

FASTSCAN COBRA & SCORPION

THE FAST AND EASY DIGITAL SCANNER

CREATE 3D MODELS IN REAL-TIME

FastSCAN™ instantly acquires three dimensional surfaces by gathering measurements made by smoothly sweeping a handheld laser scanning wand over an object — in a manner similar to spray painting. The object's image instantly appears on a computer screen without the need to place untidy or unwanted registration marks on the object. The finished scan is processed to combine any overlapping sweeps, significantly reducing the time to develop surface models of virtually any object with minor or no metal content.

► FEATURES

Fast & Flexible

Handheld unit easily scans complex objects in seconds.

Compact & Portable

Easily transported from room to room or hand carried to any location.

Quick & Easy to Setup

From unpacking to first scan takes less than 5 minutes.

Scans Moveable Objects

A secondary reference receiver allows you to turn, rotate, or move objects while scanning.

Auto Stitches 3D Images as You Scan

Scans stitch together in real-time, eliminating post processing or the need to place registration marks on the object to be scanned.

Exports Scanned Objects to Industry Standard Formats

More than a dozen export formats available.

Surface Editing

Select and delete raw data points from sweeps, allowing for modification of raw scan.

Metric or Imperial Units

Allows for measurements in main display window to be calculated in millimeters or inches.



Entire COBRA system fits in compact carrying case

Portable & Lightweight

The industry's most portable and lightweight handheld laser scanner, FastSCAN goes everywhere you go — archaeological digs, the plant floor, even sensitive areas like medical examination rooms. Built with Polhemus' unique electromagnetic tracking technology, FastSCAN is ideal for capturing 3D images of most non-metallic, opaque objects in real-time — even if the objects being scanned are moving.

3D Scanning Wand

FastSCAN works by projecting a fan of laser light on the object while the camera views the laser to record cross-sectional depth profiles. By incorporating Polhemus patented FASTRAK® motion-tracking technology in the wand and processing unit, a computer reconstructs the full three-dimensional surface of an object in real-time. This 3D data can then be exported to a host of popular 3D modeling, graphics, and CAD programs.

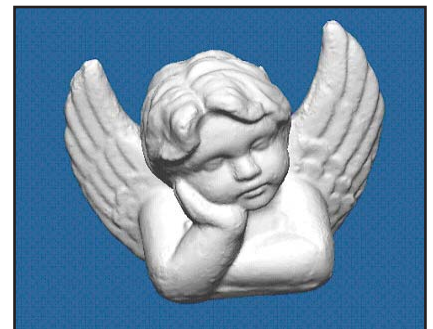
Built upon the same technology as the COBRA™, the two-camera SCORPION™ system allows more detail to be captured with each sweep of the handheld scanning wand. Each camera on the wand views the reflected laser line independently which expedites data acquisition. The SCORPION system allows better coverage with fewer data dropouts due to occlusion. Scanning is fast, particularly helpful when scanning more complex 3D surfaces.

APPLICATIONS

Limited only by your imagination!



COBRA scanning wand



Scan result



SCORPION scanning wand



Scan result

FASTSCAN



FastSCAN systems electronics unit (SEU)

► SYSTEM OPTIONS

RBF Software Enhancements

- Automatic hole filling
- Smooth extrapolation of surfaces
- Mesh simplification while preserving scan detail
- Export of guaranteed closed, watertight meshes
- Mesh is characterized by more uniform triangles
- Low pass filtering (smoothing) of scans

Miniature Transmitter

For areas of interest less than 22 inches, the system is available with a miniature transmitter which is the size of the reference receiver. Because the transmitter is always the reference, this may be placed on the subject to compensate for movement without using the secondary reference receiver. The advantage is faster and more accurate scans of moving objects and a simpler set-up.

Stylus

Mechanical - Once initialized, pressing the stylus button generates a position and orientation marker within the tracker's spatial system. These coordinates are recorded by the FastSCAN software and displayed on the screen. Digital reference markers provide an indication of the exact position and orientation of the marked point.

Optical - Stylus is built into the wand and turns the FastSCAN into a point digitizer. The hinged shutter is swung down when in stylus mode and changes the laser line into a point. The location of the point on the object's surface, and the orientation of the wand, are recorded whenever the wand trigger is depressed while in stylus point mode.

Mark with Mouse - (Requires Stylus License) This function allows the user to place reference points or lines directly onto the scanned area using the mouse.

Refraction Correction - Allows scanning through glass.

Delta™ - Image Comparative Analysis software which displays displacement between two surfaces as a color map. Calculates volume and surface area differences between two regions and has the capability to calculate volume of a concave region by interpolating over the region.

AAOP file format - O&P medical file format.



The systems are not certified for medical or bio-medical use. Any reference to medical or bio-medical use are examples of what medical companies have done with the systems after obtaining all necessary or appropriate medical certifications. The end user/OEM must comply with all pertinent FDS/CE and all other regulatory requirements.

► SPECIFICATIONS

Interface

USB only

Software

Flexible, intuitive GUI

3D viewing options: point cloud, wireframe, smooth or outlined surface display

3D controls: rotate, zoom, center scan, and scaling

On screen direct linear measurements

Selectable resolution, faceted surface simplification, outlier removal

Select and delete surface areas

Select and delete individual sweeps

Select background and image lighting and colors

Export formats to 3D Studio Max® (.3ds), ASCII (.txt), AutoCAD® (.dxf), IGES® (.igs), LightWave® (.lwo), MATLAB® (.mat), STL (.stl), Virtual Reality Modeling Language (.vrl), Wavefront® (.obj), Open Inventor® (.iv), Visualization Toolkit (.vtk) Polyworks® Scan (.psl), Stanford Polygon (.ply) and optional AAOP file format.

Resolution

Resolution along the laser line depends on wand-object range, typically 0.5mm at 200mm (0.02 inches at 8 inches) range and as good as 0.1mm.

Scanning rate is 50 lines/second, line-to-line resolution depends on movement of wand, typically 1mm at 50mm/second (0.04 inches at 2 inches/second).

Scanning Range

User selectable radius up to .75m or 75cm (30 inches) wand to transmitter and/or receiver to transmitter range; longer range is available with optional 4 inch transmitter.

Accuracy

Absolute accuracy within a 60" sphere centered around the reference source: 0.75mm (0.030 in.)

Practical accuracy determined by scanning a bowling ball and calculating the variation in radius over the point cloud surface: 0.13mm (0.005in)

Environment

Operation in the presence of large metal objects may interfere with the scanner's tracking, and degrade performance. Because the scanning laser is considered a light source, some surfaces may not be suitable for laser scanning, e.g. translucent, transparent, reflective, dark, or deeply convoluted surfaces. Surfaces may be treated to enhance laser light reflectivity.

Minimum Computer Requirements

1GHz (minimum) 2GHz recommended for RBF option

512MB RAM, minimum 1 GB recommended

Microsoft Windows® 2000, XP, Vista, or Win7

Higher powered computers will result in more responsive and faster surface calculations. We recommend 2 GB for Vista users.

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