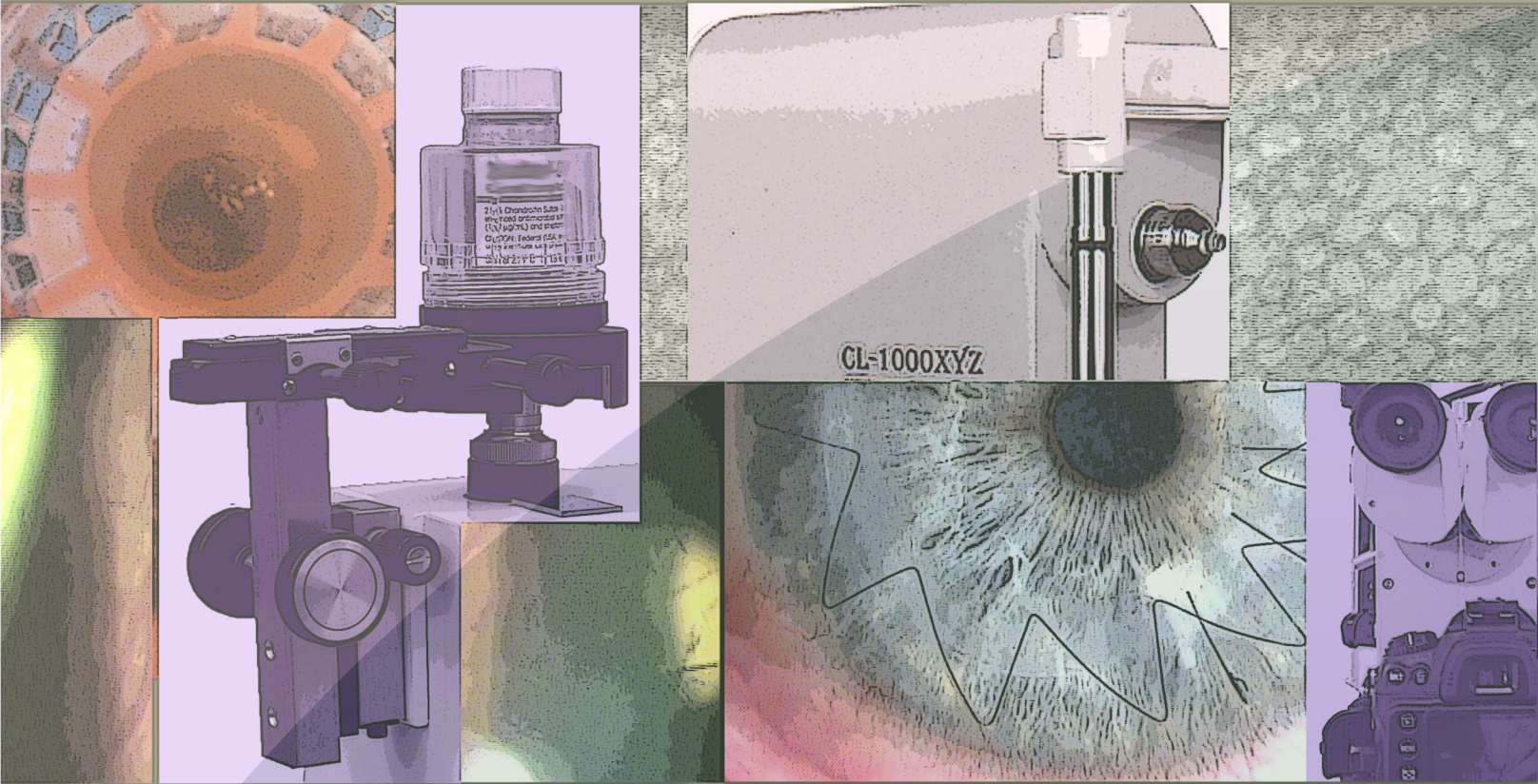




**Hightech U.S. manufacturing**  
*An FDA 510(k) company, est. 1996*



# Product Overview

**HAI Laboratories, Inc.**  
320 Massachusetts Ave  
Lexington, MA 02420

[www.hailabs.com](http://www.hailabs.com)  
Tel: 781.862.9884  
Fax: 781.860.7722



