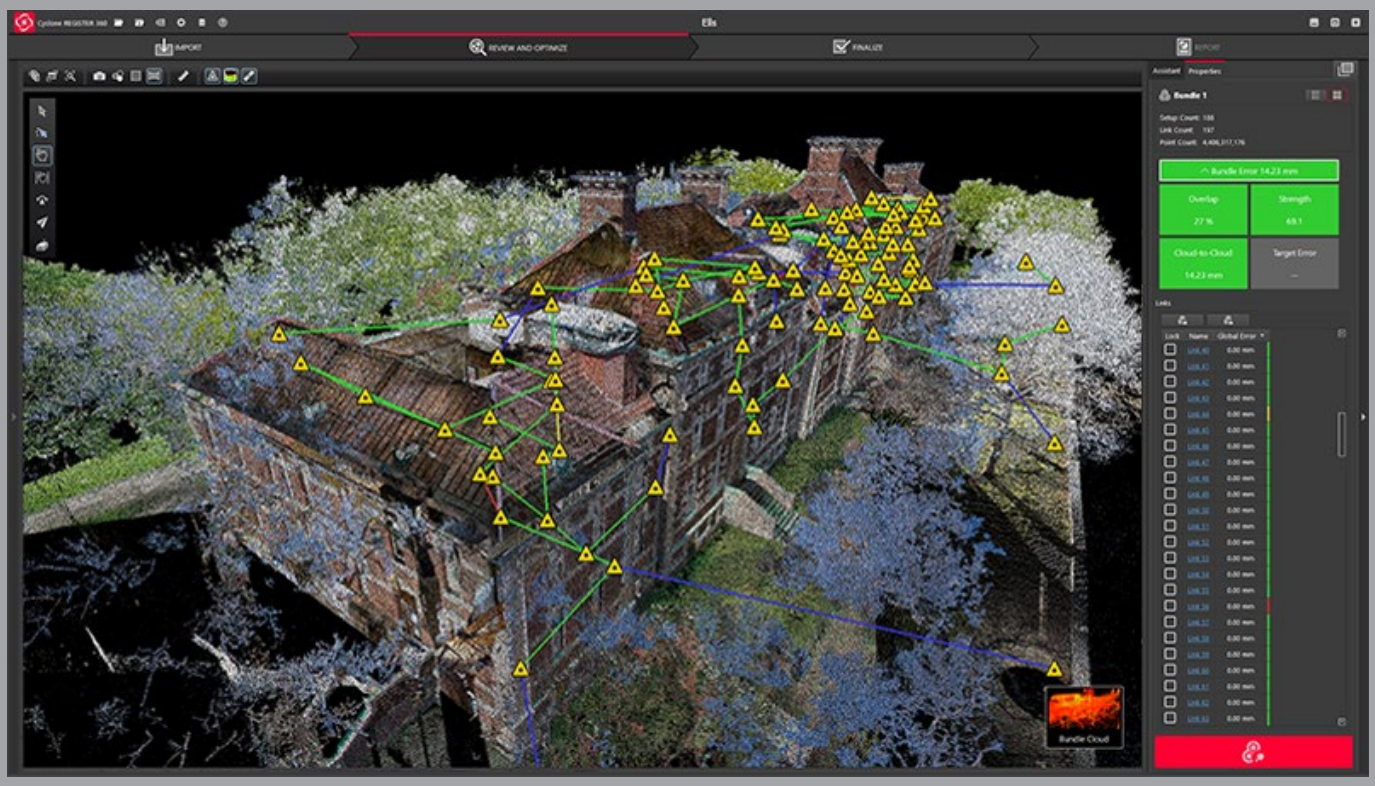
Leica Cyclone and Leica CloudWorx
Technical Specifications



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PART OF HEXAGON

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Leica Cyclone Technical Specifications

