

Valid as of November 2021



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- when it has to be **right**

FEATURE	STANDARD (BASE)	SURVEY (OPTION)	AEC (OPTION)	TANK (OPTION)	PRO (EDITION)
POINT CLOUD PROCESSING					
Noise detection	•				•
Clean/Separate clouds by fence	•				•
Separate with object	•				•
Reduce	•				•
Density homogenisation	•				•
Segmentation (by distance, scan station and colour)	•				•
Target extraction		•	•		•
Detect moving objects	•				•
Ground extractor filter		•			•
Walls and floors filter		•	•		•
Tunnel filter		•	•		•
Automatic Classification / Manual Classification		•	•		•
Explode by class / Class representation / Support of classified LAS and LAZ formats	•				•
CLOUDWORX					
Connect to Cyclone IMP, LGS and JetStream server	•				•
Create UCS and align views	•				•
Create and manage limit boxes, limit slices and limit planes	•				•
COORDINATE SYSTEMS				J	
Local coordinate systems	•				•
Translation, rotation, free move	•				•
Best align N points	•				•
Best fit	•				•
SURFACE MODELLING					
3D meshing	•				•
Spherical meshing	•				•
2D meshing	•				•
Mesh refining: smoothing, decimation, hole filling sharp, edges and borders reconstruction, junctions, cut mesh, inspection steps, subdivide	•				•
Mesh extrusion	•				•
Mesh convex hull	•				•
Meshing under constraints (with polylines)	•				•
Mesh segmentation	•				•
Spikes detection	•				•
Write on mesh	•				•
DSM and DTM creation		•			•
Building extraction		•	•		•
CONTROL/INSPECTION/ANALYSIS					
Angle, distance, surface	•				•
Cubature/volume	•				•
Geometric shape extraction	•				•
3D inspection	•				•

FEATURE		SURVEY	AEC		PRO
	(BASE)	(OPTION)	(OPTION)	(OPTION)	(EDITION)
CONTROL/INSPECTION/ANALYSIS					
2D inspection	•				•
BIM inspection	•		•		•
Reporting (CSV, PDF and 3DPDF)	•		•		•
Stockpile measurement	•	•			•
		•			•
CONTROL/INSPECTION/ANALYSIS					
Stockpile measurement		•			•
Cross-sections for tunnels and roads (creation, inspection, volumes, unroll)		•	•		•
Surface analysis (levelness, flatness, slope)		•	•		•
Clash analysis / Export BCF clashes			•		•
Inspection notes / Export BCF issues			•		•
·	I				<u>I</u>
POLYLINES/SECTION/EXTRACT					
Sections (planar, radial, etc.)	•				•
Smoothing	•				•
Decimation	•				•
Chaining	•				•
Neutral axis extraction	•				•
Breakline extraction (single)	•				•
Planar contour extraction	•				•
Contour lines		•			•
Breakline extraction (multiple)		•			•
Polyline edition (stretch, edit, resample, replace)	•				•
Scan to Plan			•		•
IMAGE/TEXTURE MANAGEMENT					
Conversion between inspected or coloured mesh to textured mesh		•			•
Automatic and manual mapping of pin hole, cube faces and spherical images		*			•
Automatic and manual mapping of ortho-images		•			•
Camera calibration		*			•
Take colours from cloud	•				•
Creation of texture atlas		•			•
Ortho-image (including georeferencing information as Word file)		•			•
Texture edition (adjust, explode, remove)		•			•
Texture from material		•			•

REVERSE ENGINEERING			
IGES, STEP and DXF import	•		•
REVIT, IFC and DWG import		•	•
CAD Surface creation		•	•
Local or overall surface improvements		•	•
Reverse engineering workflow (creation and edition of networks, CAD surface generation based on networks, manage overlapped surface)		•	•

