

# FASTSCAN COBRA

THE FAST AND EASY DIGITAL SCANNER

## CREATE 3D MODELS IN REAL TIME

FastSCAN™ Cobra 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 your computer screen and 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.

### Portable and Lightweight

The industry's most portable and lightweight handheld laser scanner, FastSCAN Cobra goes everywhere you go — archeological digs, the plant floor, even sensitive areas like medical examination rooms. Built with Polhemus' unique electromagnetic tracking technology, FastSCAN Cobra 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 Cobra works by projecting a fan of laser light on the object while the camera views the laser to record cross-sectional profiles. By incorporating Polhemus-patented FASTRAK® motion-tracking technology in the wand and processing unit, your computer can reconstruct 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.

## ▶ FEATURES

### ▶ Fast & Flexible

Handheld unit easily scans complex objects in minutes

### ▶ Compact & Portable

Easily transported from room to room or hand carried to locations

### ▶ Quick and Easy to Setup

From unpacking to first scan takes less than 20 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

### ▶ Exports Scanned Objects to Industry Standard Formats

Over eleven export formats available

## ▶ MULTIPLE APPLICATIONS

### ▶ Reconstructive Surgery

Provide qualitative view of before and after surgical procedures

### ▶ Wound Healing

Track volumetric measurements of wounds as they heal

### ▶ Orthotics and Prosthetics

Take accurate measurements of soft tissue for better fitting prosthetics

### ▶ Industrial Design

Perfect for making precise measurements necessary for ergonomic research

### ▶ Rapid Prototyping and Reverse Engineering

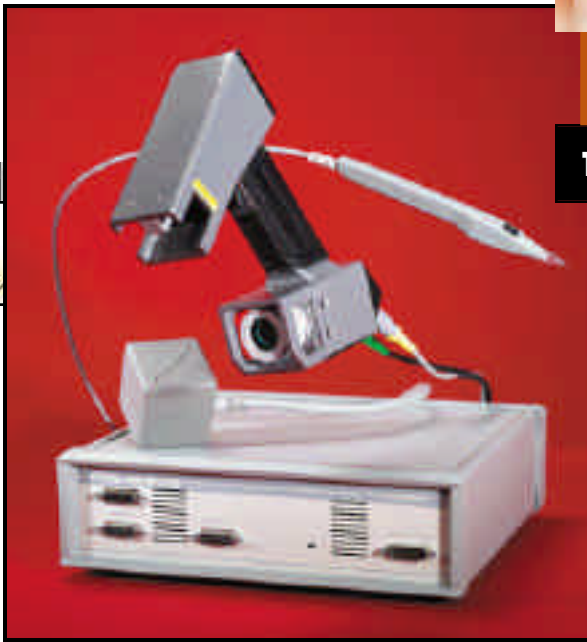
Quickly scans objects for file importation into your favorite CAD program

### ▶ Archeology

Accurately scans relics of the past in the lab, museum, or field

# FASTSCAN COBRA

## TECHNICAL SUMMARY



### COMPONENTS

#### Processing Unit

Custom electronics processor incorporating Polhemus FASTRAK® magnetic tracking technology  
11.0 inches L x 11.4 inches W x 3.6 inches H

#### Wand

230mm (9 inches) in length

#### Laser

670nm, 1mW, Class II

### SYSTEM OPTIONS

#### Optional 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

#### Stylus Option

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.

### CAUTION

LASER LIGHT - DO NOT  
STARE INTO BEAM



PHONE POWER 1 mW  
TRANSMITTER CLASS II LASER PRODUCT  
COMPONENTS OF POLHEMUS FASTSCAN

**POLHEMUS**  
First in the third dimension®

### SPECIFICATIONS

#### Reference System

Tracker transmitter  
Tracker receiver for attachment to moveable objects

#### Interface

Connects to ECP capable parallel port

#### Software

Flexible, intuitive GUI  
3D graphics: point cloud, wireframe, flat or smooth surface display, with or without normals  
3D controls: rotate, zoom, center scan, and scaling  
On screen direct linear measurements  
Selectable resolution, faceted surface simplification, outlier removal

Export formats to 3D Studio Max® (.3ds), ASCII (.txt), AutoCAD (.dxf), IGES (.igs), Lightwave (.obj), Matlab (.mat), STL (.stl), Virtual Reality Modeling Language (.wrl), Wavefront (.obj), Open Inventor (.iv), and Visualization Toolkit (.vtk)  
Online support available at [www.polhemus.com](http://www.polhemus.com)

#### Resolution

Laser line length increases with wand-object range, typically 150mm at 200mm (6 inches at 8 inches) range  
Resolution along the laser line depends on wand-object range, typically 0.5mm at 200mm (0.02 inches at 8 inches) range  
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)

#### Range

User selectable up to .75m or 75cm (30 inches) wand to transmitter and/or receiver to transmitter range; longer range is available (contact Polhemus)

#### Accuracy

With transmitter as reference, accuracy depends on wand-object range, typically 1mm at 200mm (0.04 inches at 8 inches) range  
With receiver as reference, accuracy also depends on receiver-object range

#### Environment

Operation in the presence of metal objects or electromagnetic fields may interfere with the scanner's tracking, and degrade performance. Because scanning relies on the wand, the camera seeing the laser line, 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 camera sensitivity

#### Minimum Computer Requirements

Pentium® III, 600MHz, 128MB RAM for WIN2000  
Pentium® II, 266MHz, CD-ROM, 64MB RAM (minimum), ECP capable parallel port, Windows NT 4, preferably OpenGL accelerated graphics card

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