**Catch the wave of HAI technology**



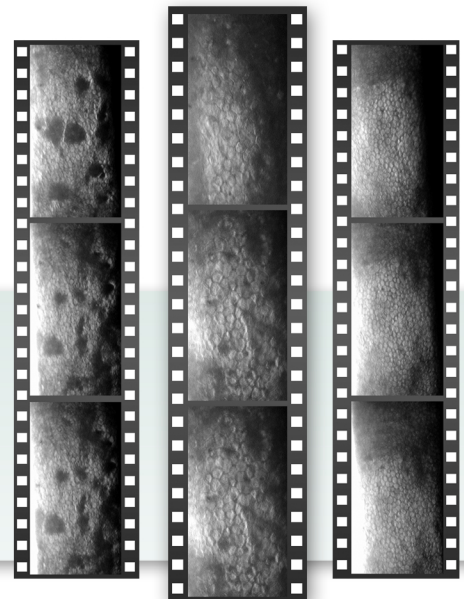
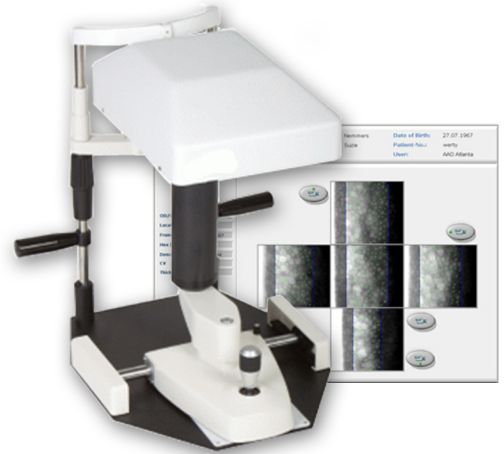
# Non-Contact Specular Microscopes

## HAI CL-1000nc Non-Contact Clinical Specular Microscope

Fast and easy to use, the CL-1000nc captures endothelial cell images automatically without needing to press any buttons -- just target the patient's corneal endothelium and the scope's patented dual-camera system handles the rest. Its non-contact design makes the procedure comfortable for patients and efficient for busy practices. The software provides quick reference data for cell density, coefficient of variation, hexagonal percentage and pachymetry within a matter of seconds.

### Features

- ✔ Targeting Mode: Fixation point and live view of patient eye
- ✔ Capturing Mode: Live video view of endothelial cell layer
- ✔ Automatic camera switching and frame-by-frame recording
- ✔ Automatic selection of good endothelium images
- ✔ Examine and analyze center plus up to four peripheral points
- ✔ Fully automated cell analysis with manual correction
- ✔ Cell density, polymegathism (CV) and morphology (Hex %)
- ✔ Integrated database for images and patient records
- ✔ One-click printout or export to JPG for electronic medical records



### The video-first advantage

HAI specular microscopes use advanced video technology instead of flash photography, which means you get a live, real-time view of the cornea endothelial layer *before* image capture. This puts you in the driver's seat and gives the opportunity to focus on particular areas of clinical interest.

## CL-1000eva Endothelium Viewing Attachment

Upgrade any compatible slit lamp with the CL-1000eva Endothelium Viewing Attachment by adding specular microscope functionality for endothelial cell counting and analysis. The CL-1000eva is a miniature non-contact specular microscope that attaches to many common slit lamp models, using the slit lamp's light source to examine patients and provide an enhanced and magnified view of the endothelium.

### Features

- ✔ Live video view of endothelial cell layer
- ✔ Manual focus control for cornea with abnormal thickness
- ✔ Optical pachymeter built-in
- ✔ Automatic selection of good endothelium images
- ✔ Effective analysis area of up to 100,000 $\mu\text{m}^2$
- ✔ Fully automated cell analysis with manual correction
- ✔ Cell density, polymegathism (CV) and morphology (Hex %)
- ✔ One-click printout or export to JPG for electronic medical records



