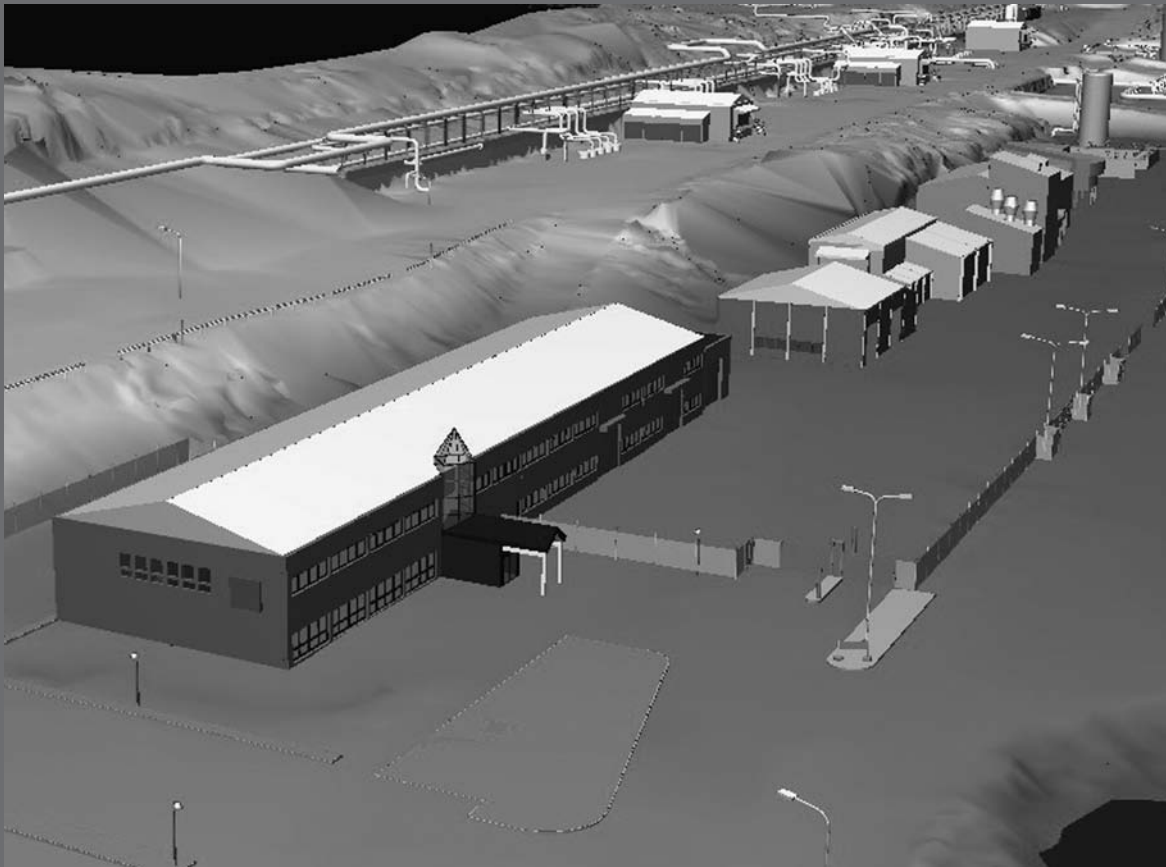


Leica Cyclone 6.0 Leica CloudWorx 4.0 and 2.0 **Technical Specifications**



- when it has to be **right**

Leica
Geosystems

Leica Cyclone 6.0 Technical Specifications

Visualization, Modeling & Query Tools, and Registration (cont'd)	SCAN HDS2500	SCAN HDS3000	SCAN Scan-Station	SCAN Scan-Station 2	SCAN HDS4500	SCAN HDS6000	REGISTER	MODEL	SURVEY	PUBLISHER	Free VIEWER	VIEWER Pro
In ModelSpace, display scanner location icons and switch to view from selected icon/location	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Point cloud Level of Detail (LOD) for fast visualization	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
3D model Level of Detail (LOD) for fast visualization	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Decimation of point clouds (every nth point)	◆	◆	◆	◆	◆	◆	◆	◆	◆			
Selectable levels of point cloud density							◆	◆	◆	◆	◆	◆
Quickly show/hide point clouds							◆	◆	◆	◆	◆	◆
View point clouds with intensity mapping, image color mapping, elevation based color mapping	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆*	◆
Map external digital photo to point clouds (Texture map)	◆	◆	◆	◆	◆	◆		◆	◆			
Create Multi-image from cube-mapped images	◆	◆	◆	◆	◆	◆		◆	◆			
View texture mapped colors on point clouds	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆*	◆
Limit Box for efficient viewing and interaction of selected regions	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆*	◆
Limit Box Manager to organize multiple limit boxes	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Set Limit Box by fence							◆	◆	◆		◆	◆
Global registration of multiple scans							◆					
Geo-referencing			◆	◆		◆	◆					
Cloud-to-cloud registration							◆					
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 objects								◆				
Replication and editing of 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								◆	◆			
Surface Deviation												
Cut/fill contours								◆	◆			
Table output on user-specified grid								◆	◆			
Points on user-specified grid								◆	◆			