REGISTRATION, VISUALISATION, MODELLING & QUERY TOOLS	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORTER	Free VIEWER
3D navigation, Pan, Zoom, Rotate	♦	♦	♦	♦	♦	♦	♦/◊
3D mouse support			♦	♦	♦		♦/◊
Panoramic view mode	♦	♦	♦	♦	♦	♦	♦/◊
Align to surface view mode		♦					
Cloud Level of Detail for fast visualisation	♦	♦	♦	♦	♦	♦	♦/◊
Model Level of Detail for fast visualisation	♦		♦	♦	♦	♦	♦/◊
Decimation of point clouds	♦		♦	♦	♦		
Selectable levels of point cloud density	♦		♦	♦	♦	♦	♦/◊
Quickly show/hide point clouds	♦	♦	♦	♦	♦	♦	♦
View point clouds with intensity mapping, image color mapping, elevation based colour mapping	♦		♦	♦	♦	♦*	♦/◊
View point clouds with intensity mapping, image color mapping	♦	♦	♦	♦	♦	♦	♦
Gradient Background	♦	♦	♦	♦	♦	♦	♦/◊
Mannually map external digital photo to point clouds (Texture cube map, not pano)	♦		♦	♦	♦		
Create Multi-image from cube-mapped images	♦	♦	♦	♦	♦		
Multi-image blending	♦	♦	♦	♦	♦	♦	
View texture mapped colours on point clouds	♦	♦	♦	♦	♦	♦*	♦*/◊
Limit Box for efficient viewing and interaction of selected regions	♦		♦	♦	♦		♦**/◊
Limit Box Manager to organise multiple limit boxes	♦		♦	♦	♦		♦*/◊
QuickSlice			♦	♦	♦		
TruSlicer		♦					
Set Limit Box by fence	♦		♦	♦	♦		◊
Auto Bundle (grouping) of scans		♦					
Visualise bundle's Link network		♦					
View multiple setups and bundles in same view		♦					
Global registration of multiple scans		♦	♦				
Geo-referencing		♦	♦				
Cloud-to-cloud registration		♦	♦				
Auto Align Scans		♦	♦				
SmartAlign for Auto Align		♦	♦				
Visual Alignment		♦	♦				
Automated registration using HDS targets			♦				
Automated registration using point clouds		♦	♦				
Editing Target labels/names	♦	♦	♦				
View scanner locations	♦	♦	♦	♦	♦	♦	♦*/◊
Unify point clouds	♦		♦	♦	♦	♦	
Basic conceptual design & 2D drawing tools				♦	♦		
Insertion of modelled objects/geometry				♦			
Replication and editing of modelled objects				♦	♦		
Planar patch editing							
Make Square or Rectangular				♦	♦		
Create/Fill Hole				♦			
User-defined quality-of-fit checks			♦	♦	♦		
Region growing							
Plane			♦	♦	♦		
Cylinder			♦	♦	♦		
Sphere			♦	♦			
Smooth surface to segment extraneous data			♦	♦	♦		
Automated Pipe Run with elbows				♦			
Virtual Surveyor™ to assign survey feature codes to points				♦	♦		
Mesh							
Creation (basic, complex, TIN)				♦	♦		
Intelligent decimation				♦	♦		
Decimation based on user-specified grid spacing				♦	♦		
Polyline and breakline support				♦	♦		
Delete and add faces				♦	♦		
Fill in holes				♦	♦		
Generate contours from meshes				♦	♦		