# Contact Specular Microscope

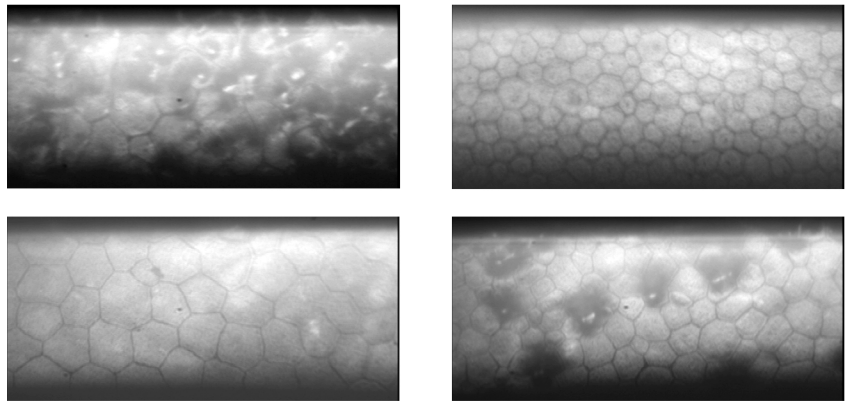


## HAI CL-1000xyz Contact Clinical Specular Microscope

Contact specular microscopy is the premier choice for discerning eye care specialists, providing a clarity of image unsurpassable by non-contact models when examining the corneal endothelium. The HAI CL-1000xyz is the only contact specular microscope manufactured today. With an adjustable focal distance from 0-999 $\mu$ m, the CL-1000xyz is ideal for post-DSAEK observation, edema and dystrophies of all kinds.

## Simply the clearest image

no matter what condition or cornea thickness



### Single-axis optics

Built on the original specular design theory, the CL-1000xyz emits and receives light on a single axis. This eliminates patient alignment error and produces images with zero cell distortion.

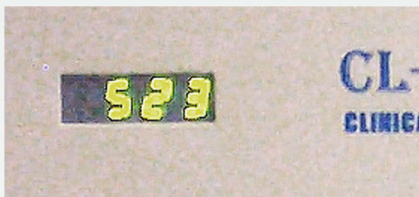
### Comfortable

Objective lens contacts only the tear film, so patients feel zero pressure. It's easier than a contact lens fitting.



### Built-in pachymeter

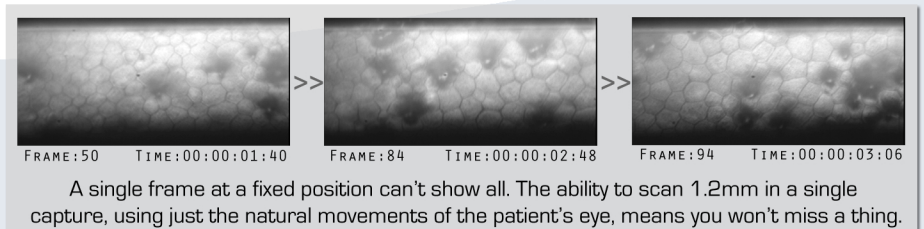
Digital pachymeter using a highly accurate optical-mechanical measuring method comes standard with every scope.



- ▼ Focal depth of 0-999 $\mu$ m
- ▼ Observe cornea before and after DSAEK
- ▼ Ideal for edema and dystrophy

## See more, record instantly

live sequence capture puts you in control

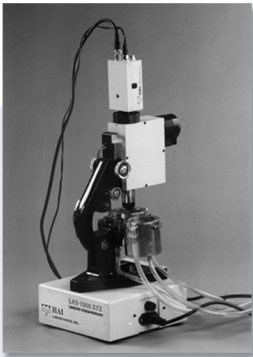


- ▼ 30fps high resolution digital video feed
- ▼ Capture 90 continuous frames in just 3 seconds
- ▼ Easy, effective way to scan cornea for the best diagnosis
- ▼ Provide instant feedback to patients

# Laboratory Specular Microscopes

## Made to your specifications

custom-designed and manufactured for any purpose



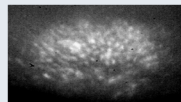
For live human tissue

Whether you're conducting a specialized lab study or an animal clinic, we can help you design and build a custom specular microscope to suit your needs. All models interface with the HAI CAS / CL Clinical Cell Analysis System.