(BASE) (OPTION) (OPTION) (OPTION) (EDTION) EVERSE ENCINCERINC CONTION						
EXERSE ENGINEERINC EXERSE ENGINEERINC EXERSE ENGINEERINC EXEMPTION TRESS ADD model) ADD model	FEATURE					
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D inspection • toundness and verticality • iettlements • xport and reporting • SPER INTERFACE • Untropy of and reporting • SPER INTERFACE • Untropy of and reporting • SPER INTERFACE • SPER INTERFACE • Untropy of and reporting • SPER INTERFACE • SPERINTERFACE •						
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sport and reporting••VSER INTERFACEVSER INTERFACEDrithographic and perspective view•Inditiview•Inditiview•Inter explorer•wtoSaves•Inter box, limit planed and limit slices•Inditi to Saves•Indit to Saves•Inter box, limit planed and limit slices•Inter and slices•Inter an						
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BM Inspection including connection to Cyclone FIELD 660 and Cyclone FIELDWORX AUTOMATION Scripting ••••••••••••••••••••••••••••••••••••	, Unit management	•				•
BM Inspection including connection to Cyclone FIELD 660 and Cyclone FIELDWORX AUTOMATION Scripting ••••••••••••••••••••••••••••••••••••						
360 and Cyclone FIELDWORX Image: Constraint of the second sec	TOUCH MODE WORKFLOWS					
Scripting•Image: Constraint of the second sec	BIM Inspection including connection to Cyclone FIELD 360 and Cyclone FIELDWORX			•		•
Scripting•Image: Constraint of the second sec						
POINT CLOUD IMPORT FORMATS .eica Geosystems (*.pts, *.ptx) and LGS (*.lgs) .eica Nova MS50/60 (*.sdb, *.xml) .eica Nova MS50/60 (*.sdb, *.xml) <td></td> <td></td> <td></td> <td></td> <td></td> <td>▲</td>						▲
Leica Geosystems (*.pts, *.ptx) and LGS (*.lgs)••••Leica Nova MS50/60 (*.sdb, *.xml)•••••ShapeGrabber (*.3pi)•••••BDReshaper binary file (*.nsd)•••••AutoDesk DXF (*.dxf)•••••STL (*.stl)•••••	Scibring	•				· ·
Leica Nova MS50/60 (*.sdb, *.xml)•Image: Constraint of the state of the sta	POINT CLOUD IMPORT FORMATS					
ShapeGrabber (*.3pi) • Image: Constraint of the state	Leica Geosystems (*.pts, *.ptx) and LGS (*.lgs)	•				•
BDReshaper binary file (*.nsd) 	Leica Nova MS50/60 (*.sdb, *.xml)	•				•
AutoDesk DXF (*.dxf) • • • STL (*.stl) • • • •	ShapeGrabber (*.3pi)	•				•
TL (*.stl)	3DReshaper binary file (*.nsd)	•				•
	AutoDesk DXF (*.dxf)	•				•
'olyworks (*.psl)	STL (*.stl)	•				•
	Polyworks (*.psl)	•				•

3DReshaper binary file (*.nsd)	•		•
AutoDesk DXF (*.dxf)	•		•
STL (*.stl)	•		•
Polyworks (*.psl)	•		•
Leica T-Scan + Steinbichler (*.ac)	•		•
LiDAR data (*.las; laz)	•		•
Other ASCII (*.*)	•		•
Zoller and Fröhlich *(.zfs - *.zfc)	•		•
PLY points without triangles (*.ply)	•		•
ESRI ASCII (raster format *.asc)	•		•
FARO (*.fls - *.fws)	•		•
POLYWORKS (*.psl)	•		•
E57 (*.E57 files)	•		•

STANDARD

SURVEY

AEC

PRO

TANK

FEATURE

	(BASE)	(OPTION)	(OPTION)	(OPTION)	(EDITION)
LandXML files (*.xml)	•				•
DOT Products (*.dpl)	•				•
2DBX	•				•
IESH IMPORT FORMATS					
TL format (*.stl)	•				•
Binary PBI format (*.pbi)	•				•
DXF 3Dface format (*.dxf)	•				•
SCII POLY format (*.poly)	•				•
DBJ format (*.obj)	•				•
ASCII Leica format (*.msh)	•				•
/RML files deprecated (*.wrl / *.vrml / *.iv)	•				•
I		1	1	1	
MESH IMPORT FORMATS					
DFF files (*.off)	*				•
PLY (*.ply)	٠				•
LB files (*glb, *glft)	•				•
GES format	•				•
DXF polyline format	•				•
inary MLI format (*.mli)	•				•
CAD MODEL IMPORT FORMATS	•				•
TEP	* *				•
DWG	•		•		•
			•		
BIM MODEL IMPORT FORMATS					
FC			•		•
RVT			•		•
I					
PROJECT FILES - IMPORT					
RESHAPER (*.rsh)	♦				•
DXF	•				•
(ML	•				•
yclone MSView and JetStream database through the cloudWorx plugin	•				•
POINT CLOUD EXPORT FORMATS					
ASCII FILES (*.asc, *.csv)	•				•
Sinary files (*.nsd)	•				•
eica Geosystems (*.pts, *.ptx)	•				•
57 (*.e57)	•				•
	•				•
GES (^.195)	•				•
	•				
GES (*.igs) AS (*.las) AZ (*.laz)	•				•

