Viewer, Acquisition & Processing Software

RiSCAN PRO

- *Companion Software to RIEGL 3D Terrestrial Scanners*
- *Data Acquisition, Visualization and Processing*
- *Straightforward Global Registration*
- *Interfacing to Post Processing Software*
- *Support of Photogrammetry Features*

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www.riegl.com

RIEGL
LASER MEASUREMENT SYSTEMS

Viewer, Acquisition & Processing Software

RiSCAN PRO

Description of Main Functions and Assignment to the Different Levels of Licenses

	Function	Input/Output	Description	V	A	P	C	M
Project Management	Starting application			●	●	●		
	Opening project	*.RiSCAN\project.rsp	open existing project folder	●	●	●		
	Saving projects (as)	*.RiSCAN\project.rsp	save project to (new) folder		●	●		
	Data importing (light)	3DD, VTP, DXF, OCT, ASCII, SOP, JPG, BMP, TIFF, SDW, LAS	import scans, point clouds, tiepoints, xOP matrices, images, organized point clouds		●	●		
	Data importing (full)	additionally: OBJ, STL, PLY, POL	import PolyData meshes, polylines, sections, planes, aerial views			●		
	Data exporting (light)	3DD, DXF, ASCII, SOP, 3PF, ASC, PTC	export scans, point clouds, tiepoints, xOP matrices		●	●		
	Data exporting (full)	additionally: OBJ, STL, PLY, POL, VRML	export PolyData meshes, polylines, sections, planes			●		
	Data link to AutoCAD	any 2D/3D view	send 2D or 3D coordinates	●	●	●		
Data Acquisition	Acquiring scan	3DD / 4DD	acquire scan data online (3D or in 2D line scan mode)		●			
	Acquiring image	JPG	automatic image acquisition with high resolution digital camera				●	
	Acquiring GPS data	global position and time information	acquire GPS data online from (D)GPS receiver		●			
	Extracting reflectors	scans or images	automatic reflector extraction from scans or images		●	●		
	Scanning reflectors	fine scans	automatic scanning of extracted reflectors with highest resolution		●			
	Calibrating camera	intrinsic and extrinsic camera parameters	semi-automatic calibration of camera mounted on top of the scanner		●		●	
Data Registration	Registration based on tiepoints	tiepoints	automatic determination of scanner's position and orientation based on matching tiepoints and/or controlpoints		●	●		
	Backsighting	tiepoints, GPS, compass, remote target, inclination sensors	fast and efficient registration based on scanner's position and orientation		●	●		
	Manual registration	axis, rotation center	allows manual rotation and translation of scans		●	●		
	Multi Station Adjustment	tiepoints, tieobjects, plane patches	refinement of overall registration (modified iterative closest point algorithm)					●
Data Processing & Evaluation	Closing holes	scans	interpolate missing points from neighbouring data			●		
	Resampling	scan or PolyData	rasterisation in polar coordinates		●	●		
	Deleting points	scan or PolyData	manually selecting and deleting of points		●	●		
	Coloring scan	scans + images	applying color from high resolution images to point data		●	●		
	Filtering data (range, intensity, Octree,...)	scan or PolyData	applying miscellanous filter operations for data reduction and segmentation of point clouds and meshes		●	●		
	Triangulating scans	scan or PolyData	creating triangulated meshes from point clouds			●		
	Smoothing and decimating	PolyData mesh	configurable smoothing of surfaces and reduction of number of triangles			●		
	Image registration	images	registering free-shot calibrated images based on tiepoints/controlpoints			●		
	Texturing mesh	PolyData mesh	applying high resolution images to 3D mesh			●		
	Creating plots	any 3D view	creating of scaleable plots of 3D views in BMP or JPEG format			●		
	Creating orthophoto	textured PolyData meshes/orthophotos	creating TRUE orthophotos			●		
	Creating geometry objects	Points, lines, cylinders, sections, planes	creating miscellanous geometry objects from selected points			●		
	Modeling edges	scans or polylines	semi-automatic modeling of edges or break lines			●		
	Measuring coordinates	data selection	measuring point coordinates in different coordinate systems	●	●	●		
	Measuring distance	user input	measuring direct distance between two points	●	●	●		
	Measuring angle	user input	measuring angle between two planes	●	●	●		
	Measuring volume/surface area	scan or PolyData	measuring volume and surface extents of selected and defined areas			●		
	Image browser	images	gives an overview of camera location and orientation		●	●		
	Panorama image	images	generating panorama images with selectable resolution			●		
	Creating animations	AVI	creating animations from views along definable camera path			●		

Main Licenses

V: Viewer License

for visualizing of already acquired RiSCAN PRO projects and simple data evalution

A: Acquisition License

for *RIEGL* scanner configuration, data acquisition, global registration, viewing, evaluation, and export of merged, filtered pointclouds

P: Processing License

for advanced data processing and evaluation of already acquired RiSCAN PRO projects, also in combination with imported third party geometry data

Plugin Licenses

C: RiSCAN PRO Plugin Camera Module License

enables automatic digital image acquisition in combination with *RIEGL* 3D scanners

M: RiSCAN PRO Plugin Multi-Station Adjustment Module License

for advanced registration based on an iterative closest point (ICP) algorithm, also including controlpoints, tiepoints, and plane information

RiSCAN PRO General Information

RiSCAN PRO is the companion software for *RIEGL* Terrestrial 3D Laser Scanner Systems. RiSCAN PRO is project orientated, i.e., the entire data acquired during a measurement campaign are organized and stored in RiSCAN PRO's project structure. These data include scans, finescans, digital images, GPS data, coordinates of control points and tie points, and all transformation matrices necessary to transform the data of multiple scans into a common well-defined coordinate system.

RiSCAN PRO is designed to optimize the acquisition workflow in the field and provides the tools for visual inspection of overall completeness of data coverage in 3D right after acquisition. In addition to data acquisition it provides a variety of functions for data processing.

RiSCAN PRO is to be licensed on three different levels:

Viewer License:	Basic visualization and viewing functions
Acquisition License:	All necessary functions for data acquisition, global registration, visualization and pointcloud processing
Processing License:	Pointcloud processing functions as well as advanced meshing, texturing, evaluation and exploring functions.

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. By using the optional RiSCANLib all scan data can be accessed also in a convenient way.

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

System Requirements

Operating system:	Windows XP Professional (recommended), Windows 2000 SP2 or above
Memory requirements:	256 MB RAM minimum, 1024 MB or more recommended
Disk space requirements:	approximately 30 MB for the program and plugins approximately 700 MB for the example project (only included in the CD version of RiSCAN PRO) at least 40 GB recommended for projects
Interface for scanner communication:	TCP/IP Ethernet interface or alternatively Serial and ECP parallel interface
Graphics requirements:	OpenGL accelerated graphics, nVIDIA GeForce series recommended

Download Information

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

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