



# iOCT®

Discover the next generation  
of efficiency enhancement



**Tradition and Innovation** – Since 1858, visionary thinking and a fascination with technology have guided us to develop innovative products of outstanding reliability: Anticipating trends to improve the quality of life.

 **HAAG-STREIT  
SURGICAL**





NEW FEATURES WILL IMPROVE YOUR SURGICAL OUTCOME

## iOCT Takes your work to the next level

HAAG-STREIT SURGICAL presents the next generation of our world's first intraoperative OCT system. Discover innovative features for optimal success in surgery. The iOCT camera is integrated into the superb operating microscope system. iOCT scans are performed live during surgery for both the eye's anterior or posterior segments, thus improving quality control mechanisms for the surgeon. Discover more details than with any standard

surgical microscope, thus enhancing your options. For example, the new iOCT will convince you with its scan rate of 35000 A-scans per second. High quality iOCT images can be displayed grey- or color-scaled for perfect visibility of fine structures. Take your work to the next level with iOCT.

Welcome to HAAG-STREIT SURGICAL – driven by your demands.



For me, the key feature is that you will see more than any human eye or regular camera!







## HS HI-R NEO 900A NIR Ready for iOCT

Buy an iOCT compatible system now and upgrade later on.

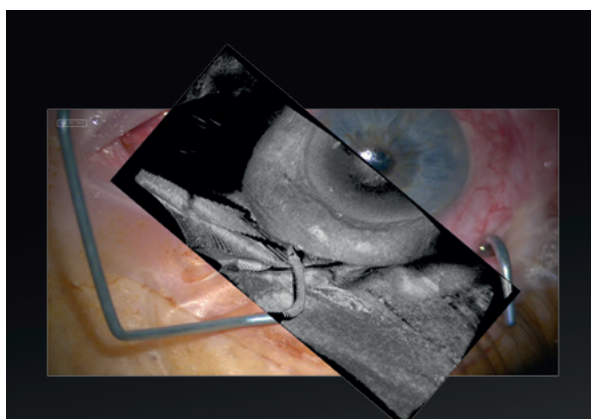
To perform intraoperative OCT, the microscope needs special optics, which are optimized for near infrared (NIR) light. These optics are integrated into the HS HI-R NEO 900A NIR, as well as into the EIBOS 2 NIR.

## M.DIS Control the iOCT from the M.DIS

The M.DIS (Microscope Display) operates as the iOCT's control center. The high-resolution screen, mounted close to the eyepiece, provides the iOCT images. The touch monitor is accessible to surgeons and allows full control of the iOCT, including its user settings.

## RECORDING OPTIONS Enhance efficiency and documentation

In addition to your standard recordings, volume scans and snapshots can be performed with the iOCT system. This offers the unique option of creating three-dimensional volume scans, for a peeling quality control.



HS HI-R NEO 900A NIR  
on floor stand FS 2-21 / FS 2-25

Foot switch EF 5001  
for hands-free microscope  
and iOCT operation

- » Perform live OCT scans during surgery
- » Binocular picture-in-picture image injection
- » Great depth overview due to the large window depth
- » Same focus for iOCT and microscope

## Anterior segment surgery Great window depth and high visibility of transparent structures

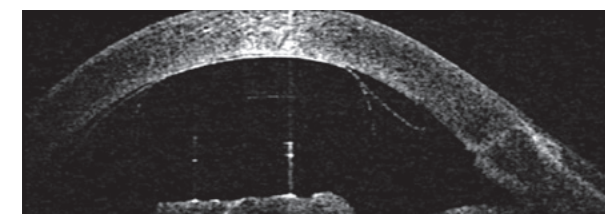
Visualize the complete anterior chamber for the best positioning of grafts, especially useful in cases of opaque or damaged corneas.

### Keratoplasties (DMEK, DSAEK, DALK)

- Use iOCT to orient the donor's graft.
- Assess the graft's position and detect misalignment.
- Perfectly attach the graft to the cornea.
- Prevent perforation while injecting the "big bubble".
- Direct quality control during Descemet's membrane preparation.

