

From Eye to Insight

*Leica*  
MICROSYSTEMS



**EnFocus™**

Your Upgrade Path to High Performance Intrasurgical OCT

EnFocus is FDA 510(k) Cleared

# From Eye to Insight



## > Upgrade

> Ultra HD OCT

> Ultra-Deep OCT

> Software

> Compatibility

> Design

> Performance

## EnFocus™ extends your microscope's potential with intrasurgical OCT

### BRILLIANT IMAGES, SUB-SURFACE KNOWLEDGE

EnFocus is an intrasurgical OCT upgrade solution for new and existing surgical microscopes.

See the details you are looking for with high-resolution, wide scan, and deep depth OCT images, providing sub-surface visualization during surgery.

### MODULAR DESIGN, FLEXIBLE USE

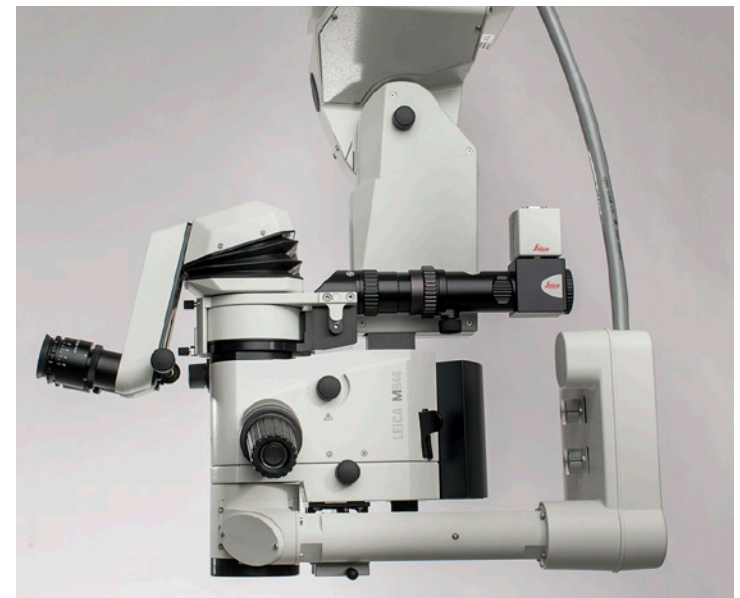
Affordably add intrasurgical OCT directly into your surgical workflow for both anterior and posterior surgery.

The EnFocus OCT is attached or removed within minutes; the modular design allows flexible sharing between multiple microscopes in your operating theater.

EnFocus OCT can be flexibly shared between different microscopes



EnFocus OCT mounted to Leica M844 microscope



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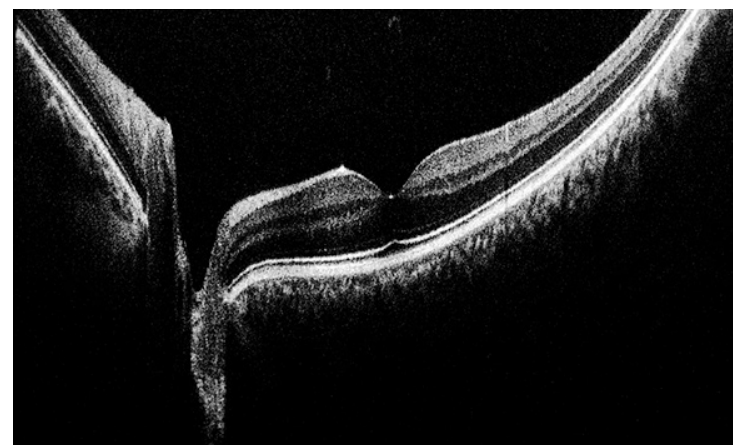
> Performance

