- .ply
- .pol Polyworks
- .pts, .ptx
- .rdxb, .rdb RIEGL Database
- .rxp VZ-Scanners
- .sdw RIEGL ALS
- .stl Stereolithography
- .tif, .jpg, .bmp, images
- .vtp Polydata

## 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

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- 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 based point clouds
  - Task 8: Create 3D views
  - Task 9: Create ortho plots
  - Task 10: Export as RiPANO
  - 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:

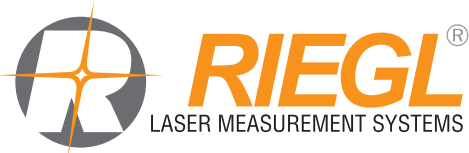
Minimum\*: 1920 x 1080 pixels  
Note:  
3840 x 2160 pixels Ultra-High Definition (UHD) Displays supported

\*Minimum requirements apply for projects up to ~100 Scan Positions

## Download Information



To download RiSCAN PRO, please navigate to <http://www.riegl.com/> and click on „DOWNLOADS“.  
(Download after email registration only.)



**RIEGL**  
Laser Measurement Systems GmbH  
Riedenburgerstraße 48  
3580 Horn, Austria  
Phone: +43 2982 4211  
office@riegl.co.at | www.riegl.com

**RIEGL USA Inc.** | info@rieglusa.com | www.rieglusa.com  
**RIEGL Japan Ltd.** | info@riegl-japan.co.jp | www.riegl-japan.co.jp  
**RIEGL China Ltd.** | info@riegl.cn | www.riegl.cn  
**RIEGL Australia Pty Ltd.** | info@riegl.com.au | www.riegl.com

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