Leica Cyclone Technical Specifications

REGISTRATION, VISUALISATION, MODELLING & QUERY TOOLS	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORTER	Free VIEWER
Surface Deviation							
Cut/fill contours				♦	♦		
Table output on user-specified grid				♦	♦		
Points on user-specified grid				♦	♦		
Generate cross-sections through point clouds along an alignment							
Alignment/Station Manager				♦	♦		
Create Lines at Station				♦	♦		
Create COGO Points, Breaklines & Cross Section Lines				♦	♦		
Create profiles, plans and sections				♦	♦		
Import LandXML Alignment				♦	♦		
Create, Save, @ Load Station Templates				♦	♦		
Secondary Plan View Window				♦	♦		
Station Notation display relative to an alignment	♦		♦	♦	♦		♦*/◊
Fit edge template for curve extraction (e.g. curbs, flowlines)				♦	♦		
Measure & dimension point clouds and models							
Slope distance	♦	♦	♦	♦	♦		
ΔX, ΔY, ΔZ distances	♦	♦	♦	♦	♦		
Geometric Object Volume	♦			♦	♦		
Surface area	♦			♦	♦		
Horizontal and Vertical Clearances				♦	♦		
Angel to Horizontal	♦		♦	♦	♦		
Angel to Vertical	♦		♦	♦	♦		
Back angle	♦		♦	♦	♦		
Cut/fill volume	♦			♦	♦		
Piping takeoff query				♦			
Automated visual interference checking				♦			
Fit cylinders, structural steel from catalogues				♦			
Insert piping components from catalogues (reducer, elbow, branch, flange, valve)				♦			
Piping Mode to add insulation thickness, Line ID, specification, Symbol Key (SKEY)				♦			
Set object creation parameters	♦		♦	♦	♦		
Create and manage object annotation	♦		♦	♦	♦		
Output feature codes and annotated vertices, spheres, to ASCII	♦			♦	♦		
Generate 2D drawings from 3D models				♦	♦		
3D redlining	♦			♦	♦		
Scanner simulation	♦		♦	♦	♦		
Multiple coordinate system support	♦		♦	♦	♦		
Assign colours & materials to objects	♦		♦	♦	♦		◊
Create and manage layers	♦		♦	♦	♦		◊
Save/restore viewpoints	♦		♦	♦	♦		◊
Save screen image as image file	♦	♦	♦	♦	♦		◊
Object Grouping				♦	♦		
Geometry types that can be created:							
HDS flat targets	♦		♦				
HDS spherical targets[!]	♦	♦	♦				
Black/White targets	♦	♦	♦				
Patch (plane)[!]			♦	♦			
Extruded patch				♦			
Box[!†]				♦			
Corner[!]			♦	♦	♦		
Steel shape[!†](e.g. I-beam)			♦	♦			
Cylinder[!†]			♦	♦	♦		
Sphere[!†]			♦	♦			
Vertex			♦	♦	♦		
Line			♦	♦	♦		
Elbow[!†], Reducing Elbow[†]				♦			
Cone[!†]				♦			
Torus[†]				♦			
Reducer (Eccentric, Concentric)[†]				♦			

Leica Cyclone Technical Specifications

REGISTRATION, VISUALISATION, MODELLING & QUERY TOOLS	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORTER	Free VIEWER
Flange (Blind, Weld-Neck)†				♦			
Pipe Tee†				♦			
Valve†				♦			
Polyline, Polygon				♦	♦		
Rectangle, Square				♦	♦		
Arc, Circle				♦	♦		
Ellipse				♦	♦		
Cubic spline				♦	♦		
Point-of-view camera	♦			♦	♦		◊
Point-of-view camera (Height)	♦			♦	♦		◊
Pointed (Ballistic) cone				♦	♦		
Environmental lighting	♦			♦	♦		◊
Create fly-throughs and output sequence of image files or .AVI (Audio Video Interleave) file				♦	♦		
Elevation check	♦		♦	♦	♦		
Pipe Modelling user interface				♦			
Auto Black & White Target Extraction		♦	♦				
Publish Sitemap and TruView Panoramic File Sets	♦***	♦***	♦***	♦***	♦***	♦***	◊/♦***
Ortho Image output	♦		♦	♦	♦		◊
Estimate normals		♦	♦	♦	♦	♦	
Scripting				♦			
Model Library				♦			
Automatic Pipe Finder				♦			
Create and QA/QC GeoTags				♦	♦		◊
Floor Flatness/Floor Levelness				♦	♦		
Customisable Registration Report		♦					

! These types can be created using best-fit methods.

† These types can use catalog tables.

