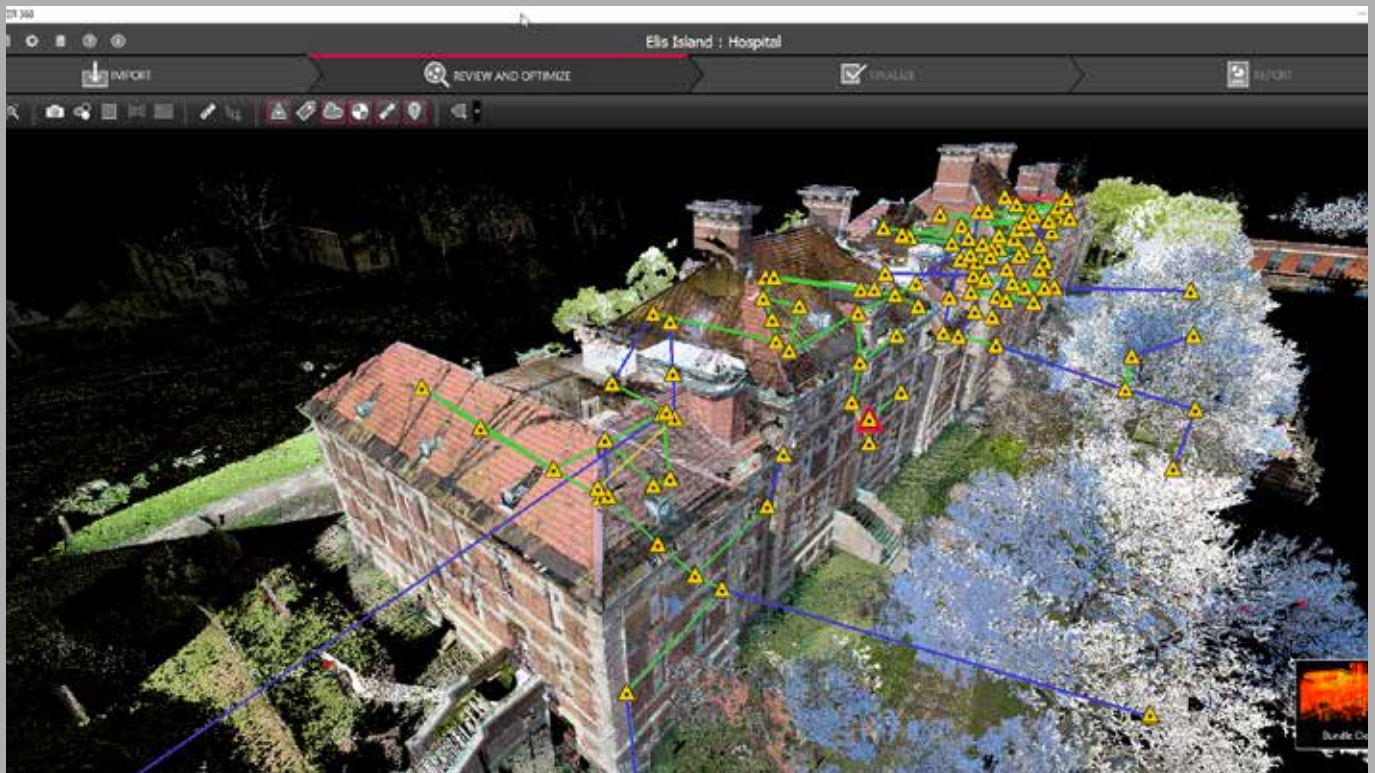


Leica Cyclone and Leica CloudWorx Technical Specifications



Valid as of August 2018

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PART OF
HEXAGON

Key	
1	These types can be created using best-fit methods
2	As delivered in database, cannot modify
3	Enabled if licensed copy of CloudWorx is installed on the same machine
†	These types can use catalog tables.
4	No grip editing for size. Enabled with a Cyclone PUBLISHER Pro or Cyclone JetStream PUBLISHER license
5	Requires TruView Enterprise or Cloud license
6	Finished registrations are imported as a unified point cloud, unfinished registrations are imported as separate scan worlds into an unfinished registration.
7	Requires Cyclone JetStream PUBLISHER license
◇	Requires Cyclone PUBLISHER Pro or Cyclone JetStream PUBLISHER or Cyclone TruView PUBLISHER license
8	Not in Cyclone REGISTER 360
*	Requires Cyclone TruView PUBLISHER, or Cyclone PUBLISHER Pro
x	Requires Cyclone JetStream PUBLISHER or Cyclone PUBLISHER Pro license
#	Requires Cyclone MODEL VR PUBLISHER license
+	Requires Cyclone PUBLISHER Pro license