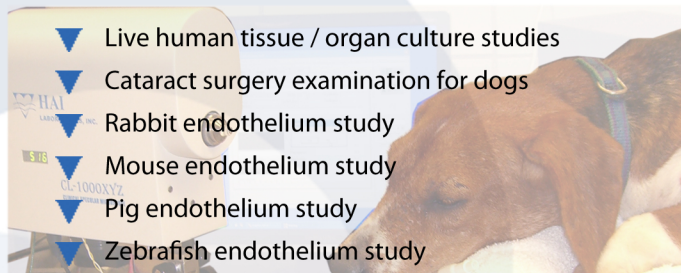
Here is some of the work we have done in the past:



Rabbit endo



Mouse endo



## Clinical Endothelial Cell Analysis

### HAI CAS / CL Clinical Cell Analysis System

Originally commissioned in 1996 to assist in an FDA clinical trial, HAI CAS / CL is today the most advanced endothelial cell analysis software on the market. It is robust enough to handle large, multiple patient-image databases and perform detailed statistical calculations, yet flexible enough to interface with various existing microscopes of different calibrations and capture functions. The original Corners Method for cell counting displays every step of the analysis, resulting in optimum accuracy you can verify and trust.

**[1]** Each cell is analyzed individually and displayed in the cell table.

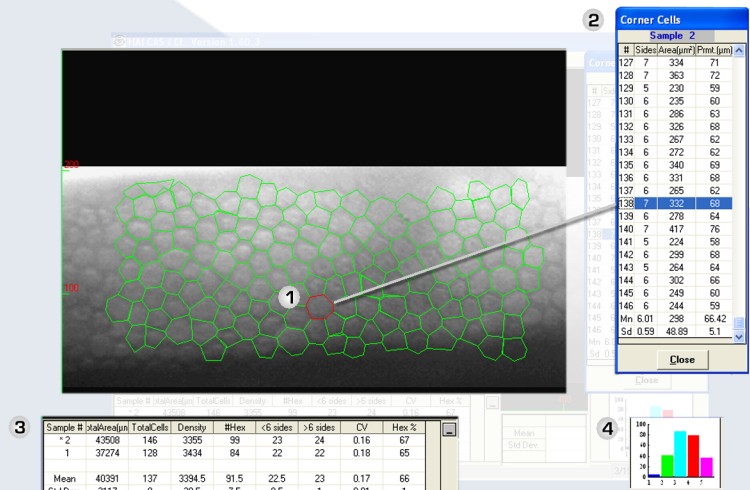
**[2]** Number of sides, area, perimeter, mean and standard deviation are calculated.

**[3]** Total area, number of cells, cell density, hex %, coefficient of variation, mean and standard deviation are calculated.

**[4]** Histogram is generated and displayed automatically. From start to finish, you can analyze 100 cells in just 3 - 5 minutes.

### Features

- ✔ Six additional cell counting and analysis methods
- ✔ Unlimited databases and unlimited calibrations
- ✔ Easily import and export data, images and clips
- ✔ Suitable for endothelial studies of any size and scale
- ✔ Compatible with third-party specular microscopes



# Eye Bank Specular Microscopes

## HAI EB-2000xyz Eye Bank Specular Microscope

Utilizing a traditional style for viewing chambers only, the EB-2000xyz can be used for observation of both human and animal cornea. It is intuitively easy to operate and the first choice for eye banks that need to evaluate pre-cut corneal tissue, as well as research institutions conducting studies.



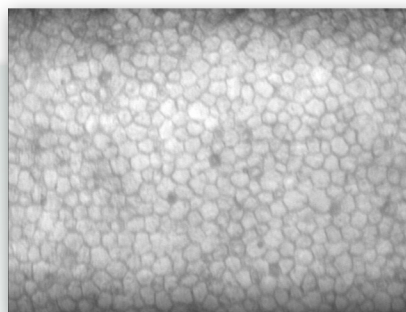
## HAI EB-3000xyz Eye Bank Specular Microscope

With an inverted optic head, the EB-3000xyz can observe human cornea in both viewing chambers and vials. It is a versatile solution for eye banks of all sizes. We also make custom vial holders to fit our users' diverse requirements.



### True area wide-field specular microscopy

HAI Labs revolutionized the field of specular microscopy for eye banks in 1996 by introducing the first scope able to capture a field of view more than double what was previously thought possible. With a 10x objective lens, our scopes' 450x500µm F.O.V. translate to full resolution and distortion-free digital images of 640x480 true pixels.