Leica Cyclone 6.0 Technical Specifications

Visualization, Modeling & Query Tools, and Registration (cont'd)	SCAN HDS2500	SCAN HDS3000	SCAN Scan-Station	SCAN Scan-Station 2	SCAN HDS4500	SCAN HDS6000	REGISTER	MODEL	SURVEY	PUBLISHER	Free VIEWER	VIEWER Pro
Generate cross-sections through point clouds along an alignment												
Sections Manager								◆	◆			
Create Lines at Station								◆	◆			
Create profiles, plans and sections								◆	◆			
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								◆	◆			
Angle to Horizontal							◆	◆	◆			◆
Angle to Vertical							◆	◆	◆			◆
Back angle							◆	◆	◆			◆
Cut/fill volume								◆	◆			◆
Piping takeoff query								◆				
Automated visual interference checking								◆				
Fit cylinders, structural steel from catalogs								◆				
Insert piping components from catalogs (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 colors & 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 ²	◆	◆	◆	◆	◆	◆	◆					
Black/White targets	◆	◆	◆	◆	◆	◆	◆					
Patch (plane) ²							◆	◆				
Extruded patch								◆				
Box ²³								◆				
Corner ²							◆	◆	◆			
Steel shape ²³ (e.g. I-beam)							◆	◆				
Cylinder ²³							◆	◆	◆			
Sphere ²³							◆	◆				
Vertex							◆	◆	◆			
Line							◆	◆	◆			
Elbow ²³ , Reducing Elbow ³								◆				
Cone ²³								◆				
Torus ³								◆				
Reducer (Eccentric, Concentric) ³								◆				

Leica Cyclone 6.0 Technical Specifications

Visualization, Modeling & Query Tools (cont'd)	SCAN HDS2500	SCAN HDS3000	SCAN Scan- Station	SCAN Scan- Station 2	SCAN HDS4500	SCAN HDS6000	REGISTER	MODEL	SURVEY	PUBLISHER	Free VIEWER	VIEWER Pro
Flange (Blind, Weld-Neck) ³								◆				
PipeTee ³								◆				
Valve ³								◆				
Polyline, Polygon								◆	◆			
Rectangle, Square								◆	◆			
Arc, Circle								◆	◆			
Ellipse								◆	◆			
Cubic spline								◆	◆			
Point-of-view camera								◆	◆			◆
Pointed (Ballistic) cone								◆	◆			
Environmental lighting								◆	◆	◆		
Create fly-throughs and output sequence of image files or .AVI (Audio Video Interleave) file								◆	◆			
Elevation check	◆	◆	◆	◆	◆	◆	◆	◆	◆			
Pipe Modeling user interface								◆				
Publish Sitemap and TruView Panoramic File Sets										◆		
Ortho Image output	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		
² These types can be created using best-fit methods.			* As delivered in database, cannot modify									
³ These types can use catalog tables.			**On and Off only, no layer creation									
TruSpace\Keyplan	SCAN HDS2500	SCAN HDS3000	SCAN Scan- Station	SCAN Scan- Station 2	SCAN HDS4500	SCAN HDS6000	REGISTER	MODEL	SURVEY	PUBLISHER	Free VIEWER	VIEWER Pro
Open\View KeyPlan							◆	◆	◆	◆		◆
Create KeyPlan							◆	◆	◆	◆		
Edit KeyPlan							◆	◆	◆	◆		
Open TruSpace							◆	◆	◆			◆
Extract targets in TruSpace							◆	◆	◆			
Measurements in TruSpace							◆	◆	◆			◆
View Multi-Image in TruSpace							◆	◆	◆			◆
Change Color Mapping							◆	◆	◆			◆
Open ModelSpace view from TruSpace							◆	◆	◆			◆
Publish TruView from KeyPlan										◆		
Sync view- TruSpace to ModelSpace							◆	◆	◆			◆
Quick Limit box from TruSpace to ModelSpace							◆	◆	◆			◆
In TruSpace, connect to other TruSpaces via displayed scanner location icons							◆	◆	◆			◆
Data Import	SCAN HDS2500	SCAN HDS3000	SCAN Scan- Station	SCAN Scan- Station 2	SCAN HDS4500	SCAN HDS6000	REGISTER	MODEL	SURVEY	PUBLISHER	Free VIEWER	VIEWER Pro
ASCII (XYZ, SVY, PTS, PTX, TXT, Customized format)							◆	◆	◆		◆**	◆
RIEGL .3DD							◆	◆	◆			◆
Cyclone Object Exchange (COE) format (from AutoCAD, MicroStation, via COE Data Transfer)							◆	◆	◆			◆
CGP							◆	◆	◆			◆
ZFS, SCAN, SC2	◆	◆	◆	◆	◆	◆						◆
ZFS, ZFC							◆	◆	◆			◆
BMP, TIFF, JPEG, PNG							◆	◆	◆			◆
LandXML							◆	◆	◆			◆
SIMA								◆	◆			◆
◆** Enabled if licensed copy of CloudWorx is installed on the same machine												
Data Export	SCAN HDS2500	SCAN HDS3000	SCAN Scan- Station	SCAN Scan- Station 2	SCAN HDS4500	SCAN HDS6000	REGISTER	MODEL	SURVEY	PUBLISHER	Free VIEWER	VIEWER Pro
AutoCAD DXF R12	◆	◆	◆	◆	◆	◆	◆	◆	◆			◆
Cyclone Object Exchange (COE) format (to AutoCAD, MicroStation via COE Data Transfer)	◆	◆	◆	◆	◆	◆	◆	◆	◆			◆
ASCII (XYZ, SVY, PTS, PTX, TXT, Customized format)	◆	◆	◆	◆	◆	◆	◆	◆	◆			◆

