

PointSense basic and PointSense Pro

Efficient processing of 3D laser scanning data

FARO



Laser scanning –

Data processing precise, fast and efficient

- Import almost every data format from 3D scanners directly into AutoCAD
- Efficient management of point clouds: Mask, split, combine
- A combination of scanner data and CAD
- Fast construction of 3D wire frame models and 3D solids
- (Semi) Automatic fitting of polylines, cylinders and planes onto parts of the point cloud
- Ortho image with X-ray feature
- Collision analysis between scan and CAD design objects
- Deformations analysis and elevation plan
- Photo like planar view of the scan

Universally deployable

The software can be used anywhere that CAD information should be obtained from laser scanner data. Areas of application can include:

- Inventories for built heritage conservation, building and architecture
- Structural monitoring
- Archaeological excavation documentation

3D-Laser scan data in AutoCAD

PointSense basic and PointSense Pro provide numerous tools for the management and processing of laser scan data in AutoCAD and support the import into AutoCAD of almost all of the 3D laser scanner formats currently on the market.

Point Cloud Management in AutoCAD

A powerful region manager assists in the management of regions of the point cloud, colouring as well as hiding and displaying parts of the point cloud. These regions arise from selective picking or from the automatic generation of slices. Thereby you can, for example, efficiently create cross sections. To accelerate processing, new regions can be created with just a single click from existing point cloud regions, by combining or inverting previously selected regions. Thereby you can remove, for example, trees that are blocking views of a facade, without losing any of the underlying building points.

Processing the 3D Scan Data

PointSense Pro supplements AutoCAD with useful tools to model and analyse data from 3D laser scanners. Geometrical objects such as polylines, planes and cylinders can be automatically fitted to a part of the point cloud. Corners, edges and points are

produced by extending these objects. By automatic aligning polylines and lines onto multiple slices through the point cloud, floor plans and sections are created quickly and precisely. Furthermore, planned designs can be analysed for collisions with existing objects, through scan represented objects. Deformations can be analysed and surfaces (walls, floors, ground) can be modelled with the flatness analysis tool. You can also calculate volumes.

Planar Views from Scans

The planar view of the scan data offered by PointSense produces a photograph like clear picture of the individual scans and allows a significantly more intuitive navigation of the scan data as in the depiction of the point cloud. The accidental snapping of underlying points is not possible in this view.

Ortho Images from the Point Cloud

The user can create ortho images of the point cloud, from any direction. All objects that lie parallel to the projection plane are to be found in the resulting photo like raster image and are displayed true to scale. They can be used as impage plans which can be combined with AutoCAD vector graphics. Dimensions can be added and they can be coloured, such as for deformation analysis via AutoCAD colouring settings.

Technical Requirements

<i>Platform</i>	AutoCAD and the associated vertical products such as Civil 3D, Architecture or Map 3D subsequent to the 2013 versions. From the 2015 releases onwards 64-bit support only. Should you be using older Autodesk products please check with your distributor.
<i>Operating system</i>	Dependent on the version of AutoCAD being used, recommended is a 64 bit system.
<i>Hardware requirements</i>	Computer: Graphic card as recommended by Autodesk, processor at least 2.5 GHz, RAM at least 8 GB; Laser scanner: Type to suit task.
<i>Data requirements</i>	Registered, that is they are oriented to each other, and geo-referenced scans.
<i>Supported scan data formats</i>	Riegl RiScanPro-Projects (RSP), Leica (PTZ, PTS, PTX), ASCII, LAS, E57, Zoller&Fröhlich (ZFS, ZFPRJ), Topcon (CL3, CLR) Leica (PTG) and Faro (FLS, FWS).
<i>Supported image formats</i>	ReCap photo format (RCP), Agisoft PhotoScan format (XML), all AutoCAD supported image formats, e.g. TIF, BMP, JPEG, PNG; Trimble RealWorks Survey orthophotos, Reconstructor orthophotos.

Important features

General features		
Point cloud management and clipping	x	x
Import of various scan data formats	x	x
Import of orthophotos	x	x
Definition, editing and management of slices and regions of point clouds	x	x
Collision analysis		x
Deformation analysis	x	x
Elevation plans	x	x
Ortho images of point clouds	x	x
3D Distance dimensioning	x	x
Flatten drawing	x	x
2D Modelling:		
Line/polyline fitting - with constraints		x
Polygon fitting with a variable number of nodes		x
Automatic polygon fitting in multiple slices		x
UCS independent drawing of arcs and circles through three points		x
3D Modelling:		
Cylinders and truncated cones		
Cylinders and truncated cones fitting		x
Join cylinders		x
Insert reducers		x
Editing cylinders and truncated cones		x
Generate cylinder centrelines		x
Create cylinders and truncated cones as AutoCAD solids		x
Create strings of cylinders		x
Planes		
Plane fitting - with constraints		x
Plane fitting with only one click		x
Draw planes		x
Extend (two planes)		x
Intersection line (two planes)		x
Intersection point (three planes)		x
Intersection lines (three planes)		x
Automatic determination of plane boundaries		x
Change boundaries		x
Plumb points onto a plane		x
Flatness analysis, solid modelling (2.5D meshing, terrain model) volumetric calculations		x
Planar View		
Displaying the scan data in a photo like, planar view	x	x
Transfer coordinates from the planar view into the AutoCAD drawing	x	x
Freely defined AutoCAD command macros	x	x
Distance and coordinate picking	x	x
Colouring of the scans according to intensity, distance or original RGB	x	x
References		
PointSense programs are used worldwide and industry wide:		
<ul style="list-style-type: none"> ▪ Lockheed Martin ▪ OJSC "VNIPIgazdobycha" ▪ Sightline ▪ HOCHTIEF Consult IKS Energy ▪ ThyssenKrupp 		

Free trial!

PointSense programs can be tested free of charge and without obligation. You can find a request form on the website www.FARO-3D-Software.com. Or simply call by phone.

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