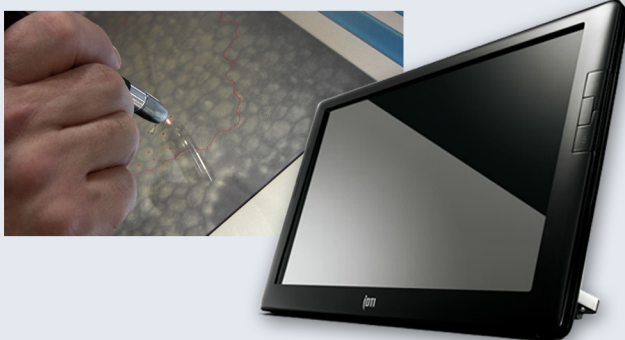
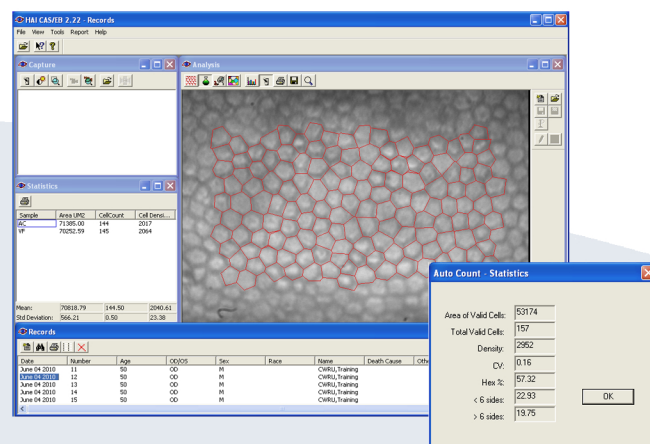


# Eye Bank Endothelial Cell Analysis

## HAI CAS / EB Eye Bank Cell Analysis System

The latest version 2.20 of HAI CAS / EB includes a new, streamlined user interface and touchscreen support. Automatic counting includes endothelial cell density, polymegathism, pleomorphism and statistical analysis.

Its database and report generator is tailored for eye banking with fields for donor, recipient, billing and slit lamp data. Pixel-based XY calibration ensures a rock-solid foundation for ultimate accuracy and reliability.



### Features

- ✔ High resolution, real-time imaging
- ✔ Auto, variable-frame and corners-variable counting methods
- ✔ Four-window workflow: capture, analysis, statistics, records
- ✔ Live, on-screen adjustment of brightness and contrast
- ✔ Advanced touchscreen tracing capability with optical stylus
- ✔ Widescreen LCD monitor with lie-flat swivel mount
- ✔ Easily import or export data and images