◊ Enabled with a Cyclone PUBLISHER Pro or Cyclone JetStream PUBLISHER or Cyclone TruView PUBLISHER License

* As delivered in database, cannot modify

** No grip editing for size

*** Requires TruView Enterprise or Cloud license

TruSpace\Keyplan\Sitemap\Map	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORTER	Free VIEWER
Open\View KeyPlan	♦		♦	♦	♦		◊
Create SiteMap		♦					
Create Map from OpenStreetMap's Slippy map		♦					
Create Hyper links in SiteMaps		♦					
Edit Hyperlinks in SiteMaps		♦					
Create KeyPlan			♦	♦	♦		◊
Edit KeyPlan			♦	♦	♦		◊
Open TruSpace	♦		♦	♦	♦		
Extract targets in TruSpace			♦	♦	♦		
Measurements in TruSpace	♦		♦	♦	♦		
View Multi-Image in TruSpace	♦		♦	♦	♦		
Change Colour Mapping	♦		♦	♦	♦		
Open ModelSpace view from TruSpace	♦		♦	♦	♦		
Publish TruView from KeyPlan	◊	◊	◊	◊	◊	◊	◊
Sync view- TruSpace to ModelSpace	♦		♦	♦	♦		
Quick Limit box from TruSpace to ModelSpace	♦		♦	♦	♦		
Load Points within Fence	♦		♦	♦	♦		

DATA IMPORT	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORT	Free VIEWER
ASCII (XYZ, SVY, PTS, PTX, TXT, Customized format)	♦	PTX only	♦	♦	♦	♦	♦*
PTZ, PTG, PTB	♦	PTG only	♦	♦	♦	♦	♦*
Cyclone Object Exchange (COE) format (from AutoCAD, MicroStation, via COE Data Transfer)	♦		♦	♦	♦	♦	♦*
SCAN, SC2	♦					♦	♦*
ZFS, ZFC	♦	♦	♦	♦	♦	♦	♦*
BMP, TIFF, JPEG, PNG	♦	♦	♦	♦	♦	♦	♦*
Batch Import and Auto-Align Images (supports iSTAR, Nodal Ninja, Spheron)	♦	♦	♦	♦	♦	♦	◊

Leica Cyclone Technical Specifications

DATA IMPORT	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORTER	Free VIEWER
LandXML	♦		♦	♦	♦	♦	♦*
SIMA	♦		♦	♦	♦	♦	
Optech: ixf			♦			♦	
FARO: fls, fws, frp		♦	♦			♦	
RIEGL: rsp, 3dd			♦			♦	
LAS	♦		♦	♦	♦	♦	♦*
Import REGISTER 360 Project			♦	♦**	♦**		
Import project data collected on ScanStation C10	♦	♦	♦	♦	♦	♦	♦*
Import project data collected on ScanStation P15/P16/P20/P30/ P40/P50	♦	♦	♦	♦	♦	♦	♦*
Import project data collected on Pegasus scanners	♦		♦	♦	♦	♦	
Import project data collected on BLK360	♦	♦	♦	♦	♦	♦	
E57	♦	♦	♦	♦	♦	♦	♦*
DotProduct: dp	♦		♦	♦	♦	♦	♦*
HeXML	♦		♦	♦	♦	♦	
Import *.blk data from BLK360 Data Manager	♦	♦	♦	♦	♦	♦	♦
♦* Enabled if licensed copy of CloudWorx is installed on the same machine							
♦** Finished registrations are imported as a unified point cloud, unfinished registrations are imported as separate scan worlds into an unfinished registration.							

DATA EXPORT	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORTER	Free VIEWER
AutoCAD DXF R12	♦		♦	♦	♦		
Cyclone Object Exchange (COE) format (to AutoCAD, MicroStation via COE Data Transfer)	♦		♦	♦	♦		
ASCII (XYZ, SVY, PTS, PTX, TXT, Customized format)	♦	PTX/PTS	♦	♦	♦		
Binary Point Cloud (PTZ, PTB)**	♦		♦				
PTG	♦	♦	♦				
BMP, TIFF, JPEG, PNG	♦		♦	♦	♦		◊
Ortho Image, GeoTIFF, TWF (World File)	♦		♦	♦	♦		◊
SDNF 3.0 (Intergraph Steel Detailing Neutral File)				♦			
PCF (Alias Piping Component File)				♦			
Leica System 1200	♦			♦	♦		
LandXML	♦			♦	♦		
Cyclone II TOPO *.cwf & *.pci	♦		♦	♦	♦		♦
CloudWorx-VR *.alp ***	♦		♦	♦	♦		
E57	♦	♦	♦	♦	♦		
Store in JetStream ProjectVault ****	♦	♦	♦	♦	♦		◊
*** Enabled if licensed copy of CloudWorx is installed on the same machine							
**** Enabled if Generator is licensed and configured correctly on JetStream ProjectVault							
◊ Enabled with a Cyclone PUBLISHER Pro or Cyclone JetStream PUBLISHER or Cyclone TruView PUBLISHER License							