### Additional anterior chamber applications:

- Perfect positioning of ICLs.
- Reduction of the risk of posterior capsule rupture.
- Visualization of the structures close to the iridocorneal angle.

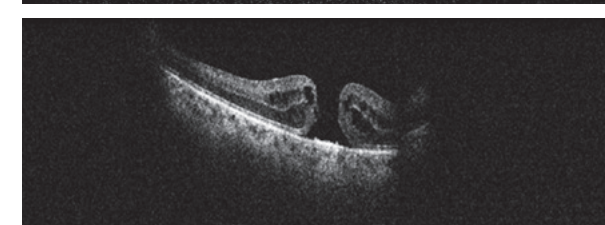
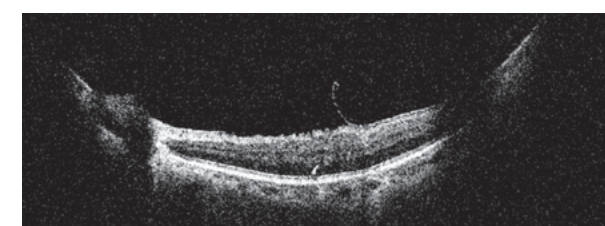
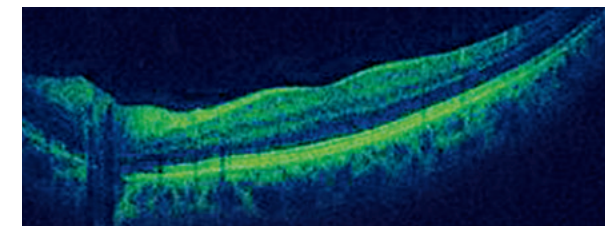


## Posterior segment surgery Amazing resolution of retinal membranes and structures

For posterior segment surgery and observation of the retina, intraoperative OCT can be used with HAAG-STREIT SURGICAL's ophthalmoscopic system EIBOS 2 NIR or a contact lens.

### Applications are as follows:

- ILM is clearly visible during peeling even without a contrast agent.
- Control the retinal stress during ILM peeling.
- Verify results of retinal detachment surgery.
- Observe closing of macular holes during inverted flap technique.
- Positioning of retinal implants and micro cannulations.







## Handling and visualization Integrated into the workflow

Handling and visualizing of the iOCT are smoothly integrated into the operating microscope. Touch screen and foot switch operations can be configured according to the surgeon's preferences. Perfect visualization is supported by the binocular image injection super-

imposing the scan to the live view in both oculars. As the iOCT uses the microscope's optics, zoom and focus are always connected. The amazing combination of large window depth and high resolution provides a high quality image over the full anterior segment.

## Recording Documentation made easy

HS MIOS 5 combines HD camera recordings with high quality iOCT images. These synchronized videos can easily be connected with patient data. For training purposes, an additional external display

can be connected to the system. The highest quality iOCT single images, video recordings, and 3D volume stacks can be saved on the iOCT as raw files, including the system's meta data.

## The key features at a glance

### Highest image quality

Axial resolution of 3.6 µm in tissue, lateral scaled with the microscope zoom. Best iOCT live view due to high sensitivity sensor. Optional image enhancement via averaging.

### Top scan rate

With 35000 A-scans per second, the iOCT enables fast tracking of movements in the structure and images in real time.

### Perfect visualization and intuitive handling

HS iOCT is the only system with three visualizations: an image injection into the oculars of the surgeon (C.INJECT), a display close to the oculars (M.DIS), and a large display for the OR team (C.MON).

### High flexibility in scan settings

Easy to shift and rotate the scan line in the field of view, individual contrast, gamma and brightness settings, independent iOCT magnification and digital zoom settings, capturing of 3D volume scans, adaptive iOCT focus.