## Visualize subsurface anterior and posterior structures with rich detail

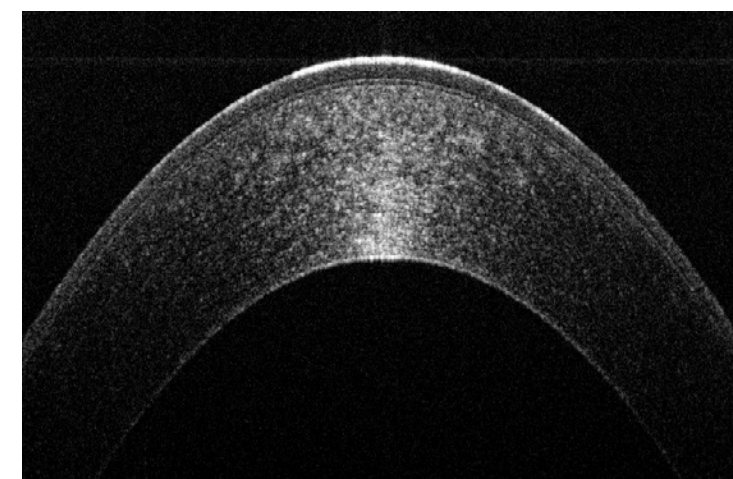
### EnFocus Ultra-HD OCT technology

EnFocus Ultra-HD OCT technology delivers high definition real-time images of both the posterior and anterior segment.

The EnFocus Ultra-HD OCT includes fine axial resolution  $\leq 4 \mu\text{m}$  coupled with high OCT scan density (up to 1 million A-scans per volume).



EnFocus Ultra-HD OCT, 16 mm lateral scan of retina



EnFocus Ultra-HD OCT, 8 mm lateral scan of cornea

### EnFocus Ultra-HD OCT

- Resolution:  $\leq 4 \mu\text{m}$
- Depth: 2.5 mm
- Application:  
High Definition imaging  
of Posterior and  
Anterior Segments

Ultra-Deep OCT

The best images matter. The EnFocus Ultra-HD allows you to see in high definition at 2.5 mm image depth in tissue.

Fine resolution, subsurface intrasurgical OCT images may aid in the visualization of physiological and pathological conditions of the eye during surgery.



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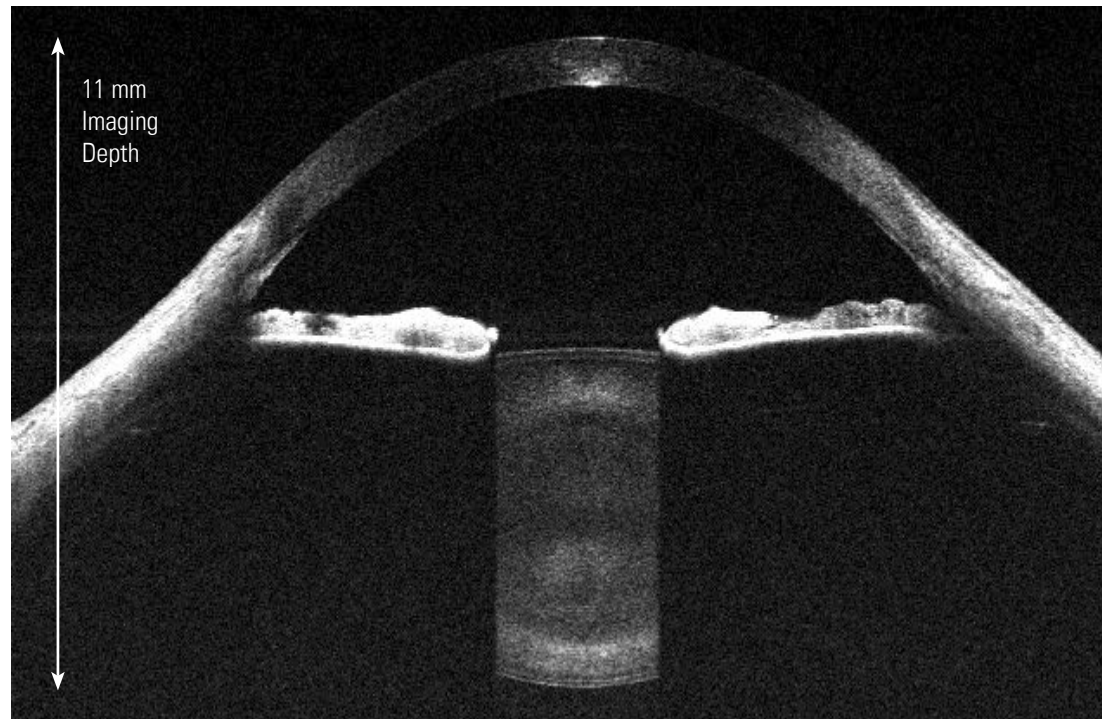
- > Upgrade
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- > **Ultra-Deep OCT**
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## Simply better images: Deeper & Wider