Leica Cyclone Technical Specifications

REGISTRATION, VISUALISATION, MODELLING & QUERY TOOLS	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORTER	Free VIEWER
3D navigation, Pan, Zoom, Rotate	◆	◆	◆	◆	◆	◆	◆/0
3D mouse support			◆	◆	◆		◆/0
Panoramic view mode	◆	◆	◆	◆	◆	◆	◆/0
Align to surface view mode		◆					
Cloud Level of Detail for fast visualisation	◆	◆	◆	◆	◆	◆	◆/0
Model Level of Detail for fast visualisation	◆		◆	◆	◆	◆	◆/0
Decimation of point clouds	◆		◆	◆	◆		
Selectable levels of point cloud density	◆		◆	◆	◆	◆	◆/0
Quickly show/hide point clouds	◆	◆	◆	◆	◆	◆	◆
Point Cloud Color map viewing options							
Intensity mapping	◆	◆	◆	◆	◆	◆ ²	◆/0
Greyscale	◆	◆	◆	◆	◆	◆ ²	◆/0
Image Color mapping	◆	◆	◆	◆	◆	◆ ²	◆/0
Infrared	◆	◆	◆	◆	◆	◆ ²	◆/0
Elevation Based Color Mapping	◆ ²		◆ ²	◆	◆	◆ ²	◆ ²
Color clouds per setup		◆					
Color clouds per bundle		◆					
Gradient Background	◆	◆	◆	◆	◆	◆	◆/0
Manually map external digital photo to point clouds (Texture cube map, not pano)	◆		◆	◆	◆		
Create Multi-image from cube-mapped images	◆	◆	◆	◆	◆		
Multi-image blending	◆	◆	◆	◆	◆	◆	
Texture map colours onto point clouds	◆	◆	◆	◆	◆	◆ ²	◆ ² /0
Limit Box for efficient viewing and interaction of selected regions	◆		◆	◆	◆		◆ ⁴ /0
Limit Box Manager to organise multiple limit boxes	◆		◆	◆	◆		◆ ² /0
QuickSlice			◆	◆	◆		
TruSlicer		◆					
Slice along X,Y and Z axis		◆					
Color clouds by setup		◆					
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		◆	◆				
Smart Align for Auto Align		◆	◆				
Visual Alignment		◆	◆				
Automatic orientation for Visual Alignment			◆				
Automated registration using HDS targets			◆				
Optional prioritization of target-based registration over Cloud-to-Cloud registration		◆					
Automated registration across sitemaps		◆					
Automatic registration from RTC360 VIS data	◆	◆					
Editing Target labels/names	◆	◆	◆				
View scanner locations	◆	◆	◆	◆	◆	◆	◆ ² /0
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			◆	◆			

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REGISTRATION, VISUALISATION, MODELLING & QUERY TOOLS	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORTER	Free VIEWER
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				◆	◆		
Scan Cleaning							
Single scan cleaning		◆	◆				
Bundle cleaning		◆					
Cross-SiteMap cleaning		◆					
Support for double scan cleaning	◆	◆	◆	◆	◆		
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				◆	◆		
Ortho Image Extraction				◆	◆		
User-defined QA parameters mapped to link and bundle errors							
Color-coded		◆					
Optimized with graphics for color-blind users		◆					
Station Notation display relative to an alignment	◆		◆	◆	◆		◆ ² /0
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	◆		◆	◆	◆		◆

Leica Cyclone Technical Specifications

REGISTRATION, VISUALISATION, MODELLING & QUERY TOOLS	BASIC	REGISTER 360	REGISTER	MODEL	SURVEY	IMPORTER	Free VIEWER
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) [†]				◆			
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		◆	◆				
Ortho Image output	◆		◆	◆	◆		◇
Estimate normals		◆	◆	◆	◆	◆	
Scripting				◆			
Model Library				◆			
Automatic Pipe Finder				◆			
Create GeoTags		◆		◆	◆		◇
Floor Flatness/Floor Levelness				◆	◆		
Customisable Registration Report		◆					

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 (satellite or streetmap view)		◆					
GPS locate Setups on satellite 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	◆		◆	◆	◆		