### Numerous recording options

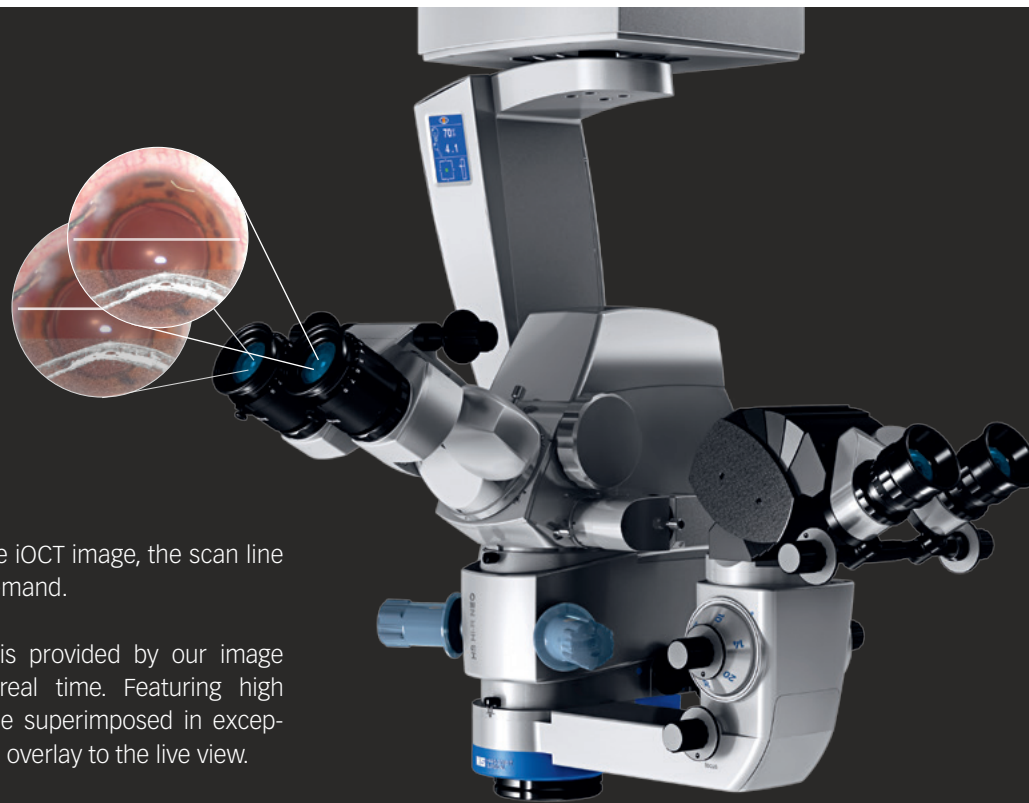
Only HS iOCT offers: OCT video, OCT snapshot and 3D-volume-scan. Via M.REC 2 on the HS MIOS 5, simultaneous recording of microscope video and iOCT video.

## C.INJECT 900 – Enrich your vision

Obtain supporting information like the iOCT image, the scan line position, and the system status on demand.

At a glance, this extra information is provided by our image injection system C.INJECT 900 in real time. Featuring high definition, the live iOCT image can be superimposed in exceptional resolution into the oculars as an overlay to the live view.

The binocular image injection guarantees distraction-free work in full compliance with your natural, visual perception. Moreover, it prevents drawing your attention away from the surgical field and permits fatigue-proof work throughout your whole day.