### EnFocus Ultra-Deep OCT imaging

The EnFocus Ultra-Deep OCT option delivers very deep imaging, up to 11 mm depth in tissue, with > 20 mm scan length.

Full anterior segment views are achieved. Anterior structures continue to be resolved with detail to  $\leq 9 \mu\text{m}$ .



### LOW POWER IMAGING

The EnFocus design is validated to meet optical power safety standards. The optical exposure, with center wavelength at 880 nm, is less than  $750 \mu\text{W}$ .

EnFocus Ultra-Deep OCT  
image of full anterior segment.

Ultra-HD OCT

### EnFocus Ultra-Deep OCT

- Resolution:  $\leq 9 \mu\text{m}$
- Depth: 11 mm
- Application:  
Full Anterior Views

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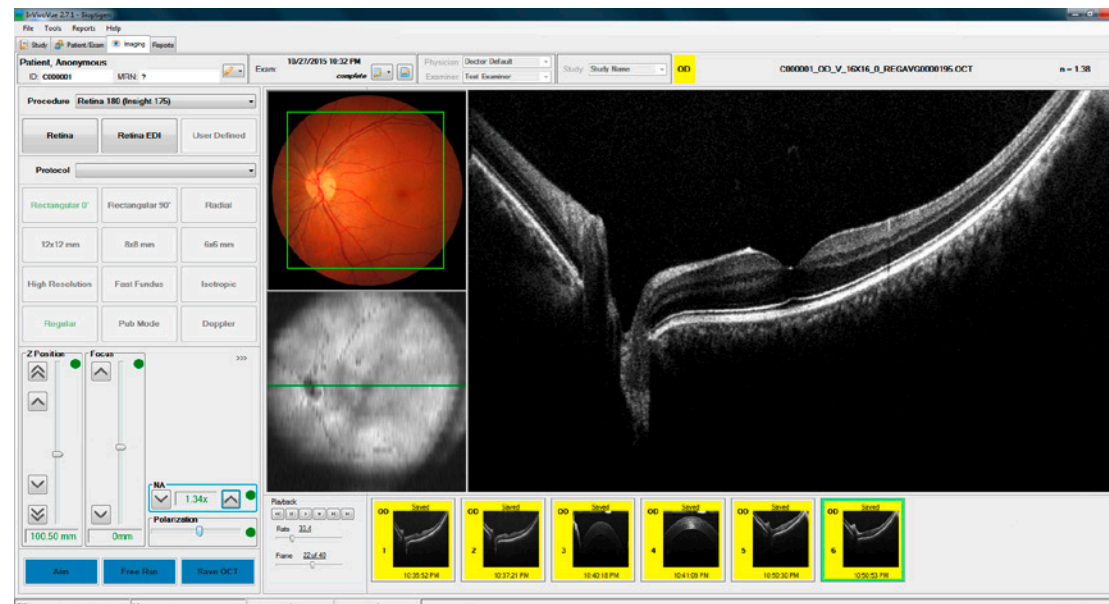
## InVivoVue™ software simplifies the workflow

### Manage surgical workflows with ease

Easy-to-use InVivoVue OCT image management software provides intuitive surgical planning and workflow management.