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Change Colour Mapping (RGB, Intensity, Greyscale, Infrared)	◆	◆	◆	◆	◆	◆	◇
Temperature readout within infrared view	◆	◆	◆	◆	◆		
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	◆	◆	◆	◆	◆ ³
PTZ, PTG, PTB	◆	PTG only	◆	◆	◆	◆	◆ ³
Cyclone Object Exchange (COE) format (from AutoCAD, MicroStation, via COE Data Transfer)	◆		◆	◆	◆	◆	◆ ³
SCAN, SC2	◆					◆	◆ ³
ZFS, ZFC	◆	◆	◆	◆	◆	◆	◆ ³
BMP, TIFF, JPEG, PNG	◆	◆	◆	◆	◆	◆	◆ ³
Batch Import and Auto-Align Images (supports iSTAR, Nodal Ninja, Spheron)	◆	◆	◆	◆	◆	◆	◇
LandXML	◆		◆	◆	◆	◆	◆ ³
SIMA	◆		◆	◆	◆	◆	
Optech: ixf			◆			◆	
FARO: fls, fws, frp		◆	◆			◆	
RIEGL: rsp, 3dd			◆			◆	
LAS	◆		◆	◆	◆	◆	◆ ³
Cyclone REGISTER 360 archive file (RAF)		◆					
Import Cyclone REGISTER 360 Project	◆ ⁶		◆	◆ ⁶	◆ ⁶		
Import project data collected on ScanStation C10	◆	◆	◆	◆	◆	◆	◆ ³
Import project data collected on ScanStation P15/P16/P20/P30/P40/P50	◆	◆	◆	◆	◆	◆	◆ ³
Import project data collected on Pegasus scanners	◆		◆	◆	◆	◆	
Direct WiFi import of project data collected on BLK360	◆	◆	◆	◆	◆	◆	◆ ³
Import project data collected on RTC360 imaging scanner including Cyclone FIELD 360 links, assets and GeoTags	◆	◆	◆	◆	◆	◆	
E57	◆	◆	◆	◆	◆	◆	◆ ³
DotProduct: dp	◆		◆	◆	◆	◆	◆ ³
HeXML	◆		◆	◆	◆	◆	
Import *.blk data from BLK360 Data Manager	◆	◆	◆	◆	◆	◆	◆
LGS (Leica Geosystems Universal project file)	◆	◆	◆	◆	◆	◆	

DATA EXPORT/PUBLISH	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	◆	◆	◆		
PTX as separate Setups		◆					
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 ³	◆		◆	◆	◆		
E57 unified	◆	◆	◆	◆	◆		
E57 separate Setups	◆	◆	◆	◆	◆	◆	◆
Cyclone REGISTER 360 archive file (RAF)		◆					
LGS (Leica Geosystems Universal project file)	◆ ⁺	◆ ⁺	◆ ⁺	◆ ⁺	◆ ⁺	◆ ⁺	◆ ⁺
TruView Local dataset	◆*	◆*	◆*	◆*	◆*	◆*	◆*
TVG	◆*	◆*	◆*	◆*	◆*	◆*	◆*

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JSV	◆X	◆X	◆X	◆X	◆X	◆X	◆X
CVR				◆#			
Publish to TruView Cloud	◆	◆	◆	◆	◆	◆	◆
Publish to JetStream Enterprise	◆X	◆X	◆X	◆X	◆X	◆X	◆X

OTHER GENERAL CYCLONE FEATURES							
Metric or imperial units of measure							
Decimal Degrees or Degrees, Minutes, Seconds angular units of measure ⁸							
Bearing unit of measure for Azimuth of Resection ⁸							
Simultaneous view of video image and scanned data image ⁸							
Customisable, exchangeable user interface: hotkeys, toolbars ⁸							
64-bit large number support							
64-bit graphics support							
Continuous auto-save							
Undo/Redo ⁸							
Client/server object database foundation ⁸							
Multi-threading to take advantage of multiple processors							
Hierarchical project layout							
Flexible license support							
Terminal Services support ⁸							
Multi-user profile configuration management ⁸							
Incremental, intelligent loading of 3D models ⁸							
Parametric objects ⁸							
Online help							
Adjust Capture Settings of BLK360							
Scan Density (High, Medium, Low)							
Image Quality (HDR or LDR)							
Image Exposure (EV-5 to +5)							
Set capture button delay (up to 60 seconds) ⁸							
Delete scans from BLK360							
Check Battery level of BLK360							
Check internal storage availability of BLK360							
Check Serial Number of BLK360							
Check Firmware Version of BLK360							
Set time on BLK360 internal clock							

Leica Geosystems – when it has to be right

Revolutionising the world of measurement and survey for nearly 200 years, Leica Geosystems is the industry leader in measurement and information technologies. We create complete solutions for professionals across the planet. Known for innovative product and solution development, professionals in a diverse mix of industries, such as surveying and engineering, building and heavy construction, safety and security, and power and plant trust Leica Geosystems for all their geospatial needs. With precise and accurate instruments, sophisticated software, and trusted services, Leica Geosystems delivers value every day to those shaping the future of our world.

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