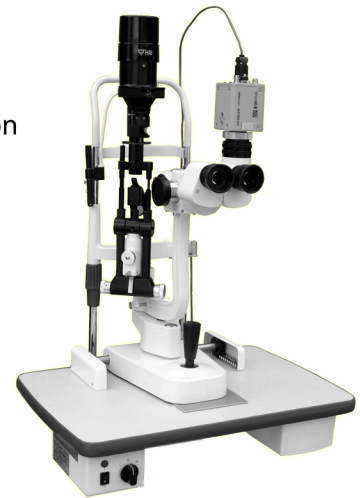
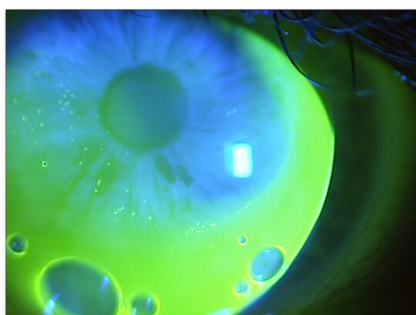
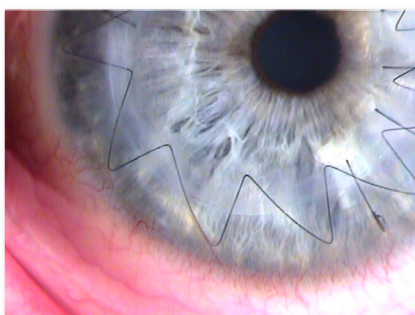
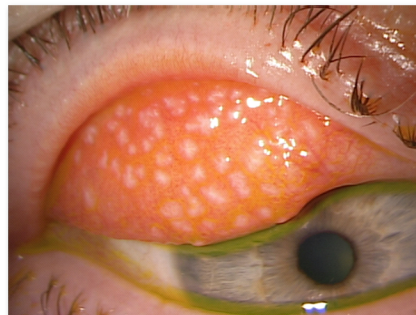
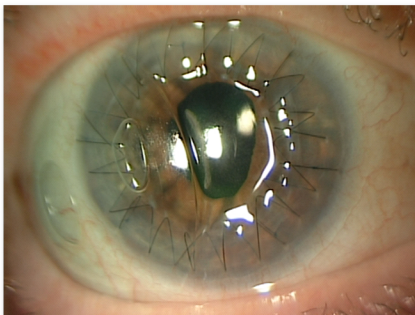
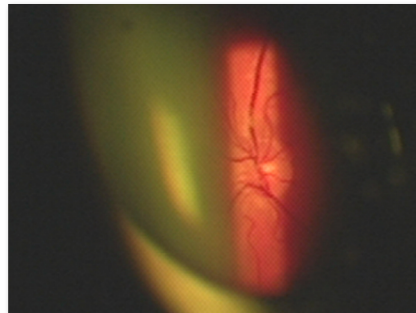
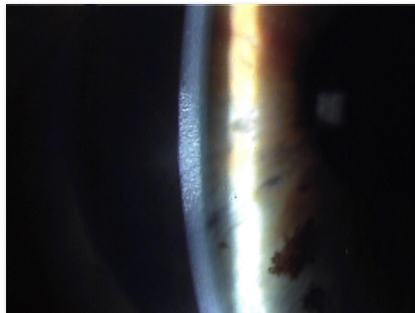
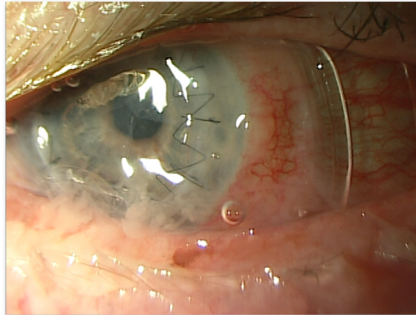
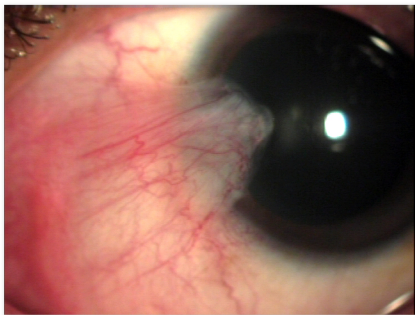
# Digital Video Slit Lamps

## HAI SL-5000 Slit Lamp Series

Representing our highest standard of quality for slit lamps, the SL-5000 series' precision optics and superior image definition combines with our high-resolution 3CCD technology to produce top tier digital video and photography of the anterior segment. Interfaces with HAI IMS / CL Image Management System, making a great educational tool and adding value to any practice.

## Sample Images

Visit [www.hailabs.com/slit-lamp](http://www.hailabs.com/slit-lamp) to view and download even more brilliant images and video clips captured by our users.



## SL-5000s Standard Model

- ✓ Slit diameter range of 0-9mm
- ✓ Slit inclination of 5, 10, 15 or 20 degrees
- ✓ 5 powers of magnification from 6x to 40x
- ✓ Built-in diffuser lens
- ✓ Parallel optics
- ✓ Heat absorption, grey, red-free and cobalt blue filters

## SL-5000p Plus Model

- ✓ Same foundation as Standard model
- ✓ Extended slit diameter range of 0.2-14mm



## SL-5000b Basic Model

- ✓ Affordable non-digital alternative
- ✓ Slit diameter range of 0-9mm
- ✓ Slit inclination of 5, 10, 15 or 20 degrees
- ✓ 2 powers of magnification: 10x and 16x
- ✓ Built-in diffuser lens
- ✓ Heat absorption, grey, red-free and cobalt blue filters

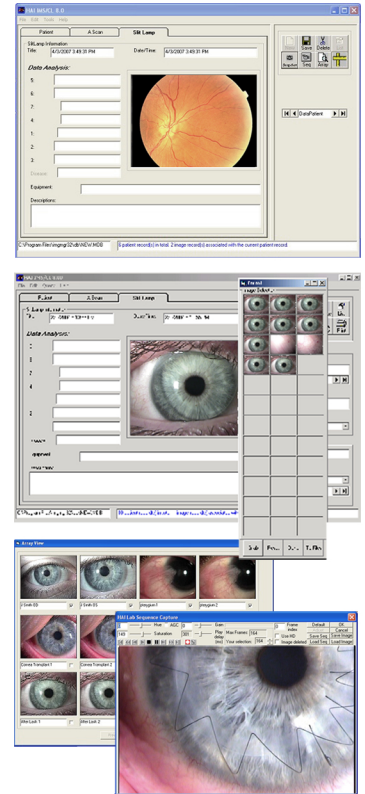
# Digital Image Management

## HAI IMS / CL Image Management System

The original digital image management system developed for the vision care field, HAI IMS/ CL interfaces seamlessly with a wide range of devices, including slit lamps, fundus cameras and A/B scanners.