Leica Cyclone 6.0 Technical Specifications

Data Export	SCAN HDS2500	SCAN HDS3000	SCAN Scan- Station	SCAN Scan- Station 2	SCAN HDS4500	SCAN HDS6000	REGISTER	MODEL	SURVEY	PUBLISHER	Free VIEWER	VIEWER Pro
Binary Point Cloud (PTZ)							◆					
BMP, TIFF, JPEG, PNG	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆
Ortho Image, GeoTIFF, TWF (World File)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆
Sitemap, TruView										◆		
SDNF 3.0 (Intergraph Steel Detailing Neutral File)								◆				
PCF (Alias Piping Component File)								◆				
Leica System 1200								◆	◆			◆
LandXML								◆	◆			◆
Cyclone II TOPO *.cwf & *.pci	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Automatic 5-day trial license period												◆
Other general Cyclone Features												
Metric or imperial units of measure							Client/server object database foundation					
Decimal Degrees or Degrees, Minutes, Seconds angular units of measure							Multi-threading to take advantage of multiple processors					
Bearing unit of measure for Azimuth of Resection							Hierarchical project layout					
Simultaneous view of video image and scanned data image							Flexible license support					
Customizable, exchangeable user interface: hotkeys, toolbars							Terminal Services support					
64-bit large number support							Multi-user profile configuration management					
64-bit graphics support							Incremental, intelligent loading of 3D models					
Continuous auto-save							Parametric objects					
Undo/Redo							Online help					

Leica CloudWorx 4.0 and 2.0 Technical Specifications

Visualization, Modeling & Query Tools	CW AutoCAD Basic 4.0	CW AutoCAD Pro 4.0	CW Microstation 4.0	CW PDMS 2.0	CW SmartPlant Review 2.0
Large Point Cloud Support	◆	◆	◆	◆	◆
Level of Detail (LOD) graphics	◆	◆	◆	◆	◆
Intensity mapping and True color	◆	◆	◆	◆	◆
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 Center 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		◆	◆		
Modeling (Least-Squares fitting)					
Pipes		◆	◆		
Planar Patch		◆	◆		
2D lines, Polylines arcs		◆	◆		
Advanced clash management database system		◆	◆		
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		◆	◆		
In TruSpace window, display scanner location icons and switch to view from selected icon/location.		◆	◆		

Whether you're designing a modification to a complex refinery piping system, fully checking the clearance of a new tunnel or meticulously rehabilitating a historic building, you need reliable measurements. The specialized 3D laser scanning systems and software by Leica Geosystems provide you with exact data of what's there.

When your as-built information has to be right, rely on Leica Geosystems, the company that professionals trust for their scanning solutions. Leica Geosystems is best known for pioneering scanning technology with trustworthy, total solutions: versatile, accurate laser scanners, industry standard point cloud software, and a full complement of accessories, training and support.

Precision, quality and service from Leica Geosystems.

When it has to be right.

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