InVivoVue features include:

- Wide OCT viewing windows
- On-screen procedural pre-set modes
- Fully customizable scan management
- Dynamic scan control
- Integrated foot pedal control
- On-screen caliper measurements



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## Operate with comfort and view in high resolution

### COMPATIBILITY AND COMFORT

EnFocus preserves normal surgical working distance of the existing microscope through the use of 175 mm and 200 mm objective lenses.

With a small increase to stack height, adjustment of the angle of the low profile oculars may be made to provide comfortable viewing for the surgeon.

The EnFocus OCT is compatible with common fundus viewing systems, which are easily attached to a dovetail mount.



### DISPLAY OCT IMAGES IN HIGH RESOLUTION

EnFocus captures the highest resolution images and then displays this high density information in rich detail on the EnFocus large format external LCD.

Real-time OCT B-scan images, OCT volume intensity projections, and microscope camera images are easy-to-see and use during surgery.



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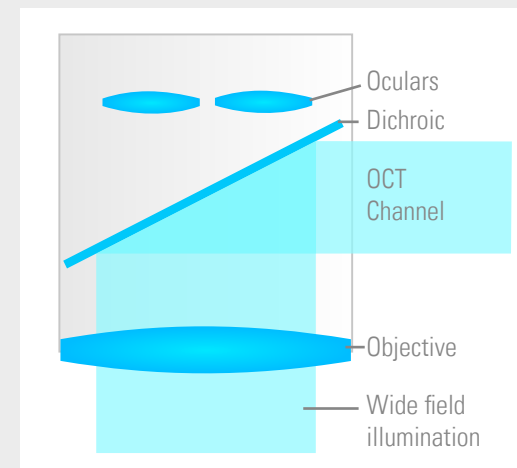
## EnFocus – made great by design

The EnFocus was designed for intrasurgical imaging. The unique objective delivery design injects the OCT signal below the optics carrier, and not through the microscope oculars. This design maximizes OCT image performance.



### The EnFocus objective delivery design enables:

- Maximum field of view
- Fully centered and uniform OCT beam
- OCT zoom and focus controls independent of microscope controls



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## EnFocus intrasurgical OCT performance

Product	EnFocus Ultra-HD OCT	EnFocus Ultra-Deep OCT
Applications	High-Res Imaging Posterior, Anterior	Deep Imaging Anterior, Posterior

### Key Optical Performance

Axial resolution in tissue	≤ 4 μm	≤ 9 μm
Imaging depth in tissue	2.5 mm	11.1 mm
Lateral field of view (scan range)	> 20 mm	> 20 mm
Image display resolution	1920 x 1080 pixels	1920 x 1080 pixels
Image acquisition speed	> 32000 scans/s	> 18000 scans/s
OCT optical power	< 750 μW	< 750 μW
Imaging center wavelength	860 nm	880 nm
175 mm objective lens working distance	167 mm	167 mm
200 mm objective lens working distance	192 mm	192 mm
Fundus viewing system	Compatible	Compatible

### Key Features

Scan-Management software	InVivoVue OCT acquisition software	
Scan-Management standard	On-screen procedural pre-set scans	
Scan-Management options	Fully customizable	
Scan types	Line, rectangular, annular, radial	
Scan control	Image guided dynamic scan control	
High density scanning (Max)	1000 x 1000	1000 x 500
Foot pedal control	Independent OCT foot pedal control	
Blood flow visualization	Qualitative color Doppler OCT	

### Physical Features

Workstation Operating System	64-bit, Windows 7	
Mobile cart	Movable cart with 10 meter tether length	
Removable scan head	Yes	
OCT scanner dimensions	Scan head: 3.2" (h) x 3.2" (od) Relay arm: 10.9" (h) x 1.7" (od) Scan assembly: 2.2" (l) x 5.5" (w) x 8.0" (h)	
Scan head weight	1.86 kg (4.1 lbs)	
Cart footprint	Height of Cart 37.5 in (h), 22 in. (d), 31 in. (l), Total height: 61 in (h)	





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[www.leica-microsystems.com/oct](http://www.leica-microsystems.com/oct)