General Information

Design	Bridge-type CMM with stationary machine table and lateral bridge drive.
Operating Mode	Motorized / CNC
Laser / Part Indexing	Fixed / Renishaw PH10M
Special Features	Steel crossbeam and spindle. Preloaded high performance mechanical linear bearings with wrap around guideways in all axes. Passive anti-vibration system.
Drive System	High-performance servo drives. Electronic monitoring of position control in all axes.
Controller	Type: Renishaw / Delta Tau (CNC 3-axis vectorial control) Cooling System: Integrated Fan
Accessories	Standard control panel: joystick with progressive characteristics for manual control.
Power Requirements	100-240 V VAC ~ (+10%, -15%); 50-60 Hz (±3.5%), Power consumption: max. 750 VA
Environmental Requirements	+17° to +35°C (63°-95°F)
Compressed Air Supply	No compressed air utilized
Axes	X, Y, Z, optional rotary stage
Bearing System	Mechanical linear bearings on ground ways
Measuring Table	Black granite
Measuring System	Optical linear transducers - 0.1 mµ / 0.5 mµ resolution
Warranty	1-year warranty (hardware, software, parts, labor, workmanship)

Included with System

Choice of Laser Probe	XLP 250, 500, or 1000
Laser Scanning Software	Surveyor Scan Control Software
Computer	High-end Windows based PC and monitor
Manual Laser Mount	Adjustable mounts allow for 2 axes of rotation
Test Artifact	Specially designed artifact for validating system accuracy. Includes CMM inspection report and Qualify inspection template

System Options

Rotary Stage	ADRS 150 high accuracy rotary stage
Renishaw PH10	2-axis Renishaw PH10M
7th Axis	Laser Design automated flip fixture
Manual Fixtures	Manual flip fixture and extra frames
Reverse Engineering Software	Geomagic Design X, Polyworks/ Inspector
Inspection Software	Geomagic Control X, Polyworks/ Inspector

Volumetric Accuracy CMM Base-ISO 10360-2

DS Model	Volumetric Accuracy	Linear Accuracy	Repeatability	Resolution
2025	0.00044″	0.00011″+0.000006″/in	0.00011″	0.00002″
2530	0.00048″	0.00011″+0.000007″/in	0.00011″	0.00002″
3040-20″z	0.00056″	0.00012″+0.000007″/in	0.00012″	0.00002″
3040-25″z	0.00058″	0.00012″+0.000007″/in	0.00012″	0.00002″
4060	0.00062″	0.00012″+0.00006″/in	0.00012″	0.00002″
4080	0.00064″	0.00013″+0.00006″/in	0.00013″	0.00002″

Laser Design also offers system upgrades for the DS-Series for traditional CMM functionality. For information on adding a wide variety of Renishaw sensors and touch probing capability to your machine, please contact your Laser Design Sales representative.

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Contact Laser Design today for more information
952.884.9648 | info@laserdesign.com | www.laserdesign.com

Surveyor® DS-Series

High Precision Design and Accuracy

3D SCANNERS

DS-Series CMM integrated with Laser Design's fast and ultra-precise laser scanners for systems with the best of all technologies.

AUTOMATED SCANNING—Customized software and hardware allows automated 3D scanning and data processing

RAPID INSPECTION—Compare and scan data from actual parts to 3D CAD models for computer aided verification

QUALITY CONTROL—Obtain discrete dimension information directly from 3D scan data

CMM CAPABILITY—Optional CMM software for touch probe measurements is available along with the full line of Renishaw touch probes

For Inspection Analysis and Reverse Engineering

LASERDESIGN™
A CyberOptics Company

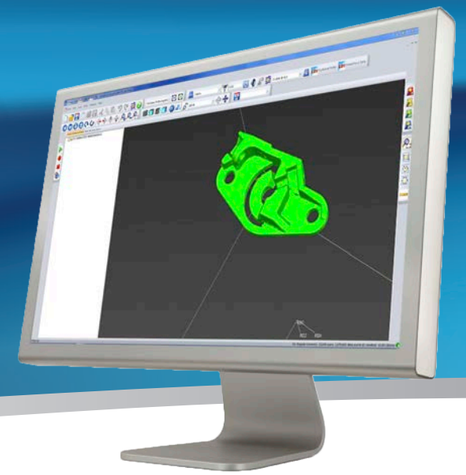
Surveyor® DS-Series

3D Laser Scanning Systems

The DS-Series integrated with Laser Design's laser scanning probes set a new standard for precision and ease of use in 3D measurement. Systems are available in many sizes to accommodate different types of parts and applications. Operators can quickly and easily scan simple prismatic shapes and geometry, free-form surfaces, or complex-shaped objects for inspection, analysis, or reverse engineering applications. Our unique technology dramatically reduces scanning time by collecting data significantly faster than conventional non-contact measuring technologies.