OTHER GENERAL CYCLONE FEATURES
Metric or imperial units of measure
Decimal Degrees or Degrees, Minutes, Seconds angular units of measure ***
Bearing unit of measure for Azimuth of Resection ***
Simultaneous view of video image and scanned data image ***
Customisable, exchangeable user interface: hotkeys, toolbars ***
64-bit large number support
64-bit graphics support
Continuous auto-save
Undo/Redo ***
Client/server object database foundation ***
Multi-threading to take advantage of multiple processors
Hierarchical project layout
Flexible license support
Terminal Services support ***
Multi-user profile configuration management ***
Incremental, intelligent loading of 3D models ***
Parametric objects ***
Online help
*** Not in REGISTER 360

Leica CloudWorx Technical Specifications

VISUALISATION, MODELLING & QUERY TOOLS	CW AutoCAD Basic	CW AutoCAD Pro	CW MicroStation	CW PDMS	CW Revit	CW Navisworks	CW Ultimate
Large Point Cloud Support	♦	♦	♦	♦	♦	♦	♦
Level of Detail (LOD) graphics	♦	♦	♦	♦	♦	♦	♦
Intensity mapping and True colour	♦	♦	♦	♦	♦	♦	♦
Limit Box Manager	♦	♦	♦	♦	♦	♦	♦
Cutplane Manager (sections, slices)	♦	♦	♦	♦	♦	♦	♦
Hide Regions Manager (fences)	♦	♦	♦	♦	♦	♦	♦
Layers in Cyclone database	♦	♦	♦	♦	♦		♦
Tracing	♦	♦	♦	♦	♦		♦
Measure: 3D point coordinate	♦	♦	♦	♦	♦	♦	♦
Measure Point-to-point	♦	♦	♦	♦	♦	♦	♦
Measure Point-to-design entity	♦	♦	♦	♦	♦	♦	♦
Limit box	♦	♦	♦	♦	♦	♦	♦
Design Point Placement: Pipe Centre D-Point, D-Point at pick				♦			♦
Flange Tie-Point Location Tool: Place flange D-Point from point cloud				♦	♦		♦
Interference Checking		♦	♦	♦	♦	♦	♦
Flange Tie-Point Location Tool		♦	♦		♦		♦
Modelling (Least-Squares fitting)							
Pipes		♦	♦	♦	♦		♦
Planer Patch		♦	♦		♦		♦
2D lines, Polylines arcs		♦	♦		♦		♦
Steel Fitter		♦	♦	♦	♦		♦
Advanced clash management database system		♦	♦		♦	♦	♦
QuickSlice		♦					♦
Auto-Fit Polyline from 1 Pick & 2 Pick		♦					♦
Open KeyPlan		♦	♦	♦		♦	♦
Open TruSpace		♦	♦	♦		♦	♦
Sync TruSpace viewer to Viewport or Viewer in CAD system		♦	♦	♦		♦	♦
Sync CAD Drawing tools to TruSpace		♦	♦				♦
Quick Limit Box from TruSpace		♦	♦	♦		♦	♦
Points On A Grid		♦	♦				♦
UCS Orientation Tools		♦					♦
SmartPicks (Highest, Lowest, and Gound)	♦	♦	♦				♦
Direct import of HeXML	♦	♦			♦	♦	♦
Supports JetStream	♦	♦	♦	♦	♦	♦	♦
Connect to Autodesk Recap Point Cloud (RCP)	♦	♦			♦		♦
JetStream Experience	♦	♦			♦		♦
Quickslice		♦	♦				♦
Auto-Fit Polyline and Arcs		♦	♦				♦
Floor Flatness/Floor Levelness		♦					♦
Orthoimage (GeoTIFF, PNG, JPEG)		♦					♦

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