FEATURE	STANDARD (BASE)	SURVEY (OPTION)	AEC (OPTION)	TANK (OPTION)	PRO (EDITION)
MESH EXPORT FORMATS					
ASCII and binary STL format (*.stl)	•				•
Binary PBI format (*.pbi)	•				•
DXF 3Dface format (*.dxf)	•				•
ASCII POLY format (*.poly)	•				•
Vertices only (*.asc)	•				•
DXF polyline (*.dxf)	•				•
STEP file (*.stp)	•				•
ASCII Leica format (*.msh)	•				•
VRML 2 deprecated (*.wrl / *.vml / *.iv)	•				•
PLY (*.ply)	•				•
LandXML (*.xml)	•				•
OBJ format (*.obj)	•				•
GLB files (*glb)	•				•
					· · · · · · · · · · · · · · · · · · ·
CONTOUR/SECTION EXPORT FORMATS					
IGES format	•				•
DXF polyline format	•				•
Binary MLI format (*.mli)	•				•
ASCII formats	•				•
CAD MODEL EXPORT FORMATS					
IGES (geometrical shapes and existing CAD model)	•				•
STEP (geometrical shapes and existing CAD model)	•				•
Image export format	•				•
Ortho-image including georeferencing information as World file	•				•
PROJECT FILES - EXPORT					
RESHAPER (*.rsh)	•				•
DXF	•				•
PDF 3D	•				•
SKETCHFAB	•				•
Animation - Video	•				•
BCF report (BIM)			•		•

PUBLISHING FEATURES	PUBLISHER	PUBLISHER PRO
Publish to LGS (point clouds and clipping objects)	•	•

Recommended Specifications

Processor	2 GHz Dual Quad Core i7 processor or better
RAM	Minimum 16 GB or more for 64 bit OS
Hard Disk	1 GB free disk space
Graphic Card	NVidia - Quadro or GeForce 1GB (with OpenGL support, versions 4.3 or higher)
Operating System	Microsoft Windows® 7 - 8 - 10 (64 bits supported)
Tablet Device for Touch Mode	Microsoft Surface PRO Core i7 1.5 GHz – 16GB RAM
Minimum requirements for Automatic Classification	Graphic card: Nvidia with GPU capabilities RAM: 32 GB Hard disk: 10 GB free disk space CUDA® 11.2 Toolkit from NVidia

Edition Components

Cyclone 3DR Survey Edition	Cyclone 3DR Standard Cyclone 3DR Survey Option
Cyclone 3DR AEC Edition	Cyclone 3DR Standard Cyclone 3DR AEC Option
Cyclone 3DR Tank Edition	Cyclone 3DR Standard Cyclone 3DR Tank Option
Cyclone 3DR Pro Edition	Cyclone 3DR Standard Cyclone 3DR Survey Option Cyclone 3DR AEC Option

Customer Care Package (CCP) Information

Cyclone 2021	1 November 2021
Cyclone REGISTER 360 2021	1 November 2021

Revolutionising the world of measurement and survey for nearly 200 years, Leica Geosystems, part of Hexagon, creates complete solutions for professionals across the planet. Known for premium products and innovative solution development, professionals in a diverse mix of industries, such as aerospace and defence, safety and security, construction, and manufacturing, 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.

Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications. Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous — ensuring a scalable, sustainable future.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 21,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at <u>hexagon.com</u> and follow us <u>@HexagonAB</u>.

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