### Features

- ✔ Sequence Mode: Record high-resolution 30fps AVI video in real time
- ✔ Snapshot Mode: Take still photos at lightning fast buffer write speed
- ✔ Capture, edit, annotate and play back clips and images in one application
- ✔ Integrated image and patient data management
- ✔ Customizable databases, reports and printouts



## Digital Upgrade Kits

Repurpose your old slit lamp or fundus camera with a HAI Digital Upgrade Kit. Includes 3CCD video or DSLR camera, beam splitter (for slit lamps), camera adapter, cable and footswitch, HAI PC with capture card and HAI IMS / CL.

### Standard Slit Lamps:

Burton, Marco, Veatch (CSO),  
Woodlyn, Zeiss pre-A120,  
Topcon SL-2ED, 4ED, 7E, 8E

### Non-Standard Slit Lamps:

Topcon 2D, 3D, 4D, 5D, 2E,  
4E, 6E, Haag-Streit BQ900

### Mydriatic Fundus:

Topcon TRC-FE, 50-VT,  
50-X, 50-IA, 50-F;  
Zeiss FF-3, FF-4, FF-5

### Non-Myd Fundus:

Canon CR3, CR4;  
Topcon NW3, NW5

# A/B Ultrasound Scanners



## HAI AB-6100

The AB-6100 is compact, durable, easy to use, and an affordable solution for any practice. Features a portable, turn-up keyboard, B/W display and post-capture image processing. Stores up to four images in memory.

## HAI AB-6200

The AB-6200 features a flat-panel LCD screen with eight color codes for comprehensive ultrasonic imaging and analysis. Stores up to eight images and 50 groups of IOL calculation results in memory. Both contact and immersion measurement modes are supported.



# Instruments and Stands

## Micro-Ophthalmic Surgical Instruments

Our extensive line of high caliber micro-ophthalmic surgical instruments are ideal for eye surgeons and eye banks seeking affordability without compromising on quality. Available as either reusable or disposable, packaged in kits or sold individually. We can also work with you to manufacture custom designs in small to large quantities.

Visit [www.hailabs.com/surgical](http://www.hailabs.com/surgical) to browse our electronic catalog, place your order online and have instruments shipped directly to you.



### HAI MOT-X55 Power Stand

- ✓ Secure wheel-locking mechanism
- ✓ One-button motorized elevation
- ✓ Multiple tabletop sizes available
- ✓ 25.5"-33.5" range of elevation
- ✓ 100lb load capacity
- ✓ 110/220v - 60/50Hz power source
- ✓ Optional PC cart attachment



### HAI MOT-X60 Motorized Stand

- ✓ ADA-compliant wheelchair accessible
- ✓ One-button motorized elevation
- ✓ Two output power outlets
- ✓ 24.5"-33.5" range of elevation
- ✓ 110lb load capacity
- ✓ 110/220v - 60/50Hz power source
- ✓ Optional PC stand and keyboard drawer

## About HAI Labs

Established in 1996 with headquarters near Route 128 in MA, **Hightech American Industrial Laboratories** is the only U.S. manufacturer of clinical, eye bank and laboratory specular microscopes in operation today. We are also known for our advanced software systems for image processing and analysis, micro-ophthalmic surgical instruments and a growing line of diagnostic equipment. We serve hundreds of eye banks, clinics, universities and hospitals in the vision care field, domestically and worldwide. Our products have been used for research and studies at the NIH, Mayo Clinic, Emory University and Case Western Reserve University.

## Our philosophy

HAI Labs employs a user-driven manufacturing process, which means every single product in our lineup exists because our customers asked us to provide it to them, often because no other company would do so. We help users save money and resources by designing modular equipment that is easily upgraded as well as integrated into existing systems. We are the only manufacturer able to design and build custom specular microscopes for any purpose. Our talented R&D team specializes in rapid iteration and release cycles, bringing new and innovative products to market at a fraction of the time and cost of traditional methods.