## HS MIOS 5 – Connect your recordings

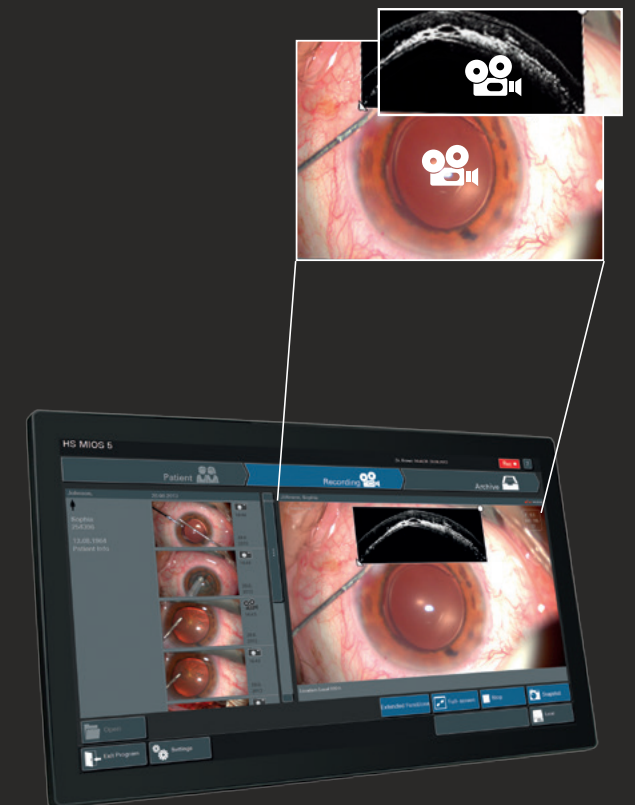
Your solution to synchronize two parallel video signals is the M.REC 2 for the recording system HS MIOS 5. The module saves the two live streams well synchronized.

On the large C.MON display, the two video streams can be shown simultaneously and scaled independently as a picture in picture (PiP). The streams can also be positioned and interchanged.

When recording videos or taking snapshots, both streams will be saved in separate files.

The archive menu of the HS MIOS 5 allows the transfer of both or individual recordings to external media. In combination with the automatic editing module M.AED, you will also have a composed video of the important scenes for each stream available.

Integrate the HS MIOS 5 into your hospital network and save all data via DICOM or on a network folder.



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All products conform to the EC guidelines and are thus CE-labeled.



# iOCT®

## Technical specifications



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# iOCT<sup>®</sup> system

## Technical specifications

### Intraoperative OCT

Wavelength	830 nm
OCT method	spectral domain
Scan rate	35000 A-scans/second
Measuring depth	window of 3.8 mm
Resolution	axial $\approx$ 5 $\mu$ m in air
Lateral scan width	dependent on zoom settings of the HS Hi-R NEO 900A NIR
■ Anterior segment	5 mm to 30 mm
■ Posterior segment	with 0°-optics 5 mm to 30 mm with EIBOS 2 and 90 D-optics 7.5 mm to 30 mm with EIBOS 2 and 132 D-optics 10 mm to 30 mm
Recording options	videos, snapshots, and 3D-images
OCT image color	blue/green tinted or grey scaled
Visualization and operation	M.DIS, HS MIOS 5, foot switch, image injection (only visualization)
additional function	scan shift, scan rotation, image averaging

### HS Hi-R NEO 900A NIR

Optics	apochromatic, optimized for Near Infra Red (NIR)
Stereo base	25 mm
Focusing	+17 mm to -33 mm
Working distance	175 mm (exchangeable)
Magnification (Mot. zoom 1:6)	4.4x to 26.6x
Diameter visual field	7.9 mm to 47.4 mm
Illuminated field	27 mm to 51 mm
Inclinable eyepiece head	surgeon 200° (10x wide angle oculars) assistant 160° (12.5x oculars)
Diopter settings	surgeon +5 D to -8 D assistant +7 D
Inclination angles	coarse -70° to +90°, fine +/-10°
Rotation	540°, electromagnetic
X-Y coupling	60 mm x 60 mm
Filter	UV, softlight, daylight, blue
Weight (without accessories)	11.5 kg

### C.INJECT 900

Resolution	1280 x 1024 (SXGA)
Color depth	True Color 24 Bit
Input signal	HDMI/DVI-D
Dimensions	157 mm x 130 mm x 240 mm
Weight	2.7 kg
Additional accessory connections	Eyepiece heads: 1 Camera ports c-mount: 2

### M.REC 2

Second camera input	HD SDI, GigE Vision
Resolution	1920 x 1080 pixels
Display	HS MIOS 5

Subject to alterations.