Intuitive, Easy-to-Use Software

Surveyor Scan Control (SSC) software has a simple Windows interface that makes laser scanning easy to use, with scanning wizards that automate most day-to-day tasks with detailed accuracy reporting that helps you know the accuracy of your machine before you start collecting data. Automated scanning gives you control up to 7 axes of motion for complete coverage from a single program.



SSC provides optimization for part specularity, data density control, and filtering as well as macro programming capabilities for automating repetitive applications and eliminating operator involvement.

High Precision Design and Accuracy

The DS-Series scanning system offers excellent stability and rigidity through passive anti-vibration technology while scanning at maximum speed and acceleration. The bridge-type CMM has a crossbeam and spindle with a mechanical drum spring counterbalanced Z axis. The preloaded high-performance mechanical linear bearings with wrap around guideways in all axes mean support from all four sides, guaranteeing superior measuring capabilities. Hard-coated steel guideway elements ensure corrosion resistance, hardness and wear resistance, electrical resistance, temperature resistance, and a low friction coefficient. The integrated controller supplies smooth, accurate, high-speed 3-axis movement for all measuring applications.

Dynamics

Travel Speed		
	CNC: X Axis: Y Axis: Z Axis:	Max. 250 mm/s (10.0 in/s)
	Vector:	Max. 38 mm/s (15.0 in/s)
Acceleration	Axes:	Max. 500 mm/s² (19.7 in/s²)
	Vector:	Max. 866 mm/s² (34.1 in/s²)

Measuring Range (MM)

DS Models	Measuring range in mm (in)		
	X axis	Y axis	Z axis
2025	500 (19.7)	625 (25.0)	500 (20.0)
2530	625	750	380 (15.0)
3040	750 (30.0)	1000 (39.4)	625 (25.0)
4060	1000	1500 (60.0)	625 (25.0)
4080	1000	2000 (78.7)	625 (25.0) / 1000 (40.0)

Industry Best for Laser Line Scanning Technology

Laser Design's XLP Laser Scanning Probes are able to scan diverse surface materials without any special coatings. They are up to 50% more accurate, up to 70% faster scan rate, and up to 30% higher resolution.

The XLP comes in three models based on the size and detail on the objects to be scanned. Parts such as plastics, metal, rubber, cast, molded, forged, machined, or extruded components, as well as tooling dies, or molds, are all typically measured items.

Refer to separate XLP Specification Sheet for details.

Software and Applications

Laser Design offers the industry's leading data processing software packages including: Geomagic, PolyWorks, and Verisurf for reverse engineering and inspection applications. Our turnkey 3D scanning system solutions include application-specific software for output of:

- Inspection / Verification Reports
- 3D Color Error Maps
- CAD Models (parametric, non-parametric, parasolids, surface NURBS, etc.)
- STL Meshes
- Point Clouds
- Isolated key design features
- Many other analytic or geometric formats

Reverse Engineering and Inspection

The Surveyor DS-Series with the XLP scanning probe captures the highest resolution point cloud providing the best reference to create 3D CAD surface models or low-cost production of STL files for rapid prototyping.

Revolutionize your inspection process by implementing complete part characterization / analysis based upon millions of coordinates defining the part's shape rather than the few hundred coordinates of touch probe measuring. Any part geometry out of compliance with the CAD model is immediately revealed. Locations of critical datums and full GD&T measurements are quickly displayed and included in easy-to-read graphic reports.

Laser scan data can be combined with touch probe data in the same inspection report. Full dimensional spreadsheets can be output to conventional SPC as desired. Once an inspection report is created, it can be automated for second part output without operator involvement, making multiple part inspections much faster and more thorough than ever before.