ENJOY THE BENEFITS:

• Fast manipulation of point clouds in PDS
• Tracing and auto-fitting of pipes, surfaces, 2D lines, polylines, and arcs
• Definition of accurate tie-ins
• Point cloud clash-checking against 3D CAD

LEICA CLOUDWORX™ FOR PDS®
Perform 2D and 3D Design with Point Clouds

Intergraph® PDS® is a comprehensive, intelligent computer-aided design/engineering (CAD/CAE) application for plant design, construction, and operations. Production-driven, it helps EPCs and owner operators deliver the best design possible – and do it more efficiently to reduce the total installed cost of the project.

The CloudWorx™ add-on uses the Leica Geosystems HDS Cyclone™ software platform to provide access to point cloud data inside PDS. This powerful combination enables you to perform a plant walkdown without leaving the comfort and safety of your office!

Leica CloudWorx for PDS is the most efficient and popular plug-in software for using as-built point cloud data – captured by laser scanners – directly within PDS.

Take advantage of the familiar PDS interface and tools to shorten the learning curve for working with laser scan data. Efficiently visualize and process large point cloud data sets. You can create accurate 2D and 3D as-builts, check proposed designs against existing conditions, perform critical construction and fabrication QA, and more … all directly within PDS.

In the past, users often struggled with point cloud manipulation. CloudWorx overcomes this with its powerful TruSpace viewing window. This intuitive, panoramic viewing window lets users “see” better what the point cloud represents, and acts like a super-control to drive point cloud visualization in PDS with unprecedented speed.

POINT CLOUD DISPLAY CONTROL
To focus on particular areas of interest, easy-to-use tools define specific areas of 3D point clouds to display. For improved visualization, segments of point clouds can be selectively hidden using fences and user-defined cutplanes, slices, or 3D limit boxes.

ACCURATE BUILDING DOCUMENTATION
Slices through point cloud data facilitate the creation of planimetric and elevation drawings. 2D lines, polylines, and arcs can be best-fit to provide accurate results. Cross sections of point clouds can also be plotted directly, introducing an entirely new, accurate deliverable and reducing project cycle time.

AS-BUILT PIPING MODELS
Pipe fitting tools enable users to quickly create accurate, intelligent, as-built piping models, best-fit to the point clouds, in conjunction with tools in PDS. Tie-in locations for proposed retrofit designs are also easily identified. Planar surfaces can also be modeled from point clouds using CloudWorx fitting and region growing tools.
DETAILED INFORMATION FOR RETROFIT PROJECTS

Engineers can use CloudWorx in retrofit design projects to check for potential interferences with point clouds that represent actual as-built or as-is conditions. The unparalleled detail provided by point clouds enables engineers to create 2D or 3D designs based on accurate, comprehensive information, providing time- and cost-savings throughout a project’s various construction phases.

CIVIL ENGINEERING APPLICATIONS

CloudWorx also integrates with other MicroStation applications like Bentley’s InRoads and GEOPAK to deliver solutions for civil engineering projects such as transportation infrastructure, land development, bridge models, and more. Users can extract 3D coordinates to represent site features that are easily identifiable in detailed point clouds. Original ground points can be extracted for topographic modeling.

LARGE POINT CLOUD MANAGEMENT
• 3D limit boxes, slices, interactive visualization of massive data sets
• Cyclone object database technology for fast, efficient point cloud management

RENDERING
• Level of Detail (LOD) graphics for real-time manipulation of high-density data sets
• “Single-pick” point cloud density control

VISUALIZATION
• Intensity mapping and photo-quality true color
• TruSpace panoramic viewer
  - Select view point from key plan
  - Drive CAD viewpoint from TruSpace
  - Quick limit box in CAD from single pick in TruSpace
  - Send point picks from TruSpace to CAD commands
  - Include background image
• Limit boxes, slices, cut planes

MEASUREMENT
• 3D point coordinate, point-to-point, point-to-design entity

MODELING
• Pipe modeling
  - Least-squares fitting
  - Fit points inside fence
  - Grow from pick
  - Grow a piping run from picks
  - Connection of piping run
• Planar surface (patch) modeling
• Best-fit 2D lines, polylines, arcs
• Flange tie-point location tool

INTERFERENCE CHECKING
• Check designs for potential interferences with point clouds
• Advanced clash management database system

ABOUT INTERGRAPH

Intergraph is the leading global provider of engineering and geospatial software that enables customers to visualize complex data. Businesses and governments in more than 60 countries rely on Intergraph’s industry-specific software to organize vast amounts of data to make processes and infrastructure better, safer and smarter. The company’s software and services empower customers to build and operate more efficient plants and ships, create intelligent maps, and protect critical infrastructure and millions of people around the world.

Intergraph operates through two divisions: Process, Power & Marine (PP&M) and Security, Government & Infrastructure (SG&I). Intergraph PP&M provides enterprise engineering software for the design, construction, operation and data management of plants, ships and offshore facilities. Intergraph SG&I provides geospatially powered solutions, including ERDAS technologies, to the public safety and security, defense and intelligence, government, transportation, photogrammetry, and utilities and communications industries. Intergraph Government Solutions (IGS) is a wholly owned subsidiary of Intergraph Corporation responsible for the SG&I U.S. federal business.

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